

30 DAYS LEFT UNTIL CONSTRUCTION ON THE HAILAER/ARGUN RIVER –DALAI LAKE WATER DIVERSION CANAL BEGINS.

REPORT UPDATED AFTER ANALYSIS OF ENVIRONMENTAL IMPACT STATEMENT (EIS).
MARCH 30, 2007.

We are writing again to draw your attention to quick progress of a water diversion project within the internationally important Daurian wetlands area and to urgently request that you use whatever means you consider most effective and appropriate to, at the least, delay this project until acceptable environmental assessment has been done and its results discussed internationally. Proposed water diversion threatens both transboundary wetlands of Argun River Midflow and Dalai (Hulun) Lake ecosystem. Project might result in huge damage to biodiversity values of the whole Daurian Steppe Global 200 Ecoregion. We want to stress at the outset the urgent need for action, as work on this project is likely to begin in May2007, if strong steps are not taken to intervene.

1. Water transfer project proposal:

The proposal is to divert water from the Hailaer River to Dalai Lake (see the attached map of Dauria Global 200 ecoregion). Ordinarily, the water of the Hailaer River flows from east to west before turning north-east about 20 km north of Dalai Lake. At this point, the Hailaer River becomes the Eerguna (Chinese name) or Argun (Russian name) River and forms the Chinese-Russian border in this area for 900 kilometers. The proposed canal would divert an annual volume of approximately 1 cubic km of water to Dalai Lake per year. Actual flow capacity of the canal is 70-93,6 cubic meters per second, while average flow of Hailaer (upper Argun) River at the construction point is 117 cubic meters per second. This means that judging by its size the new canal is probably capable to divert about 60-75% of the water from Hailaer River.

However project documentation states that canal will divert water in amounts somewhat proportional to river flow volume in amounts up to 28-30% of average annual flow of Hailaer river. More specifically it will not divert any water when flow is less than 11,9 cubic meters per second, divert 71 cubic meters per second when Hailaer flow is 198 cubic meters per second (36 %), and divert maximum of 93.6 cubic meters per second when Hailaer flow is 253 cubic meters per second. Diversion will occur in warm period of the year from May to October/November. Projected unproductive loss of water through canal bottom before it reaches destination is estimated at 20% of total diversion volume.

In Dalai Lake area similar rather unsuccessful project was implemented in the 1960s when new canal Xinkaihe was built to direct water of the rapidly rising lake into Argun/Erguna River. Due to poor maintenance canal was broken in 9 years. Now the plan is to create another canal from Hailaer River now in order to confront decrease in water levels. It seems that both plans do not take into account natural dynamics of the Lake and therefore are tremendous waste of resources. Project documentation also hints that part of diverted water will in future contribute to outflow from Dalai lake to Erguna River via Xinkaihe channel in water-abundant years.

Over the last five to six years, Dalai Lake has held a reduced volume of water due largely to low rainfall, which resulted in lowering water level, lake area and overall volume. The reasoning given for the diversion of water to the lake is to protect this environment from the assumed negative impacts of these low rainfall years. In particular it is expected to arrest further salinization, reduce eutrophication, prevent dessication of adjacent grasslands, etc. The proponents also expect that higher water levels will help replenish diminishing fish stocks in Dalai Lake, provide water for 40 000 livestock and 2000 hectares of irrigated hayfields. An associated project will use Dalai Lake water to supply the municipal needs of Manzhouli City – the major crossing at the Russian-China border. We believe that there are also other projected uses of water not quoted in press, for example by other settlements, or this project may be attractive to mining interests who use the water of Dalai Lake in their operations .

2.Potential Impacts:

2.1.Dessication of downstream wetlands

The most obvious potential impacts are on the downstream habitat of the Hailaer-Eerguna River system. The Eerguna (Argun) River is a relatively fragile branch of the Amur-Heilong River catchment with a total annual flow of between 1.5 cubic km in low rainfall years and 6 cubic km in high rainfall years(only in 2004 flow was about 3.0 cubic km). Similar to Dalai Lake it has had reduced annual inflow of 1.5-1.7 cubic kilometers since 2001. The river does not have any significant tributaries for at least 200 kilometers from the point it comes to the border to the mouth of Gen River at Heishantou-Priargunsk border crossing. It does not take great imagination to see that the removal of 1 cubic km of water from this system per year is likely to have significant downstream impacts.

Surveys of the waterways, floodplains, marshes and oxbows of the Eerguna valley have found the area is a globally important breeding and stop-over site of many migratory waterbird species. Based on Dr. Oleg Goroshko, Arguna Wetland is one of the large breeding ground for the endangered Red-crowned Crane in the world. It also is part of the Daurian bottle-neck site of the continental branch of the global East Asian-Australasian

Flyway. About 1-2 million birds gather there every spring and autumn. It is also an important area for rare bird species, supporting 19 IUCN Red List bird species. Internationally significant populations of Swan Goose, Red-crowned, Siberian and White-naped Cranes, Great Bustard, Red-necked Stint, Broad-billed Sandpiper, Bean Goose, Tundra Swan, Gadwall and Northern Pintail have been recorded in the area. Most work done in the Eerguna Midflow has been lead by Dr. Oleg Goroshko on the Russian side of the border. According to him, the whole Eerguna-midflow wetland cluster meets Ramsar criteria: 1a,1c,2a,2c,3a,3c (Goroshko 2006) and criteria for international IBA: a4(i), a4(ii), a4(iii), a4(iv). It is listed as IBA#57 in the latest IBAs of Asia list, in the Russian section. Since meandering Argun/Erguna and floodplain wetlands are holistic inseparable ecosystem and national border follows mainstream of the river all general values should equally apply to China part of floodplain.

Research on rare and migrating birds (Goroshko, et al) shows that in years of low flow volumes (2001-2005) their habitat in unique wetlands of Erguna has very clear adverse changes. Project EIS does not estimate of these changes (decrease in wetland area, etc.), as it does this for Dalai lake area. Water withdrawal will lead to further degradation of at least 1000 sq kilometers of globally important bird habitats. EIS has paid little attention to this downstream area, which is only less than 30 km down stream from proposed water diverting location. EIS did not properly evaluate consequences immediately following water withdrawal. It does even not contain data on yearly flow volume in Erguna river for last decades necessary to do any further analysis of habitat change.

Project EIS does not clear depict the difference between Dalai lake ecosystem adapted to long-term changes of water level and Erguna river floodplain ecosystem which has very different dynamics dependent on frequent floods and not adapted to long-term water deficit.

EIS has been done on assumption that water after initial 5-15 years following canal construction accumulates in Dalai lake to the level of 544.8 meters ASL and once again starts flowing via Xinkaihe channel into Erguna River almost in the same amount. This prediction done by hydro-engineers is very difficult to believe in, since data on historic water balance of Dalai Lake presented in EIS state that in last 40 years the lake an average released into Erguna river was very small (0.09-0.144 cubic kilometers a year), although the Lake water level often exceeded “projected level” established by the project and at average was 544.5 meters ASL. Given many other uses of diverted water quoted in press, such replenishment is even less likely. EIS also mentions that Xinkaihe canal is in poor broken condition and cannot presently deliver large amount of water into the river, which presents additional flood hazard in water-abundant years. Given all uncertainties most likely the flow via Xinkaihe will not increase, and if it does – it will happen only in extremely

water-abundant years, while in all other times water deficit downstream will be equal to the full amount of diverted water.

Other major concerns are associated with ‘filling time period’, when lake will not have any discharge into the Erguna river, even that minimum it has nowadays. This period may last 5-15 years after canal construction – time likely fully sufficient to degrade river wetland downstream, and no detailed analysis of ecological consequences is done for this critical period. Another key question is absence of any detailed analysis on overlap in time periods when draughts affect Dalai Lake and Hailaer/Argun basin. Meanwhile greatest competition for water between the project’s needs and natural needs of the Erguna River will occur in these periods.

We believe that the proposed action is extremely likely to decrease the quality of the wetlands along the Eerguna River to the point that they no longer provide viable habitat for large populations of waterbirds and numerous other species that rely on wetland habitat. As you understand, diversion in low-flow period will result in drastically reduced flow downstream, leading to lowering of water tables, reduced water retention and dessication of floodplain wetlands, disappearance of many shallow water habitats, drastic change in sedimentation and channel formation patterns. Proposed diversion of up to 30% of annual average flow may also leave the downstream stretch without sufficient flow during the high rainfall period in summer, the river will not break its banks to inundate the floodplains and marshes and the bulk of the wetlands will simply dry out.

2.2.Drastic alteration of Dalai lake ecosystem

The other possible set of impacts relates to potential impacts from altering the natural high-low volume cycle of Dalai Lake. It has been shown that the Dauria area experiences 30-year climatic cycles of high rainfall-low rainfall years. At the moment, we are in a low rainfall period that is not expected to end until 2010 and after that the water levels of Dalai Lake will rise again. So far climate change impacts on water volume of Dalai Lake and similar lakes in Mongolia and Russia seem to be less pronounced than this regular cyclical changes.

Dalai Lake is known to become almost dry in 1903-4 (as even acknowledged in EIS report for this project), similar Torey Lakes in Russian Daurian Zapovednik and Hoh-Nur Lake in Mongol-Daguur Zapovednik dried several times in the 20th century and are shrinking now as well. The point is that, while the proponents of the project are advocating the environmental merits of the project for the lake, the truth is that we do not know how this artificial stabilization of lake water levels and loss of the wet-dry cycle will affect the ecosystem of Dalai Lake. However, we do know that this lake is not dissimilar with all other

brackish lakes of Dauria, which periodically dry out naturally. The regional biota is adapted to such a natural cycle. This was studied on similar large Torey lakes in Daursky Biosphere Reserve, Russia, and on smaller lakes of the steppes, and at least for fish there is an evidence of higher productivity of such “pulsating” water bodies, if compared with spring-fed lakes with stable water level in the same region.

Only one line in the Project’s EIS states that fluctuation of water level is major factor sustaining diverse and productive belt of wetlands on the border between lake and steppe. However EIS recommendation to sustain this fluctuation within +/- 20 centimeters from “projected water level” is unfounded. It is very evident that both diversity of species and habitats and high productivity of brackish lakes of Daurian steppe is largely a result of current drought cycles associated with much higher amplitude of natural changes. Project will halt or diminish this natural phenomenon on Dalai Lake and likely result in decreasing biodiversity and productivity of this ecosystem in a long term.

In the same EIS comparison of water quality in river and lake ecosystem based on “drinking water standards” fully disregard the fact that at different stages of draught cycle steppe lakes have very different natural water quality. Therefore halt or decrease in natural fluctuations in salinity likely will have adverse impact on unique character of aquatic ecosystem and is highly unlikely to result in long term gain in fisheries.

A precautionary approach should be taken, particularly given the acknowledged importance of Dalai Lake as a National Nature Reserve, component Reserve of the Dauria International Protected Area, Ramsar site, UNESCO Man and Biosphere Reserve, International IBA and Important Shorebird Site of Wetland International’s Shorebird Site Network, North East Asian Crane Network Site.

2.3.Increased accumulation of pollutants:

Another grave concern is that the Hailaer waters are highly polluted by all major settlements and industries of Hulunbeier prefecture to a point that has necessitated the formation of a special international Russian-Chinese commission in 2003. Favorable influence of such water on the Dalai Lake ecosystem, fisheries, etc. is highly unlikely, and quick deterioration of hydrobiological system due to massive influx of new pollutants and pathogens is very probable. Unlike Argun river presently receiving this pollution and bringing it further downstream, Dalai Lake is likely to accumulate most dangerous non-degradable pollutants. Presently, absence of major point-source pollution in the whole Dalai Lake watershed is the best safeguard for its unique ecosystem. Occidental spills(dumping) of various chemical substances frequently happening on Hailaer River (according to Russian monitoring stations downstream) further increase these risks.

2.4.Disrupting animal migration cycle in Daurian ecoregion

The wetlands of the Dauria eco-region are, as far as the birds and other migratory fauna are concerned, all part of an interconnected system. If the habitat provided by Dalai Lake is non-optimal for fauna during low rainfall periods, the birds and mammals will find an alternative suitable site within the impressive wetland complex of Dauria (encompassing China's Eastern Inner Mongolia, Russian Chita Province, and Eastern Mongolia), that has experienced greater rainfall or that provides more stable habitat during low rainfall periods. Later, when rainfall and lake water levels have increased, the fauna will return to Dalai Lake. Interference with the flow of water will alter this flow and movement of fauna and affect the ecology of Dauria, which is a Global 200 ecoregion, in unknown ways. Therefore, the complex ecological interplay between the various wetland areas within the Dauria ecoregion, which currently supports the impressive populations of wetland species seen in the area, contradicts any argument suggesting that the proposed water diversion will provide a required conservation outcome.

2.5. Damage to nature reserve network development.

Extensive potential impact on ecosystems is especially evident looking at nature reserve network:

Diversion will have even greater impact on Erka municipal nature reserve right downstream from point of diversion. This small (4000 ha) but highly important habitat of many rare birds and stop-over site for migrating Siberian Crane already suffered from an international road built through it in 2005-2007 with World Bank assistance. The management of Dalai Lake National Nature Reserve has raised the issue of downstream impacts on the small Erka Wetland Nature Reserve with the appropriate Hulunbeier Prefecture authorities and Environmental Protection Agency and has been told by SEPA that impacts are not very significant and they will deal with this problem by monitoring impacts once the canal has been built. Clearly, this is an unsatisfactory response. Other available documents contain clear reference that the impact on adjacent Erka wetland should be offset by artificial inundation with water from the same canal. This is definitely not an option for all other wetlands of Argun (Eerguna) Midflow further downstream.

The Eerguna Wetland Provincial Nature Reserve, on the confluence of the Gen and Eerguna Rivers will be profoundly impacted by the proposed water diversion. Approximately half of 120 000 ha floodplain wetlands within its bounds are fed by Erguna river flow.

Huliyetu district-level wetland nature reserve (60 000 ha), lying in Erguna Midflow between the project site and Gen River mouth is known as extremely important habitat for 5 species of cranes (Li Xiaomin, 2000) and its wetlands and lakes are fully dependent on Erguna river flow.

Russia is in the final planning stages for the development of a Nature Reserve along the Argun River between Abagaitui and Heishantou. A 150 kilometer long "Wetlands of Middle Argun" national-level protected area planned in 2004-2006 and presently in under final

approval process in Chita Regional Administration. Values of this new protected area diminish dramatically if flooding regime of Argun River changes.

As indicated earlier in Dalai Lake National Nature Reserve ecosystem is likely to be dramatically altered and practically converted into artificial reservoir with controlled water levels. Besides this major impact there are several other project influences on this nature reserve. There is no find satisfactory calculation of additional sediment load carried by new canal in EIS. Meanwhile Hailaer River has very impressive sediment load and part of it is destined to settle down in the lake making it even more shallow or in the canal. New water (and sediment) flow from new canal will enter Dalai Lake Nature Reserve within the core zone (!) where any alteration is strictly prohibited. No assessment of changes in core zone and legal obstacles to such intrusion are explained in the EIS.

The last but not the least the canal will likely affect migration of last remaining Mongolian gazelle, whose last small herd is regularly observed in the area directly adjacent to the canal construction line. Additional linear infrastructure definitely decreases any chances for gazelle restoration in the nature reserve core zone north-east of Dalai lake. SEPA suggested to confront it by “building artificial passes for animals”, which is unlikely to be an effective solution.

All abovementioned reserves were studied by scientists of Daurian International Protected Area (DIPA) and since 2006 trilateral meeting of DIPA officially targeted for coordinated management and monitoring. If the project is implemented it will decrease the chances of DIPA reserve network successful functioning into the Erguna Midflow, which had been discussed as a very likely development. Plans to form a trilateral international biosphere reserve also are likely to be reevaluated if such a project is implemented, as are plans for the first tri-lateral “Daurian Steppe” World Heritage Site nomination. The same issues relate to the projected establishment of a bilateral Ramsar site (and trilateral Ramsar complex), since the Erguna (Argun) Midflow definitely meets Ramsar criteria and three adjacent areas in DIPA are already Ramsar wetlands of international importance.

2.6. Other important social issues:

- **Water Quality and Equality of Access to Resources:** The project will reduce water available for human use, agriculture, fisheries and pollution dilution further downstream, which will negatively affect the well-being of the already economically depressed districts of Xinbaerhu, Chenbaerhu and Erguna in China and Zabaikalsk, Krasnokamensk and Priargunsk in Russia. Erguna River is the only sizable source of water all the way to the Gen River mouth, and presently without any project there are already issues of water resources deterioration affecting local people.

2.7.Possible international policy consequences

The proposed project will be damaging to China-Russia relations and bi-lateral co-operation on conservation matters, particularly since:

1) There is an existing agreement between Inner Mongolia and Russia to protect the waters, biodiversity and landscapes of Eerguna River. Unilateral decision to alter this ecosystem by water diversion is clearly contrary to the objectives of this agreement.

2) Conditions and even configuration of border line that goes along farwater of

Argun/Erguna will drastically change with the change of river flow. There is a fair amount of tension over border line and unilateral dyke building even without water transfer and it may increase multifold as project progresses.

3) Decrease in quality of environment, availability of water and productivity of agricultural land will result not only to worse living conditions for local Russians, but probably in lessening cooperation with China side in border districts due to this decline in resources. Presently local Russian economy is increasingly dependent in Chinese investment in natural resource extraction.

4) The project presents a classic example of introducing inappropriate engineering solutions to deal with natural water scarcity, instead of adopting sustainable land-use strategy adapted to regional ecological conditions. If implemented it will trigger similar efforts to divert Kherlen and other rivers in Mongolia and will fully preclude the three countries from establishing a coordinated, equitable and ecologically-sound water use regime in the Amur River headwaters.

5) Project challenges many international efforts to protect endangered species, first of all rare cranes, and secure networks of suitable habitat across North-east Asia. Since important migratory routes are affected, negative consequences for various species populations are possible in many remote areas (even in Australia).

3.Project Assessment and approvals:

1. The project has already received approval from the Hulunbeier Prefecture Government.
2. Environmental Impact Statement (EIA) was prepared in 2005, but so far it's result has not been formally discussed and disclosed to China's domestic conservation experts, let alone international commissions on Eerguna River and the trilateral Dauria International Protected Area. However it was available to us at Northeast Forestry University and brief review of most questionable points was incorporated in this report.
3. So far, research staff of the trilateral Mongolian-Chinese-Russian Dauria International Protected Area (DIPA) has no full official information on the project, and this important trilateral mechanism of monitoring and protecting

biodiversity in the Daurian Global 200 ecoregion has not been used to analyze possible consequences and ways to avoid them.

4. In Russian Chita Province local Water Engineering Research Institute released a report on possible consequences of this water transfer. Since particular engineering solutions and volume of transfer was not known at the moment, the Institute could only make qualitative assessment. Report stresses such impacts as increased frequency of draughts and desiccation of wetlands, change in sediment flow and subsequent change in water course formation, decrease in agricultural production on adjacent large farms, decreased water supply to local settlements that cannot be substituted by groundwater, etc. It specifically stresses that some adverse consequences are likely to be more acute on Chinese river bank (decreased level of adjacent steppe lakes and decline in associated economy sectors, etc.).
5. Many potential water-consumption projects are discussed in local Hulunbeier press as dependent on this water transfer. EIS does not provide clear figures, but if projected loss due to percolation underground (20%) is summed up with 0,3 cubic kilometer for needs of nearby cattle industry and hayfields, and 0,14 cubic kilometer increase in supply to Manzhouli city is added on, the maximum water volume actually available to replenish the Lake would be about 0,5-0,4 cubic kilometers out of 10,5 cubic kilometers diverted from Hailaer River. This means that at the time of project completion “consumptive use” of diverted water may leave even smaller amount for “environmental purposes” under disguise of which this project is conceived. Altogether it presents significant increase in human intervention into ecosystem protected by Dalai Lake National Nature Reserve with very questionable and dangerous consequences.
6. **According to Chinese press by end of March 2007 the project secured all necessary funding, received necessary approvals and its objective to “save the Lake, stop degradation of wetlands” was supported in one of speeches of PRC Prime Minister in December 2006. Construction is scheduled to start in May 2007. Given that amount of engineering works are limited to 18-kilometer long canal and investment is relatively small slightly exceeding 80 million yuan (10-11 million dollars), the canal construction might be concluded in the same year.**

4. Conclusions:

Definitely, the Project does not address root causes of environmental degradation that now progresses both in Dalai lake area and Erguna river area: reduced water retention capacity of upstream forests, inappropriate agriculture leading to erosion, growing pressure on Dalai lake from expanding economy of Manzhouli City, etc. Multitude of more effective methods to confront environmental

degradation and protect natural ecosystems could be used in Hulunbeier Steppe, rather than trying to achieve ever greater change of natural ecosystem dynamics by proposed water transfer.

Rarely could see such a small engineering endeavor that could result in such a large dangerous changes in natural ecosystems. At larger scale of Daurian (Hulunbeier) steppe ecosystem as a whole the project will most likely result in drastic decrease of habitat value of both Erguna floodplain wetlands and Dalai lake ecosystem and will significantly diminish their natural character, sharply decrease habitat available for breeding in most critical draught years.

Domestic and international environmental organizations and experts should address State Environmental Protection Agency of China (SEPA), Water resources ministry of China and the State Council with request to postpone implementation of water transfer project until comprehensive evaluation of its ecological impacts on:

- Argun/Eerguna River aquatic ecosystem;
- Argun/Eerguna River midflow wetland hydrology and ecology;
- Populations of globally endangered species and important migratory bird habitat in Daurian ecoregion;
- Dalai lake freshwater biology and role of long-term draught cycles in sustaining its ecosystem
- Impact of polluted Hailaer River waters on downstream ecosystems, including Argun/Eerguna River midflow and Dalai lake.

It is also important to insist that in any further evaluation and monitoring measures conducted by proponents of canal building there should be much greater and detailed attention to downstream effects in the wetlands of Erguna/Argun Midflow and Daurian ecoregion at large. International experts knowing the area should be officially invited to participate in such assessments and discussions.

The key requirement however is reevaluation of the problems that underlay this project and looking for more sustainable and environmentally sound ways to mitigate degradation of ecosystems in Daurian steppe not compromising its core environmental values and processes.

For Russian and international organizations it is equally important to address Russian press and Russian Government. Unless this neighboring country acts promptly and

decisively requesting reevaluation of the project and joint impact assessment prior to construction, there is too much momentum already gained by project inside China to make it slow down by rather complicated internal interagency negotiations.

Information about the project in the Internet (texts are in Chinese):

<http://www.weforum.com.cn/model/works/w053.htm>

http://www.sepa.gov.cn/info/gw/huanhan/200604/t20060421_78179.htm

http://www.nmgnews.com.cn/hm/article/20050419/50522_1.html

http://corp.dnc.cn/com/sohozyh/ns_detail.php?id=6551&nowmenuid=9165&cpath=&catid=0

<http://www.mzlnews.com.cn>

<http://www.duststorm.com.cn/Article/ShowArticle.asp?ArticleID=6320>

<http://www.hlbr.cn/zwgk/show1.asp?id=1470>

<http://www.green-web.org/infocenter/show.php?id=19072>

In Russian:

<http://www.bellona.ru/persons/1140462176.41>

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