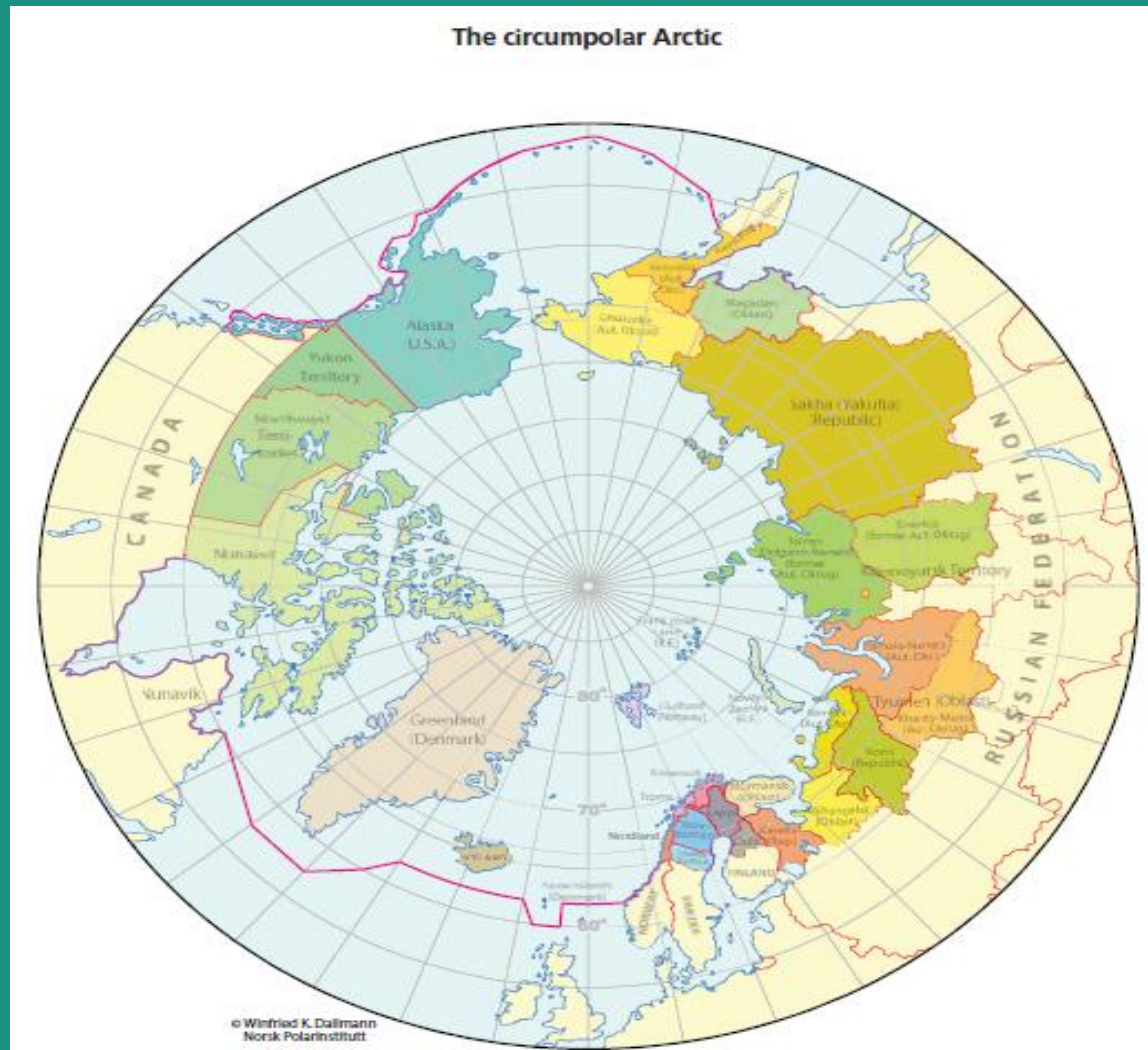


# Possibilities and challenges for sustainable natural resource use in the Northern Periphery



# Arctic regions – periphery or future possibilities?

GDP and population, World and Arctic regions in 2003

	GDP, Mill.USD	Population, N
Arctic regions	224 766	9 915 271
World	51 401 000	6 272 500 000
Percentage	0,44	0,16

*Source: Statistics Norway, 2006.*

Arctic areas are abundant in many resources, such as petroleum, several minerals, fish and forest products.

Arctic share of fossile energy and raw materials' production is increasing.

**Table 3.2. Estimated Arctic share of global production and reserves of fossil energy resources<sup>1</sup>. 2002. Per cent**

Mineral extraction	Arctic share of global		
	Production	Proven reserves	Undiscovered reserves <sup>2</sup>
<b>Mineral fuels</b>			
Oil .....	10.5	5.3	20.5
Gas .....	25.5	21.7	27.6
Coal .....	2.1		

<sup>1</sup> Some Arctic shares are estimated and must be considered as approximate figures. Consequently, the findings in this table should be treated with caution.

<sup>2</sup> Based on USGS estimates. See endnote 5.

**Table 3.3. Estimated Arctic share of global production of some raw materials<sup>1</sup>. 2002. Per cent**

<b>Iron and ferro-alloy minerals</b>	
Iron ore .....	2.3
Nickel .....	10.6
Cobalt .....	11.0
Chromite .....	4.2
Titanium .....	0.3
Tungsten .....	9.2
<b>Non-ferrous minerals</b>	
Bauxite .....	1.9
Zinc .....	7.8
Lead .....	5.6
Copper .....	3.8
Palladium .....	40.0
<b>Precious metal ores</b>	
Gold .....	3.2
Silver .....	3.6
Platinum .....	15.0
<b>Industrial minerals</b>	
Diamonds - gem .....	26.8
Diamonds - industrial .....	23.3
Phosphate .....	3.7
Vermiculite .....	5.8
<b>Fishery</b>	
Wild marine fish .....	10.1
Crustaceans .....	5.3
Salmon and trout fish farming .....	7.7
<b>Forestry</b>	
Wood <sup>2</sup> .....	2.2

<sup>1</sup> Some Arctic shares are estimated and must be considered as approximate figures. Consequently, the findings in this table should be treated with caution.

<sup>2</sup> The Arctic share of global wood reserves is estimated to 8.7 per cent

- Statistics Norway 2006

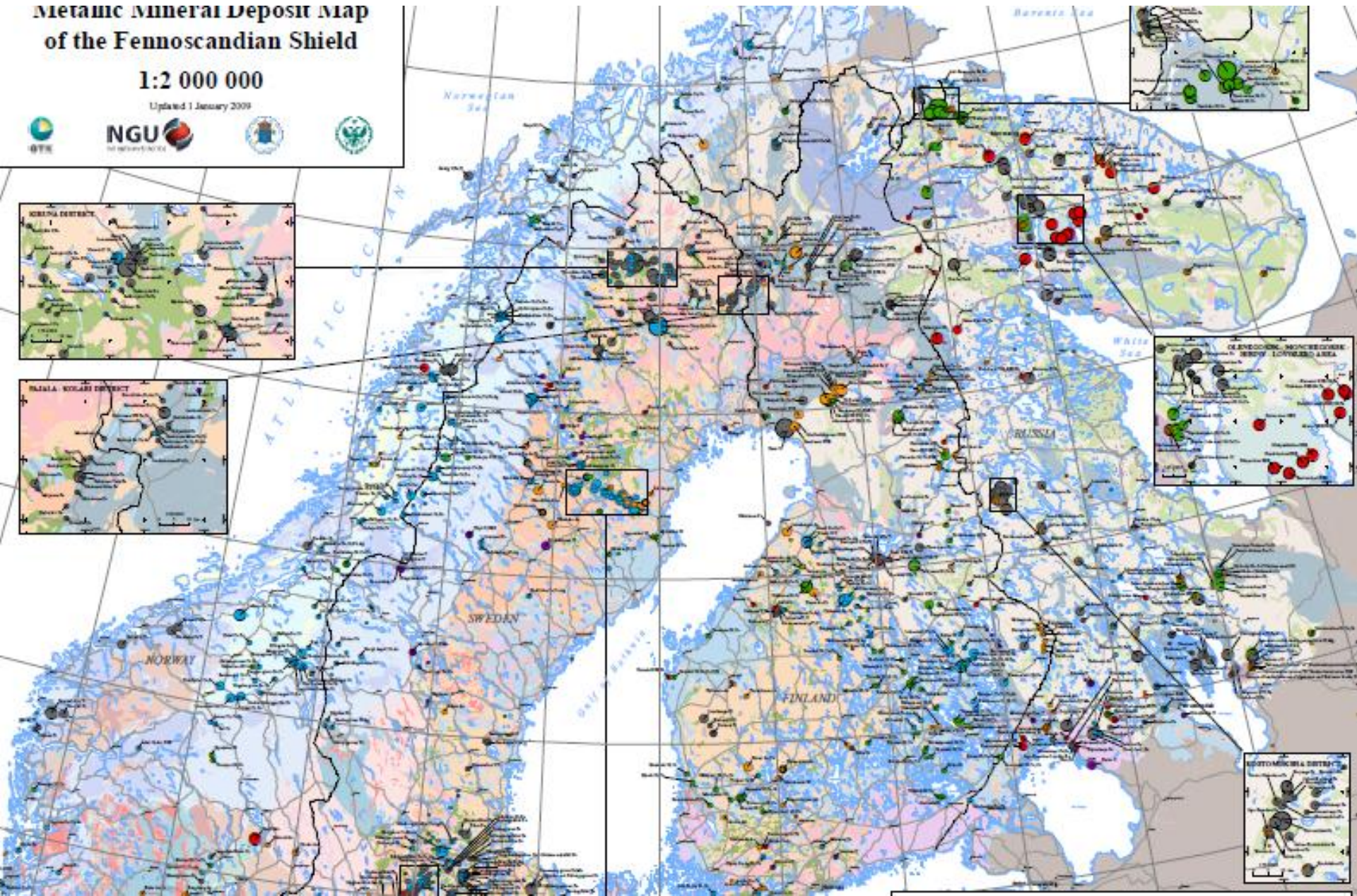
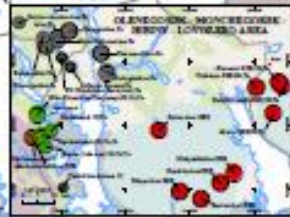


# Metallic mineral deposits of the Fennoscandian Shield

## Metamorphic Mineral Deposit Map of the Fennoscandian Shield

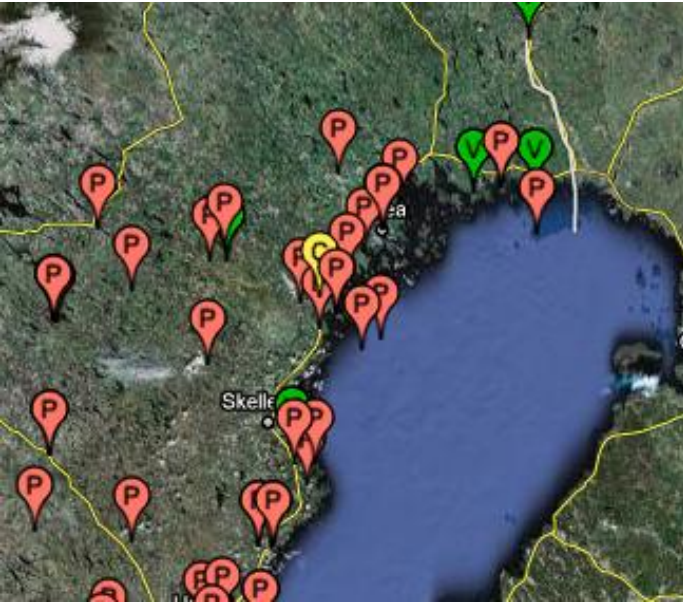
1:2 000 000

Updated 1 January 2009





# Wind energy is an increasing landscape factor



- Existing wind energy plans in northern Sweden, Norway and Finland 25000 MW.
- In Finnish Lapland mainly offshore mills, but also parks with 10-20 mills on forest areas are under development.
- In Sweden "1101 Parken" in Piteå consists of 1101 windmills on an area of 45000 ha, of which 1500 ha will be industrial land use



# European High North region investment plans 2010-20

	mrd €
• Offshore	43,4
• Energy	31,2
• Industry	8,6
• Mining	7,3
• Infrastructure	14,4
• Tourism	1,0
• Total	106,0
• Source: Timo Rautajoki, Lapland chamber.	



# Multiple use as a traditional tool for sustainability

- The traditional way of living in northern areas has been a combination of several livelihoods in the same areas at the same time and often by the same people.
- Hunting, forestry and reindeer husbandry have all been practised in the same lands at the same time, and later tourism, too.
- Local co-operation with different livelihoods is needed to combine the overlapping landuse.
- Also wind energy does not usually really conflict with these other uses, but the far reaching visibility of the mills in the landscape can conflict with tourism, as well as local inhabitants.
- Mining changes the landuse totally, other livelihoods have to leave the area. Mines are planned in global business meetings and in political decision making processes, not locally. Thus often the loss of lands leads to arguments of the local livelihoods against each other.

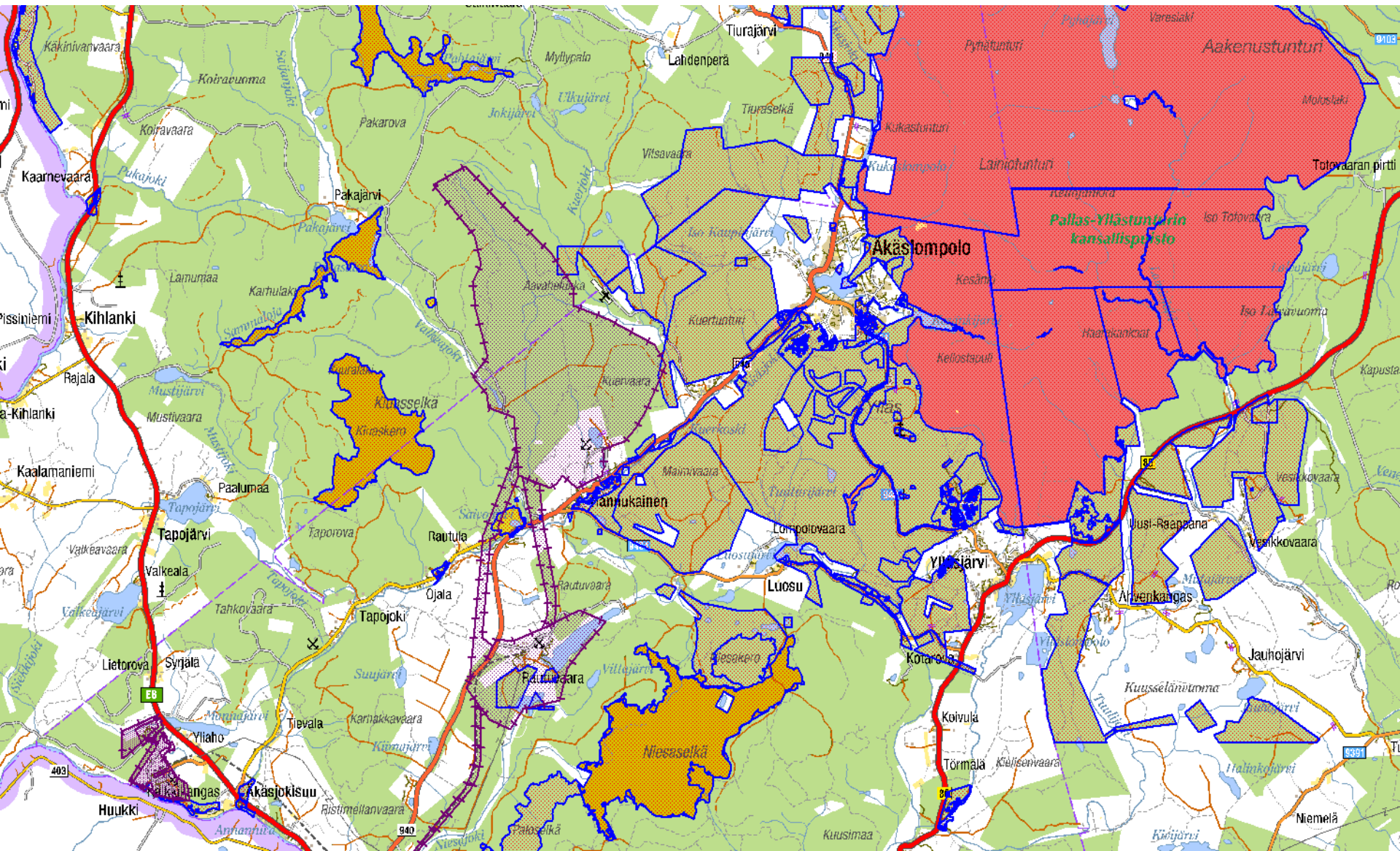




Suurikuusikko (Kittilä) mine in September 2007. The circular road indicates the final extent of the open pit. View to the north. Photo courtesy Agnico Eagle Mines Limited.



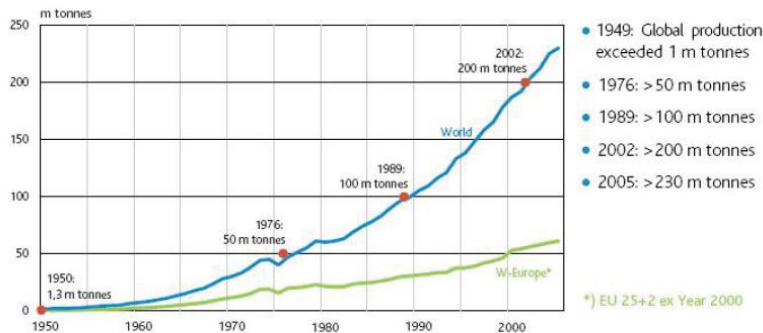
# Ylläs area landuse: nature protection, tourism, mining, reindeer husbandry and forestry



# Ecological sustainability and natural resources

Resources coming from the earth's crust are limited!

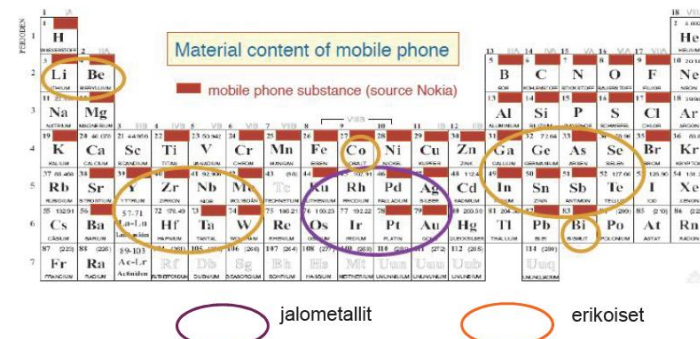
## World plastics production 1950-2005



Note: Based on preliminary estimates by European Market Research & Statistics Working Group. Includes thermoplastics, thermosets, adhesives, coatings and dispersions. Fibers are not included.

Source: PlasticsEurope, WG Market Research & Statistics

## Metals in mobile phones



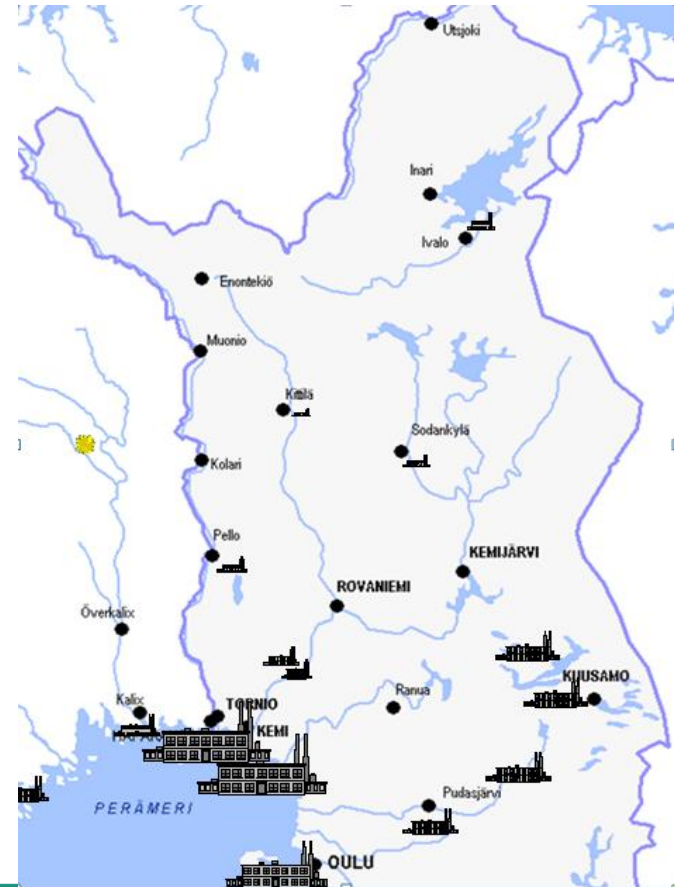
Aalto University  
School of Science  
and Technology

Lähde: Nokia Oyj

The answer is sustainable use of renewable resources – replacing oilbased materials with biomaterials. Northern areas are abundant with forest resources and we know how to manage them sustainably.

# Socially sustainable natural resource use can not be based on raw material export only

- Arctic share of the global volume of the forests is more than 8 %, but only 2,2 % of total wood removal takes place in the Arctic.
- In Finnish Lapland the growing stock volume is 358 milj.m<sup>3</sup>. The growth of the growing stock in commercial forests is 11,4 mill.m<sup>3</sup>/a.
- Wood consumption in Lapland's forest industry is 7.0 mill m<sup>3</sup>/a. Logging in Lapland amounts to 4 mill. m<sup>3</sup>/a. Economic value of the forest industry and forestry together totals of 1,5 billion euro yearly in Lapland



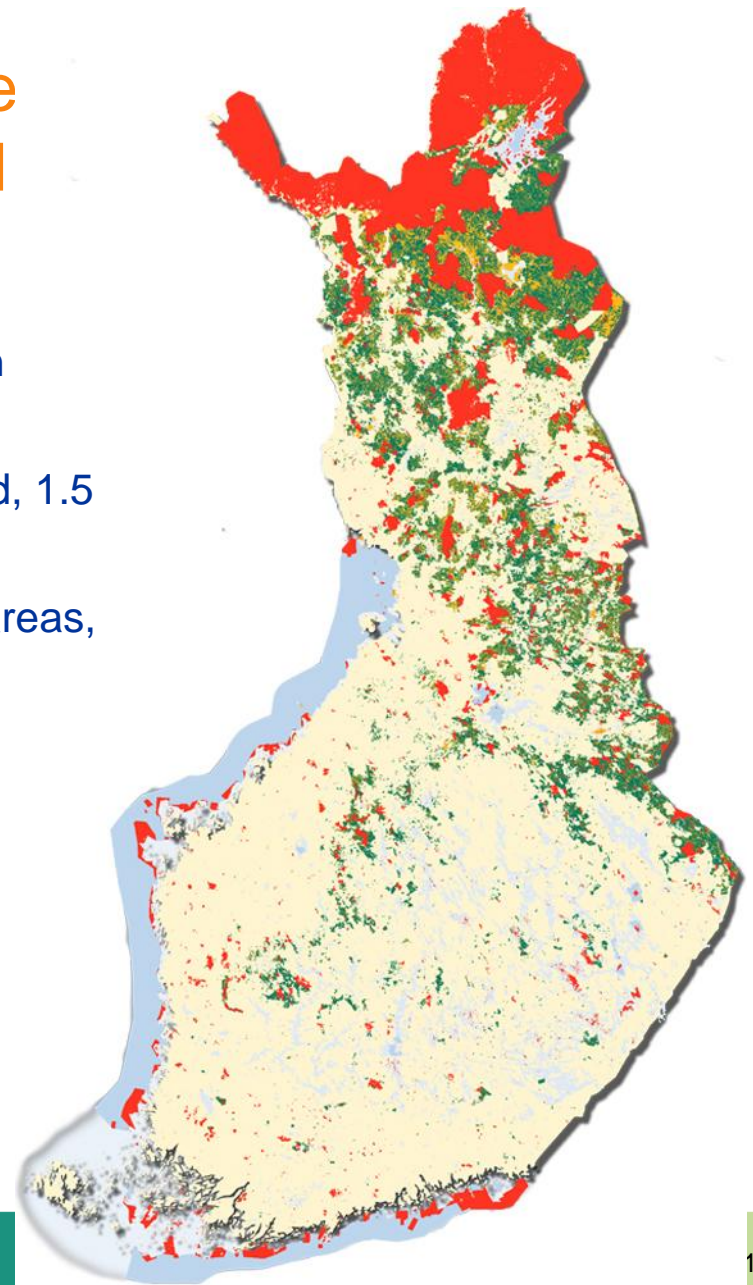
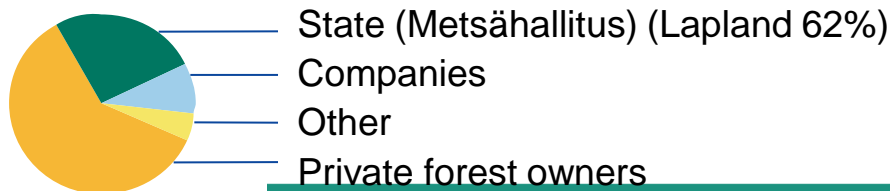


# Metsähallitus is a state enterprise managing state owned lands and waters in Finland

- Productive forests in managed forests, 3.5 million ha (Lapland 1,9 mill ha)
- Poorly productive forests and non-productive land, 1.5 million ha (excluded from forestry) (Lapland 1,0)
- Protected areas, wilderness reserves and other areas, 4.0 million ha (Lapland 3,3 million ha)
- Water areas, 3.4 million ha
- Public water areas

In total 12.4 million ha

## Ownership of forest land in Finland



# Metsähallitus in Lapland

- Sustainable and profitable management, use and protection of natural resources
- Ecosystem services of the forests
- Renewable materials and energy production: wood for various uses, bioenergy, wind energy
- Delivering 40 % of the wood used by the pulp and paper and sawmill industry in Lapland, local sawmills most dependant
- Loggings in commercial forests less than half of the yearly increment of the standing stock.
- State lands are used by various livelihoods
- Providing opportunities to recreation and nature hobbies for local inhabitants and tourists
- Important partner of the reindeer husbandry, manager of the pasturelands
- Safeguarding and promoting the Sámi culture
- Management most of the Finnish protection areas

# Various uses and influences of state lands

## State use:

- Metsähallitus forestry and other business
- Maintaining biodiversity
- Forest research institute, Finnish Army, Boarder guard

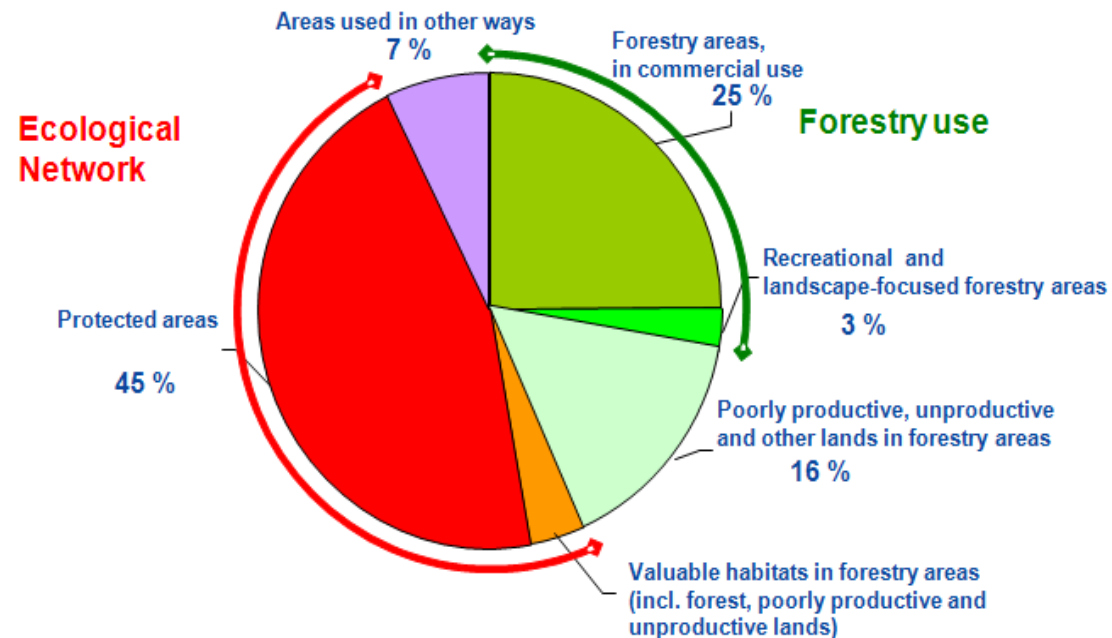
## Other users:

- Reindeer husbandry
- Tourism
- Hunting and fishing
- Recreation and nature

## Influence:

- Employment
- Raw materials for the industry
- Local and regional economy
- Sami culture
- Landscape
- Infrastructure

## Land-use distribution in state-owned lands in Lapland in total





# Ecosystem services of the forests

## Production services:

Wood, bioenergy, non-wood products- such as berries and game, clean water

## Regulatory services:

Climate change prevention, CO<sub>2</sub> binding, cleaning of water and air, preventing floods, storm damage and erosion, providing soil productivity, prohibiting noise, pollination, preventing insect and disease damage

## Cultural services:

Landscape, recreation, nature tourism, education, art

## Supportive services:

Photosynthesis, nutrient, coal and water cycles, soil







# Reindeer husbandry in forestry areas

Reindeer husbandry is a traditional livelihood in northern Finland.

71 % of the productive forestry areas of Metsähallitus belong to the reindeer herding area which is defined by the legislation.

All reindeer herders belong to 56 co-operatives. Of these 13 are in the Sami area, half of them mainly in mountainous areas.

Reindeer herd in all lands – in protection areas as well as in managed forests, both private and state lands.

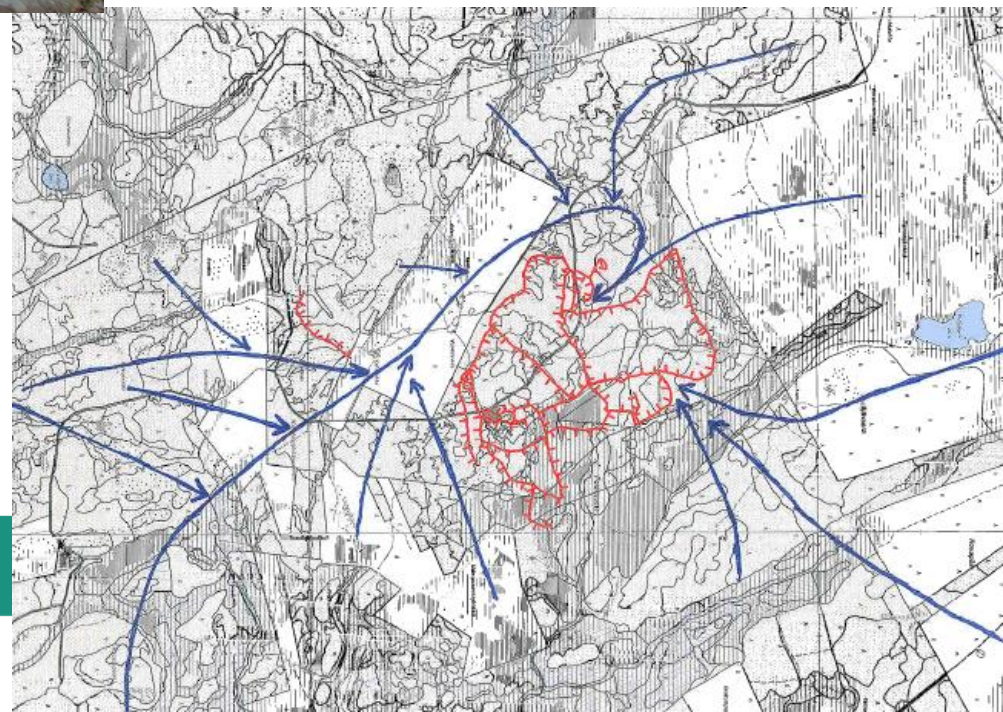
Forestry practises have effects on the reindeer pastures, as have the reindeer on forests. Livelihoods are successfully practised in the same areas, but the local co-operation has to be open and regular.

Reindeer husbandry practises vary in different co-operatives, and thus the needs to be taken into account differ, too.





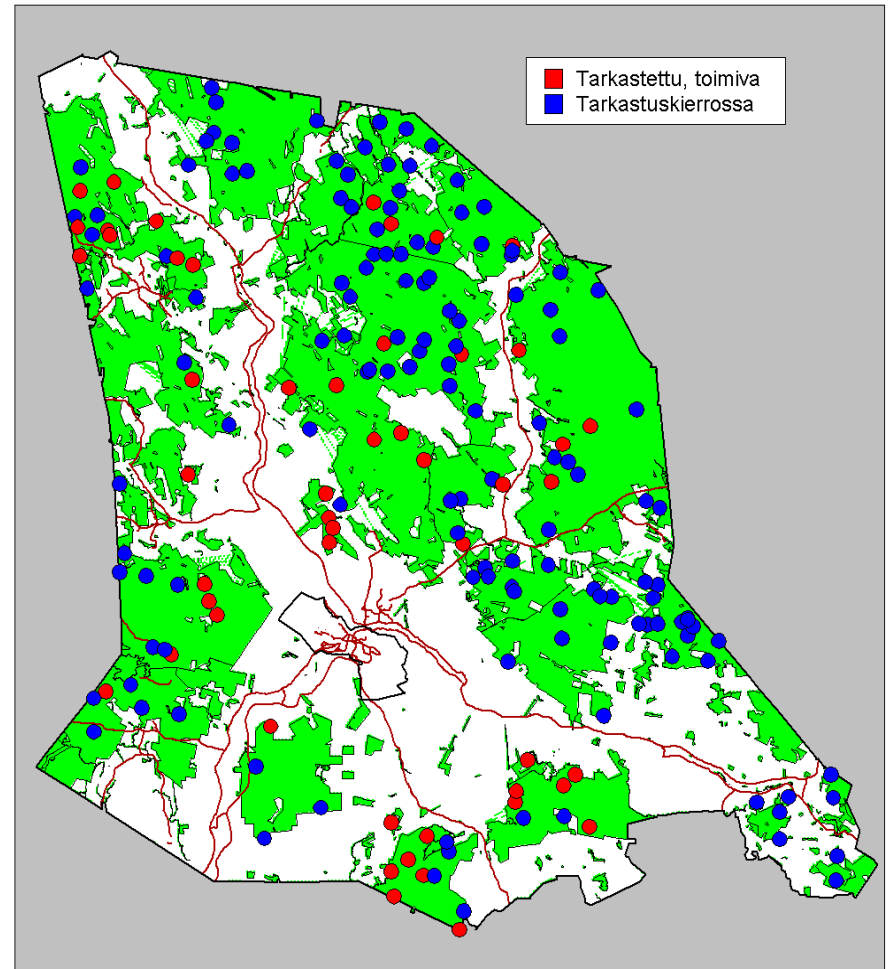
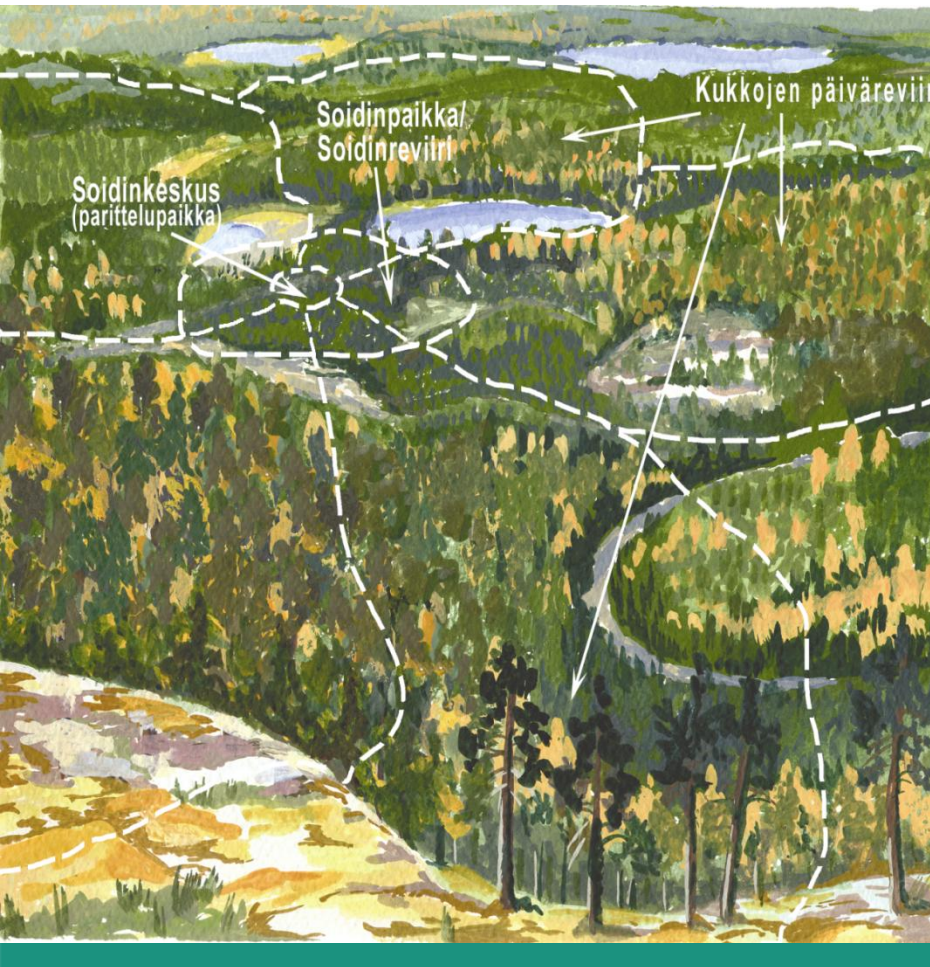
## Reindeer corral and the herding routes





# Capercaillie lekking sites in Rovaniemi (207 sites)

Sites in scale, 2 km diameter restrictions



# Tourism and forestry living together in Lapland

Most of the national parks and other protected areas in Finland are situated in Lapland, which provides good opportunities for nature-based tourism and nature-lovers.

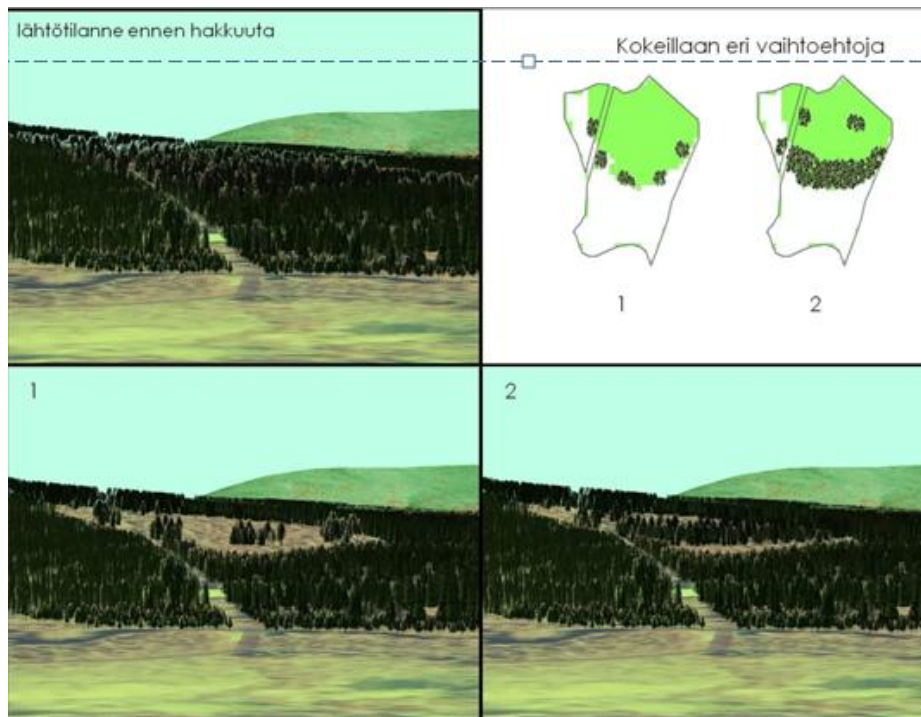
Managed forests in Lapland are near-natural, with only local tree species and forestry methods mimicking the natural processes.

The growing tourism business is based on large volumes and short visits in nearby surroundings.

Most of the commercial nature tourism sites as well as snowmobile and husky routes are situated in managed forests, often also hiking and skiing trails. Hunting and fishing tourism, sport events and many other uses are also available in managed forests mainly.

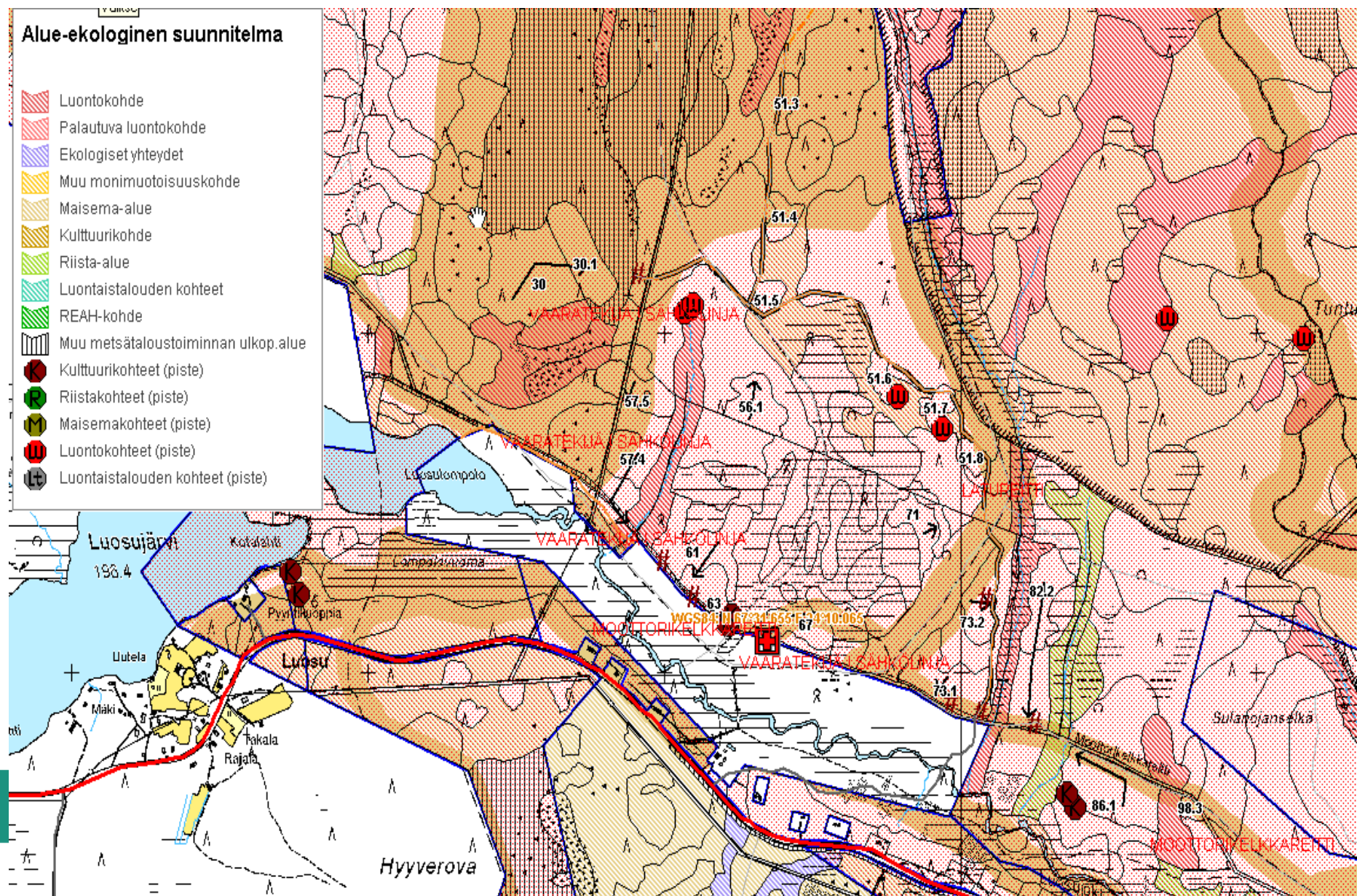


# GIS visualisation and special logging methods in touristic areas





# Nature data in the GIS system of the harvester

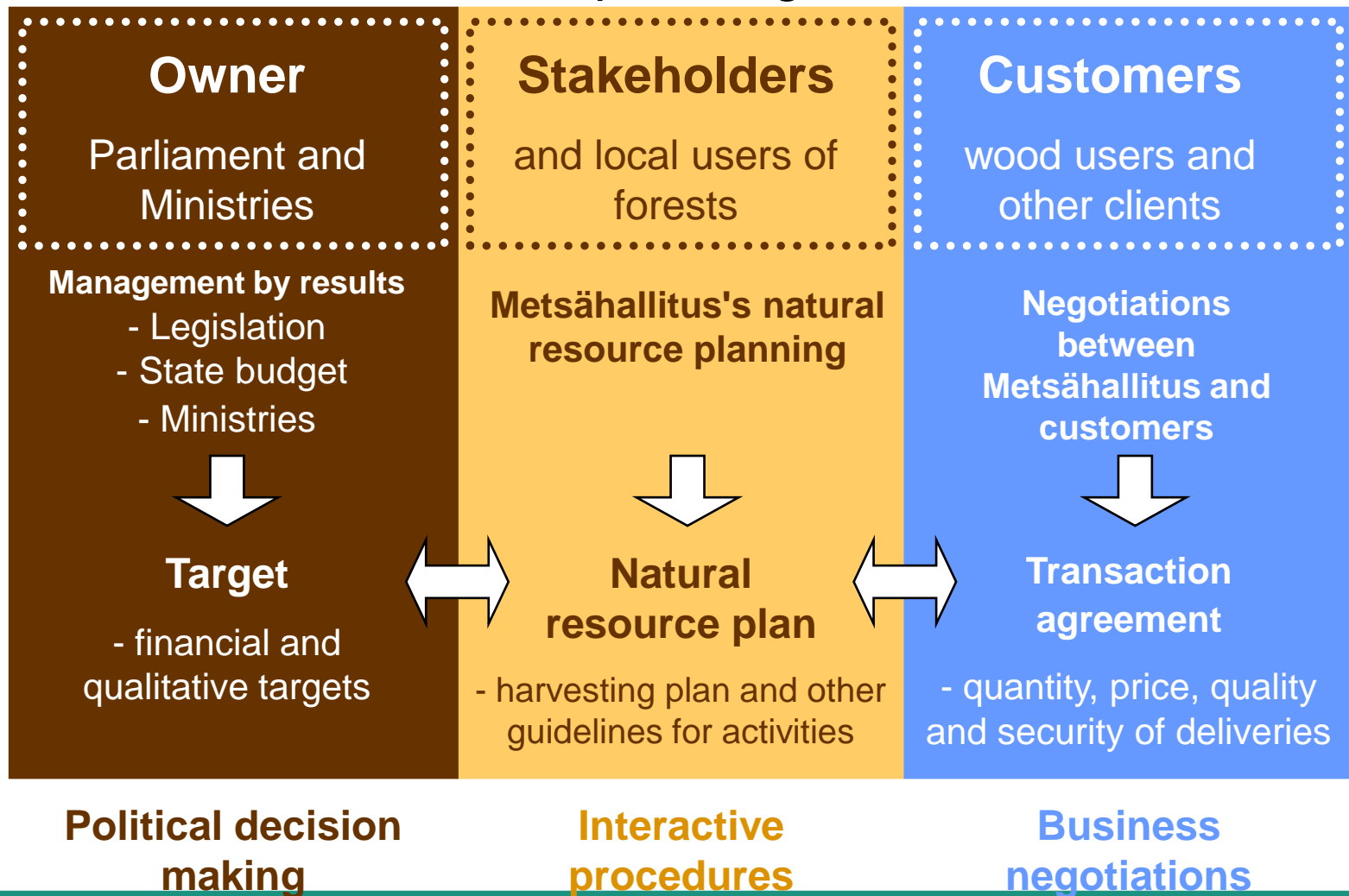


# Land-use planning in Finland

- The Ministry of Environment is in charge of planning for the network of protected areas in Finland. The network is very good in Lapland and other regions where state forests cover a significant proportion of the land area.
- Statutory land-use planning consists of regional development plans and communal land-use plans in which forestry areas are also defined. These plans, which include all lands, are made by municipalities and counties, and decided by locally elected communal boards.
- In addition to these, Metsähallitus has adopted voluntary Natural Resource planning to combine the various targets and stakeholder views concerning sustainable use of the state forests.



# From natural resource planning to timber sales



# Stakeholder participation in Natural Resource Planning

**Open co-operation** is a central element in natural resource planning, using regional co-operation groups, local meetings and other public participation methods.

## **Open stakeholder meetings**

-more than 120 invitations sent out in Lapland to different stakeholder groups

-participants elect the representatives to co-operation groups

**Co-operation groups:** representatives of the main stakeholders: reindeer co-operatives, ENGOs, tourism and wood processing companies, local hunters and other recreation, workers' unions, municipalities and other administration, etc.

**In Sámi area** a separate process with reindeer herding co-operatives was organised in beforehand.

# The task of the co-operation group

- To analyse the results of the previous term (5 yrs) and current situation
- To define review criteria and indicators to measure them
- To define alternative planning options with various focal areas
- To select one planning option or a combination of several on the basis of the chosen indicators, aiming for a balanced consensus

Metsähallitus's Board of Directors approves the plan, based on the regional co-operation group's proposal. Changes in the land use of the state lands must be approved by the Finnish Parliament.



# Five-year action plan

The selected course of action is specified in individual operations:

- specific land-use solutions, e.g. recreational and conservation forests to be established
- measures for protection of biodiversity
- priorities for recreational use of forests
- assignment of roles for conservation and hiking areas and development of management and services
- development of recreational use, multiple use and tourism
- quantitative targets for key forestry operations and development programme for forest roads
- harvesting plan, structure of the harvested volume, and areal targets for intermediate and regeneration cuttings
- dimensioning and sites for land-use planning and soil extraction

Turning local  
disagreements  
to a global  
conflict...



# Greenpeace campaign

- Back in 2003, Greenpeace launched an intense campaign to protect more of the forests in northern Finland.
- The claims included 0,5 mill hectares of forests not defined on the maps. Finnish ENGOs later on delineated the demands based on Metsähallitus age class maps.
- All of these areas were defined as forestry areas in regional land-use plans drawn up by Finnish authorities, decided by democratically elected representatives of municipalities and approved by the Ministry of the Environment.
- Metsähallitus and the Finnish ENGOs negotiations in 2003-06. Greenpeace did not agree with the result.



# The Paadar Brothers & the United Nations

As a result of Greenpeace involvement, four Sámi reindeer co-operatives cut all co-operation and negotiations with Metsähallitus. They did not accept any loggings in Greenpeace delineations.

At the same time other local inhabitants, sawmill and forestry workers and the municipality opposed Greenpeace and insisted on loggings to continue.

As a part of the Greenpeace campaign also three Paadar brothers made a complaint in the UN Human Rights Committee. They accused that Metsähallitus prevents them to practise their Sámi culture as the future loggings would cause harm to their reindeer herding. Total of 34 000 ha forestry area was disputed.

The committee answered that the case has to be processed in Finnish court first.

*Paadar brothers lost the case in the lowest stage of court and complained to the higher stage..*

# Nellim dispute was solved in 2009

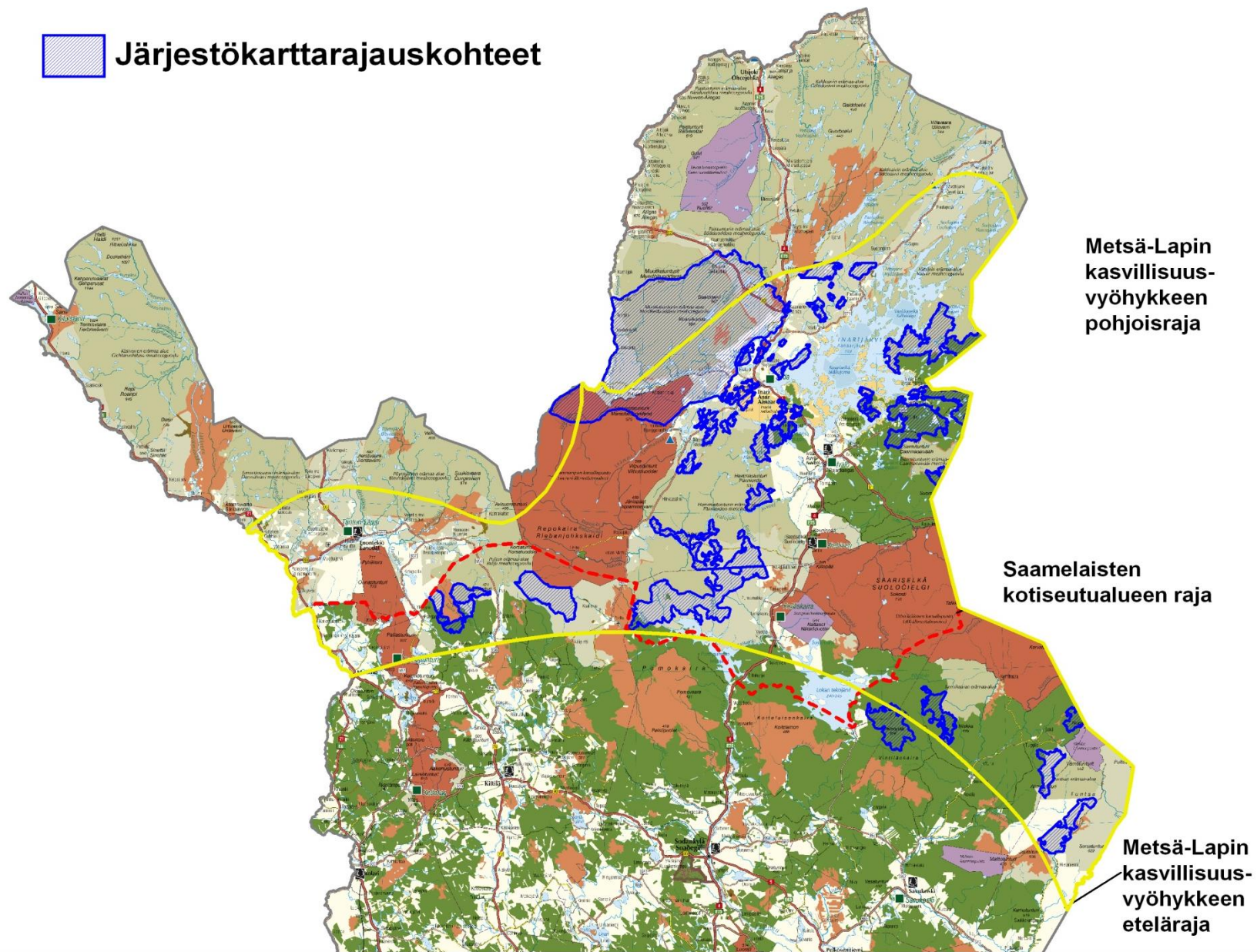
Before the higher court process, Metsähallitus ja Paadar brothers with their legal assistants decided to start negotiations. At last during summer 2009 negotiations a solution was found. Sites with no earlier loggings were set aside from forestry for 20 years, while in others parts of the Nellim dispute area forestry will continue normally.

Paadar brothers pulled out their complaint from the UN human rights' commission.

After this also the other Inari reindeer co-operatives announced that they are willing to negotiate of their pasture land issues with Metsähallitus



## Järjestökarttarajauskohteet





# Campaign methods by Greenpeace

## *Famous authors involved*

- *Margaret Atwood: " we would never use a paper, which is made of dead bear, otters, salmon and birds and which has ruined the indigenous cultures. Scandinavian forestry is cutting down natural forests, replacing it with exotic monocultures and paying no attention to social issues such as what happens to people dependent on forests"*

## *Scientists involved*

*1000 scientists' letter was based on an internet campaign: "click this if you want to save the last natural old-growth forests in Finland"*

Public opinion and municipalities in Lapland were very strongly against Greenpeace. "Anti-terror movement"

# Forest Lapland Greenpeace sites negotiations in 2009

- Metsähallitus started a negotiaton process as a part of the revision of the Natural resource plan of Eastern and Western Lapland
- A separate local co-operation process, in which the future land use of the ENGO mapping sites situated in Salla, Savukoski, Sodankylä and Kittilä municipalities was to be defined locally.
- The aim was to delineate the most natural parts of the Forest Lapland mapping areas outside forestry and define the areas which will remain in forestry use.
- Finally the land use decisions and their effects on logging volumes were to be confirmed in the Natural Resource plan

# Local working groups and the regional steering group

## **Four local groups:**

- Metsähallitus representatives: Regional director of forestry, local forestry team leader, representative of Natural Heritage services,
- Heads of local Reindeer herders' co-operatives
- Representative of the local municipality
- Representative of Greenpeace
- Representative of the local sawmill

## Regional steering group:

- Council of Lapland, regional Environment centre, regional directors of Metsähallitus, local sawmills' representative, Greenpeace, Sami Parliament, Reindeer herders' association,



# Forest Lapland agreement in 2009

- The total area of the Greenpeace maps was 111 000 ha, of which productive forests were 47 000 ha. The growing stock was 3,6 milj. m<sup>3</sup>.
- In this agreement some 20 700 ha of productive forests earlier in forestry use were set aside. Some 62 000 ha were low productive forests, open mires and high elevations where no forestry had been practised or planned. Besides this some 14 200 ha of productive forests had been earlier set aside as nature sites or important pasturelands of the reindeer.
- As a result International Greenpeace announced that they will stop their campaign in northern Finland which also happened.
- This made it possible to restart co-operation and negotiations with four Inari co-operatives as well as Sami parliament

# Negotiations of metsähallitus and Inari forest area reindeer herding co-operatives in 2010

- In summer 2010 Metsähallitus and Muotkatunturi, Muddusjärvi, Hammastunturi and Paatsjoki reindeer herders' co-operatives started local negotiations to find an agreement on the "important pasturelands" map areas.
- The process was agreed in the meeting with all four co-operatives, but the negotiations were each separate, with two representatives of Metsähallitus and 6-10 reindeer herders in each.
- The negotiations dealt with all state forestry areas in Inari. 43 000 hectares were set aside from forestry for 20 years.
- Certain restrictions concerning loggings, road construction and soil preparation were also agreed in some parts of the forests .
- In all other sites, normal forestry continues.
- The aim of this agreement was to ensure future possibilities to reindeer husbandry and forestry in the Sami region.

# Local negotiations



# Global companies



In the past two-and-a-half years we have come up with many small examples of our focus as a renewable materials company, such as renewable paint cans, furniture made from corrugated board, and small houses for emergency use in natural catastrophe areas. I am not pointing them out as brilliant business but each is at least a conscious choice to focus on renewable materials.

Change never stops: it is a path. We are on a journey to figure out what this company will make money from and create value out of in 5, 10 and 20 years' time. We are not going to simply put a "bio" stamp on everything because to me that is not serious. I think that putting the word "bio" in front of everything is fairly dangerous because we could lose its real value if people start calling our product "bio-paper" as they now use the term biofuels. We will see additional tangible examples of our focus on renewable materials in 2010.

I think we have been reticent in areas that are totally new for us, like biodiesel or bio-gasification. Strategically, our biodiesel plant at Varkaus, which I hold in the highest regard, is actually a large-scale demonstration plant. I have been holding back my own team from over-publicising it, telling them to first walk before we talk too much.

*Can you explain what you mean by the term "global responsibility"?*

It is about being responsible for our actions worldwide. Our actions affect many people and we are responsible for this.

I do not want to hear that something is not our problem, even if it is a sub-contractor or a local village issue. Plus, social responsibility is not only about land rights; it is also about people affected by mill closures in Finland and Germany going through hell. When we take responsibility for these situations we can make a difference.

At Baienfurt Mill in Germany, which we closed at the end of 2008, 220 out of 350 people who lost their jobs have gone on to further employment. At Summa Mill in Finland, which ceased production in January 2008, we have helped 30 entrepreneurs who lost their job to start their own ventures. It is never going to be a perfect fit, but these examples at least show that we can – and must – help the people affected to rebuild their lives.

We had curtailments and lay-offs last year, for example at both Sunila Pulp Mill and Varkaus Mill in Finland. By late August, just after publishing the potential shutdowns, we were already hard at work finding ways to support the local communities. Our thought was: why on earth should we wait before taking action to help these people? The sooner you act, the better.

We also need to think and act proactively about other challenges. One example is a long-running dispute about old-growth forests in Finnish Forest Lapland. This was resolved in November 2009, partly due to our efforts to facilitate an open dialogue involving Greenpeace, the Finnish state forestry

Jouko Karvinen (on the right) in discussion with Oliver Salge, Head of Forest Campaign Greenpeace Germany. They met in Peurakaira, Finland, in October 2009.



# Stakeholder participation – practical views

UN, EU and other high level processes as well as international companies are eager to give great promises. It is much more difficult to find the practical solutions to fulfill them.

Combining various needs concerning state forests it is important to understand the value of one's own work to be able to listen all different opinions and aspects.

Public participation processes need to be fitted to the situation.

- Open processes with wide range of stakeholders
- Local negotiations with only the most relevant participants

# Solving local disputes locally

- The more complicated the dispute is, the less useful are the theoretical models and systems often recommended by the scientists. The only way out can be hours and hours sitting together, listening carefully and finding new and new versions of solutions - from one dead end to another- until everyone can get the feeling that they have achieved at least their most important aims.
- Agreements can only be made, if all counterparts are willing to agree. It might take time to build the trust which is needed to be able to accept any solutions.
- And at last it might be a very small thing which is the key to the solution.

