

Balance Of Natural And Anthropogenic Factors In Formation Of The Current Amur River Transboundary Ecosystem Situation

*Tatyana Strizhova Ph.D., Leonid Zamana Ph.D., Gazhit Tsybekmitova Ph.D.,
Institute of Natural Resources, Russian Academy of Sciences, P.O. Box 147,
26, Butin St., Chita, 672090, Russia*



Water from the area of more than 2 mln. km² of the Europeo-Asiatic continent gravitating towards the Pacific ocean coast is being drained through the Amur river network. The Amur river watershed is represented by a wide scale of typical landscapes: river valleys of different morphology, mountainous countries, steppes, taiga (dense forest) and forest-tundra zones, remarkable peculiarity of this river watershed being catastrophic floodings recurrence. High erosive and transporting capability of water flows allows significant quantity of terrigenous material, various chemical compounds of natural and anthropogenic origin to be intruded into estuary zone.

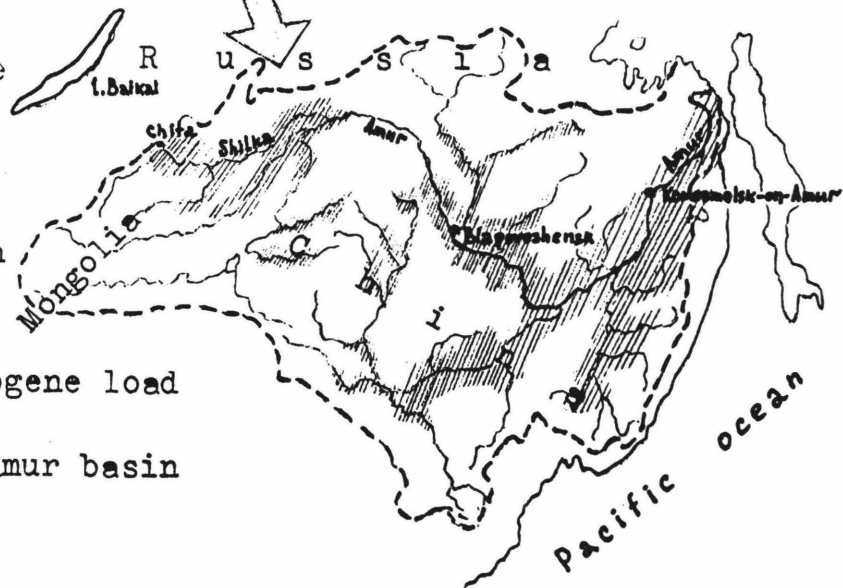


THE AMUR BASIN

S basin = 2129,3 square kilometres

Approximate total of the population on basin - 100 million
(in Russia - 5 million)

-  - zones of anthropogene load
-  - boundary of the Amur basin



Now not less than 50% of the Amur river flood-bed and also that of its largest tributories: the Zeya, the Sungari, the Ussuri and others, has been subjected to adverse environmental impact of diverse human activities. This factor has changed natural characteristics of aquatic ecosystems of the main river-bed. Native ichthyofauna loses its selfreproductive capability, species diversity being declined (more than 100 of fish species has been registered there by the beginning of the 20-th century).

Populations of the Amur tiger, snow leopard, Himalayan bear and other species have been substantially reduced. Different degrees of oceanic and continental impacts, marginality of paleo-arctic and Chinese flora and fauna distribution areas condition extreme biodiversity and at the same time extreme fragility of the watershed biota.

Portion of anthropogenous factors is particularly increasing at the lower reaches of the Amur watershed, where diverse impacts on the whole watershed area are being accumulated, and such chemical enterprises as pulp and paper plants, oil-refineries and others are located.

Upper and middle part of the watershed is characterized by local destabilization "hotbeds" of aquatic and terrestrial ecosystems.

From the upper reaches of the watershed to the estuary concentration of hydrocarbons, detergents and phenol compounds is gradually increasing.

	Upper reaches	Middle part	Estuary
Hydrocarbons (background level - 0,05 mg/l)	0,40 mg/l	0,74 mg/l	< 5,0 mg/l
Detergents (background level - 0,1 mg/l)	0,10 mg/l	0,11 mg/l	< 0,50 mg/l
Phenol compounds (background level - 0,0001 mg/l)	0,012 mg/l	0,008 mg/l	< 0,030 mg/l
Suspended matter content (t/y)	$0,9 \times 10^6$	$1,1 \times 10^6$	23×10^6

Water supply structure of the Amur watershed is as follows: industrial water supply - 42%, agriculture - 39%, public water supply - 19% (drinking water supply included). Currently more than 80% of water supply is taken from surface water sources.

It's impossible to solve the whole complex of these problems without creating a new policy concerning the watershed natural resources use, as 54% of the watershed area belong to Russia, 44% - to China and 2% - to Mongolia.

On the Amur river watershed territory, especially on its Russian portion representatives of so called scanty peoples (the Udeges, the Ultchas, the Nanaians) live, their traditional nature use policy being closely connected with the Amur river biological resources.

Ecological problem of this watershed is based upon the following factors:

- The Amur river watershed is the boundary between Russia and China, there exists disparity of population density (on the Russian side - about 5 mln, on the Chinese side - about 100 mln) in various parts of the watershed.

- Structural peculiarities of nature use policy. Landscapes destruction and reformation as a result of coal, gold and rare metals mining, intensive agricultural activity (especially on the Chinese portion of the watershed) development of environmental polluting enterprises: pulp and paper plants, oil refineries, machine engineering plants and others.

- Development of water-power use. It is projected to construct very large reservoirs on the main flow of the Amur river and its tributaries.

That's why it is an obvious necessity to enter into a treaty between Russia and China providing the progress in solving ecological problem of the Amur watershed.