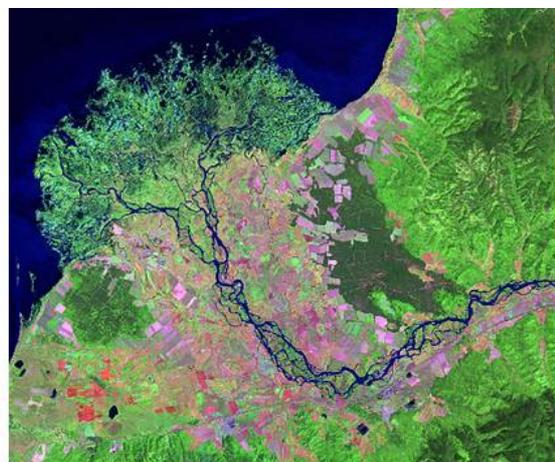


# Selenga delta, Russia

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## Background information

Selenga river is the main tributary of Lake Baikal which is the largest freshwater reservoir in the world. Both with Angara and Enisey rivers it forms the longest river network in Eurasia. Selenga River contributes about 50 % of the total inflow into Baikal. It originates in the mountainous part of Mongolia and then drains into Russia. Selenga delta represents the largest wetland inside East Siberia. Delta stretches out from the basin of the Bolshoy Sukhoy river to the basin of the Boyarsky river (including), getting deeper to the Morskoy and Khamar-Daban Ranges. The significant part of the delta is swamped a lot and possesses a great number of tiny lakes. Besides, the lowland along the dales and interflaves of the Istok, the Bolshaya Rechka, the Abramikha, the Kultushny and other rivers is swamped as well. The delta comprises over 30 big and small channels.

## Main Research and Management Problems:

Extensive research has been conducted on the water quality of Lake Baikal and the adjacent reaches of Selenga river [Munguntsetseg, 1984; Ubuganov et al., 1998; Dambiev and Mairanovsky, 2001; Garmaeva, 2001; Korytny et al., 2003; Khazheeva et al., 2004]. Limited information is available on the hydrological conditions of the wetlands of Selenga delta. Rare research has ever linked landscapes and water quality in surface pathways in the region. The recent studies done by Faculty of Geography were devoted to hydrological and geochemical assessment of delta streams and water bodies. Wetlands of the Selenga delta were recognized as natural barrier preventing pollution spreading to the Baikal lake by surface water.

The crucial problem in the area land management is devoted to transboundary location of Selenga river. Absence of the single monitoring system and predictive tools for pollutants transport in river system requires large efforts in understanding sources of water pollution and implemented data on the relevant numerical systems for the pollution prediction and prevention. This lead to uncontrolled inflow of pollutants to the area and observed degradation of the wetlands along Selenga delta. At the same time in December 2006 the Republic of Buryatia

became one of the competition winners and got the right to organize a special economic zone of tourism and recreation (SEZ). This and other state laws (e.g. “Protection of the Baikal lake” law) led to the restriction in any types of human activities in the delta. Baikal lake and Selenga downstream sites were declared as UNESCO *World Heritage* site in 1996.

#### **Possible End-Users:**

Due to unique location inside UNESCO World Heritage site, international and state environmental services are interested in the research in the area: Russian Ministry of Education and Science, UNDP, Russian Geographical Society, Russian Ministry of natural resources.

#### **Site Conditions:**

Contemporary Selenga delta represents typical wetland with variety of streams, lakes and marshes. Area is up to 600 km<sup>2</sup>. Height is below 2 m. Territory is regular impounded during high water period (April-October). After construction of Irkutsk Hydropower station and Baikal level increase, the frequencies and magnitude of floods enhanced. Spring floods start at the end of March and end in June (total duration is up to 110 days). Spring runoff is up to 40 % from annual river flow. Duration of ice cover period is 150–170 days, man small water bodies inside Selenga delta are completely frozen during winter. Area is well-known for the large number of birds - In autumn, during a migration period, about 5-7 million of species pass there (swan, goose, heron black stork, white cranes etc.).

#### **Monitoring and Data:**

Meteorological, hydrological, geochemical, biological (algae, flora and fauna surveys), land use and land cover, GIS and remote sensing for the area of Selenga delta wetlands are available. Constant hydrological monitoring is currently done at gauging stations network by Institute of Geography of SB RAS (since 2005) and by Faculty of Geography of Lomonosov Moscow State University (since 2011). Monitoring include water quality and water discharge assessment, as far as environmental effects.

#### **Publications:**

There is no special literature on wetlands of Selenga delta. The following articles by MSU provide background information about Selenga delta :

1. Korytny, L.M., Bazhenova, O.I., Martianova, G.N., Ilyicheva, E.A. (2003) The influence of climatic change and human activity on erosion processes in sub-arid watersheds in southern East Siberia. *Hydrol. Process.* N. 17, pp. 3181–3193.
2. Selenga basin ecosystems (2005). Edited by Vostokova E.A., Gunin P.D. *Biological resources and environment of Mongolia: Proceedings of joint Rus-Mong. Biolog. Exped.*, vol. 44, Moscow: Nauka, 340 p.
3. Ivanov V.V., Labutina , Korotaev V.N. Morphology and dynamics of Selenga delta // *Vestnik of MSU. 5, Geography.* - 2007. - N 4. - P. . 48-54.