Issues of sustainable management of soil in northern forests - experience from Komi Model Forest, Russia.

Przemyslaw Majewski
Silver Taiga Foundation
Komi Model Forest
Syktyvkar, Republic of Komi,
www.silvertaiga.ru
Climate

Sweden (Stockholm)

January

July

vegetation period

Roads with hard cover (km/1000 km2)

North-West total – 40

Sweden ca 250-400

North-West total – 40

Sweden ca 250-400

22.10.2012
Silver Taiga Foundation
Forests of the Komi Republic
Pine forest – frequent ground fire dynamics

Forests of the Komi Republic
Pine – spruce forest
Forests of the Komi Republic
Spruce

Birch forest as succession after fire in spruce forest
Forests of the Komi Republic
Spruce forest landscape after large fire

Spruce forest with gap dynamic and long continuity situated along river
Logging

Soil damage in 1990-ties
29% of logging area, productivity decrease 35%
Large scale clear-cutting

Soil damage along stream and on wet site
Road across wet sites

Soil damage by logging transport
Erosion after logging

Strengthening of logging track
Why it is happening with soil?

- Staff of logging companies is not trained on how to avoid soil damage,
- Staff of logging companies is sometimes not aware of the damage,
- Fine for soil damage is treated as tax,
- Logging plan for winter and summer seasons is not based on map of soils sensitivity,
- Map of soil sensitivity can be established, but need cooperation of 4 agencies,
- Very low density of hard cover roads push for winter logging which is providing ca 70-80% of wood volume,
- Soil is frozen in winter ca 6 months, but last 4-5 years the winter season is shortened down to 4 months,
- Pine forest on sandy soils which could be alternative to winter logging has been logged many years ago as the most easy target,
- Logging is still dominated by pioneer approach,

Soil proposals

- Map with sensitive soils should be produced for all relevant forests and be available for interested parties,
- Consideration of soil sensitivity data should obligatory during planning process of logging, transport and road building,
- Relevant staff of logging companies should be trained on method of avoidance of soil damage,
- Gradual shift from pioneer logging toward forest management with investment in forest roads with hard cover,
- Fine should be progressive if damage is repeated (condition is that first three points are fulfilled),
- Logistic and long-term planning in logging companies should be considerably improved,
- Topographic map of high quality should be developed and accessible for planning departments of logging companies, state forest service and companies servicing with planning of logging and logistic,