GEOINFORMATION SYSTEM FOR ENVIRONMENTAL MANAGEMENT OF BOREAL FORESTS IN CENTRAL SIBERIA

*Description*

The Geoinformation system (GIS) provides online monitoring and forecasting of forest conditions for forestry, nature management, and protection. Main GIS components include hardware/software, integrated cartographic and attributive databases, and an analytical block. Information comes from maps of different scales and from digital data of onland measurements and remote sensing.

The environmental and resource information is considered at three main GIS levels.

*Regional level*: background monitoring in all forests of Central Siberia to discover basic tendencies in forestry dynamics under the effect of fires, felling, pest insects, industrial and agricultural land reclamation, and man-caused pollution.

*Subregional level*: complex forestry monitoring in areas of strong cultural impact.

*Local level*: monitoring limited to a single forestry, providing most detailed digital and cartographic information on forestry conditions.

*Technical appraisal and economic benefits*

The suggested GIS technology is unique in Russia and has been proved effective to achieve balanced solutions of resource and environmental problems in forest management. The technology is especially important for the Krasnoyarsk region as it provides forestry database important for the forthcoming World Bank pilot project on the sustainable development of forests in the region.

*Application areas*

- Research;
- Administrative and economic management;
- Forest management and regulation;
- Environmental mapping;
- Monitoring of forest resources;
- Outlining forestry rent standards.

*Development stage*

- Hardware/software GIS complex;
- Integrated cartographic-, assessment-, and remote sensing database at regional, subregional, and local levels;
- Analytical block;
- GIS methods to control the forestry conditions and monitor the damage due to man-caused and biotic factors in the Krasnoyarsk region;
- Thematic computer maps of different scales to be used in forestry practice compiled based on remote-sensing data;
- I&R modelling for the natural stability of forests, final and improvement felling, natural recreation, fire risk, and protection against pest insects on the basis of the Bol'shemurtinsky model forestry (Krasnoyarsk region) used as a test site to solve the problems of GIS forest management;
- Demonstrational natural objects.

*Patent Situation*

No patent.
**Commercial offers**
The system is ready for application in any forestry of the Krasnoyarsk region after adaptation to specific local environmental features.

**Estimated cost**
500US$.

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