Argun river basin and Daurian wetlands

The second Assessment of transboundary waters
UNECE Water Convention
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Rivers of Argun Basin have dramatic change of water resource availability during 30-year climate cycle. (See graph below)

**Argun River Basin** is the principal river of Dauria Steppe.
Annual discharge 12 cubic km.
Area -300,977 km²:
in China 150,900 km² (50%)
in Russia 49,100 km² (16%)
in Mongolia 101,000 km² (34%)
Cyclical change in annual rainfall (green)

30-year drought cycles and flooding dynamics are one of factors shaping regional biodiversity.

Average temperature (RED) for the last 55 years has risen up for 1.5-2.0°C that led to an increase of the period with positive temperatures in northern part of Daurian Steppe from 165-167 to 173-179 days.
The Argun river at high flow

Flooding is the most important ecosystem process sustaining riverine wetlands

Регулярные паводки – важнейший процесс поддержания экосистем даурских пойм
### Pressure factors and transboundary impacts

**Water management:**
- Excessive extraction
- Water transfers
- Water pollution
- Embankment construction

**Water-dependent activities:**
- Wildfires
- Overfishing
- Overgrazing
- Waterfowl hunting
- Mining impacts
- Thermal power plant impact
- Irrigation
WATER CONSUMPTION: CRISIS PLANNED IN ADVANCE

Northeast CHINA “Revitalization of Old industrial Bases” Policy:
1) Increase water supply from transboundary watercourses (Khalkh, Argun-Erguna).

2) Develop water transfer schemes within the Amur-Heilong River Basin and to adjacent basins, where already achieved water deficit is much worse.

3) Increase water consumption in Argun-Erguna River basin by 1000%.
   - Hailaer-Dalai water transfer – 1.05 cubic kilometers annually
   - Water consumption from new reservoirs upstream -1.0 cub. km. annually
   - Halaha- Xilingol water transfer
   - Mean annual flow of Argun-Hailaer river – only 3.5 cub. km.
MONGOLIA

Mongolia – changing pattern of development – growing water demand for industry, irrigation and “preventing desertification”.

- Water demand from mining industries in Gobi Desert and “Green Belt of Mongolia” anti-desertification plan
- Proposed water transfers from Selenge, Onon, Kherlen, Uldz, Baldj Rivers to Gobi Desert.
- Achieving self-sufficiency in grain through irrigated agriculture
- 2010 National Water Programme – massive intensification of water use and hydropower construction

Park of Mongolian-Russian Friendship on Kherlen River at Choibalsan

Парк российско-монгольской дружбы в Чойбалсане - р.Керulen
Монгольский национальный программный проект по водоснабжению

Первая фаза – переброска реки Херлен в пустыню Гоби
Example: Hailaer River Dalai Lake water transfer (built in 2009)
Alteration of flooding regime with 1.05 cubic kilometer withdrawal.
Upper Argun river Kuti Village. Modelling ordered by Amur Water Authority 2009

1. Water level dynamics in 2004 (P=50%)- 50 days of flooding – Гидрограф в д. Кути в год 50% обеспеченности (2004)
2. Water level after withdrawal – no flooding – Год 50% обеспеченности -при проектном отборе воды пойма не заполнится водой
400 mining operations just in Mongolia part of Dauria
400 золотодобывающих и прочих горнодобывающих предприятий действуют в бассейнах рек Онон, Улдза, Аргунь.
Transboundary management (water and ecosystem)

- International agreements and national water management tools
- Climate adaptation and securing environmental flows
- Conservation agreements and wetland protection
- International public awareness building
Соглашения - Relevant Agreements

• 1994—Трехсторонний Договор о международном заповеднике ДАУРИЯ

• 1994— Соглашение между Монголией и Китаем об охране и использовании трансграничных вод

• 1995-- Соглашение между Монголией и Россией об охране и использовании трансграничных вод

• 2008- Российско-китайское соглашение об охране и использовании трансграничных вод

• 1994—Trilateral Agreement on Dauria International Protected Area (DIPA)

• 1994--Mongolia-China – Agreement on Use and Protection of Transboundary Waters

• 1995--Russia-Mongolia - Agreement on Use and Protection of Transboundary Waters

• 2008 Sino-Russian Agreement on Transboundary Waters
RECENT RELEVANT NATIONAL MEASURES:

**CHINA HAS STRONG NATIONAL WETLANDS PROTECTION POLICY AND ACTION PLAN**

**RUSSIA ADOPTED WATER CODE PRESCRIBING DEVELOPMENT OF “Standards of acceptable impact” (SAI) for environmental flows, as well as chemical, thermal, radioactive and microbial pollution**

Mongolia adopted a new law “On prohibition of mining in water protection zones” (2009). Implementation is slow

**В КНР действует сильная государственная программа охраны водно-болотных угодий**

**Россия приняла новый водный Кодекс требующий разработки норм допустимого воздействия (НДВ) для водных объектов, включая нормативы экологического стока\попуска и допустимого загрязнения**

В Монголии принят закон “О запрещении разведки и добычи полезных ископаемых в истоках рек, в зоне охраны водоёмов, в лесном фонде”(принят в 2009) – но пока он не действует

**ВСЕ ТРИ СТРАНЫ ТЕПЕРЬ ОЗАБОЧЕНЫ АДАПТАЦИЕЙ К ИЗМЕНЯЮЩЕМУСЯ КЛИМАТУ**

**ALL THREE COUNTRIES BY 2010 FINALLY GOT CONCERNED WITH CLIMATE ADAPTATION ISSUES**
AN IMPORTANT POSSIBLE DECISION.....

• Initiate establishment of Chinese-Russian-Mongolian intergovernmental commission on economic and ecological adaptation of management policies in Dauria to changing climate conditions with the aim to ensure favorable environmental and political situation.

• Создать российско-китайско-монгольскую комиссию по эколого-социально-экономической адаптации к климатическим циклам в Даурском регионе и обеспечению благоприятной экологической и политической обстановки в приграничных районах (вопросы регулирования водопотребления, чистота вод, сохранение биологического разнообразия и др.)
Need for an agreement on environmental flow and river alteration limits

Create Russian-Chinese and Russian-Mongolian expert groups for development and endorsement of a common methodological approach and identification of standards of acceptable impact (SAI) for environmental flow (and possibly for chemical, thermal, radioactive and microbial pollution).

Разработать и установить совместно с КНР и Монголией нормы допустимых воздействий (НДВ) для трансграничных рек:
- экологический сток
- химическое загрязнение
- радиоактивное загрязнение
- микробное загрязнение
(возможно в рамках договоров о трансграничных водах)
On-going awareness raising and public education on water and climate adaptation in transboundary Dauria

ПОЛНАЯ ИНФОРМАЦИЯ НА www.arguncrisis.ru
MORE ON www.dauriarivers.org

• В бассейне Амура целесообразно объединение усилий трех стран, и на примере бассейна Аргуни. Коалиция “Реки без границ” уже начала отрабатывать систему взаимодействия и управления общим информационным ресурсом.
Daurian wetlands
Network of important transboundary wetlands in Dauria
Сеть международных ВБУ Даурии

Uldz River basin:
- **Torey Lakes** Ramsar site (Russia)
- **Mongol Daguur (Mongolian Dauria)** Ramsar site (Mongolia)

Argun River basin:
- **Dalai Lake National Nature Reserve, Inner Mongolia** Ramsar site (China)
- **Lake Buir and its surrounding wetlands** Ramsar site, (Mongolia)
- **Upper Argun River floodplain** *(Sino-Russian border – not listed and not protected yet)*

While all major lakes are Ramsar sites, floodplains receive little protection and found only in Mongol Daguur
Ecosystems of pulsating lakes undergo dramatic cyclical successions in which the same area hosts drastically different communities and species. Dalai Lake for example can cover up to 2300 sq km and reach a depth of 7 m during a wet cycle while it was reduced to a small chain of shallow 1m deep pools during the last severe dry cycle in 1904.
Torey Lakes (Uldz river basin) dynamics:

Change of the shore line and water volume.

Coastal plant communities change

Changes in numbers and species composition of waterbirds.

In 1999 Torey lakes yielded thousand tons of fish annually, and in 2009 meadow at Barun-Torey lake bottom is a favorite pasture for Mongolian Gazelle....
Environmental services and biodiversity value

- Key habitat for 20+ species of Endangered birds listed in IUCN Red List
- Best examples of lacustrine and riverine wetland ecosystems in the region
- Important faunal refugia in times of drought
- Cyclical change in water levels sustains river floodplains and supports productivity and dynamic diversity of successional lake habitats.
- Important migratory routes and stop-over sites

Intra-continental branch of the Eastern-Asian-Australian bird flyways in Dauria: many million birds stop at Argun and Uldz River Basin Wetlands
It makes little sense to protect one single wetland cluster in the Daurian Ecoregion, most of the area’s wildlife migrates among the steppe’s scattered wetlands according to 30-year drought cycle patterns.

**RED circles are protected by Dauria International Protected Area,**

**BLUE circle of Argun Valley is not yet protected internationally.**
Socio-economic services

- Source of water for a large region - Zabaikalsky krai in Russia, Dornod and Henti aimags in Mongolia, Hulunbeier and Xinganmeng prefectures in China.
- Argun and Uldz rivers provide agricultural, domestic and industrial (mostly mining) water supply, while large brackish lakes’ waters are not good for domestic use.
- Lakes support largest regional wild fisheries, recreation and tourism, watering for cattle, stabilization of local groundwater table and climate – all subject to cyclical change.
- Rivers sustain large productive floodplains and traditional nature use implies maximum dependence on floodplain resources: hay, pastures in dry years, hunting, fishing, recreation, etc. Due to peculiar microclimate, river valleys – the only place where crops are cultivated (wheat, etc) and where irrigation is possible.
Интенсивность и характер природопользования тоже меняется в ходе климатических циклов

Intensity and structure of human activity depends on phases of the climate cycle

If only the modern society could adapt to the local climate cycle, there would be no problem adapting to any changes in climate...
Cultural values

• Nomadic lifestyle of Mongolian tribes is the key cultural value of Dauria – which has been the most effective socio-economic adaptation to climate fluctuations.

• Lakes and river valleys have many “oboo”- sacred places where locals worship local deities.

• Many areas in Argun river basin are associate with activities of Genghis Khan
Major impacts on wetlands (summary)

WETLANDS
Argun River basin:
- Dalai Lake National Nature Reserve, Inner Mongolia Ramsar site (China)
- Upper Argun River floodplain (Sino-Russian border – not listed and not protected yet)
- Lake Buir and its surrounding wetlands Ramsar site, (Mongolia)

THREATS in Argun River basin:
- Hailaer (Argun) River - Dalai Lake water transfer – 1.05 cubic kilometers annually (in operation since 2009)
- Water consumption from new reservoirs upstream in Hailaer basin - 1.0 cub. km. annually (UNDER CONSTRUCTION)
- China Gold Co copper mine – water pipeline from Dalai Lake (stopped due to Ramsar convention requirements in 2008)
- Kherlen-Gobi water transfer scheme
- Hulunbeier Oil fields (in operation)
- Coalmines and thermal power stations - thermal pollution and change in hydrology
- Polluting industry along Hailaer river - (in operation and under construction)
- Municipal sewage from Hailaer and Manzhouli
- Irrigation schemes along Hailaer and Khalkh rivers
- Halaha- Xilingol water transfer (EIA in 2010)
- Mongolian oil fields

Uldz River basin:
- Torey Lakes Ramsar site (Russia)
- Mongol Daguur (Mongolian Dauria) Ramsar site (Mongolia)

THREATS in Uldz-Torey basin:
- Mining and ore processing operations
- Excessive livestock in river valley
- Overgrazing of peat lands in headwaters
Protected areas that could be affected by the Hailaer-Dalai water diversion in China – occupy 1 000 000 ha.

Seriously affected wetland ecosystems occupy 380 000 ha.
Necessary measures planned by WWF-DIPA *Dauria pilot project*:

1) **Strategic assessment of river management options in the light of climate adaptation in the Dauria region**, based on the UNECE “Guidance on water and adaptation to climate change”.

2) **Develop environmental flow norms for the Argun and Uldz Rivers** to determine environmental requirements during different phases of the climate cycle. This will provide the technical foundation for harmonizing bilateral water management policies with Mongolia and China.

3) **Wetland monitoring system** in both Argun and Uldz basins will be enhanced by developing combined remote-sensing and field-transect monitoring methods in transboundary wetlands to measure the effects of climate change and human impacts.

4) **Wetland protected area network enhancement** as one of key adaptation measures is that provides for migration and breeding of species and preserves key hydrological features and all important refugia during drought period.

5) **Awareness raising program program on climate adaptation in transboundary Dauria** is needed to make climate cycling/climate change and limitations/advantages it brings better understood by local people and considered by governments in key planning/decision-making.
Proposed expansion of Dauria International Protected Area
Расширение Международного заповедника «Даурия»
Inappropriate development triggers improper water management

Thanks for Your attention