



**Demonstration project proposal on IWRM in Selbe
River basin, Mongolia**

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Objectives

To assist development of information systems for promoting the implementation of integrated water resources management (IWRM) in the Selbe and Tuul River Basins.

Size of the watershed:

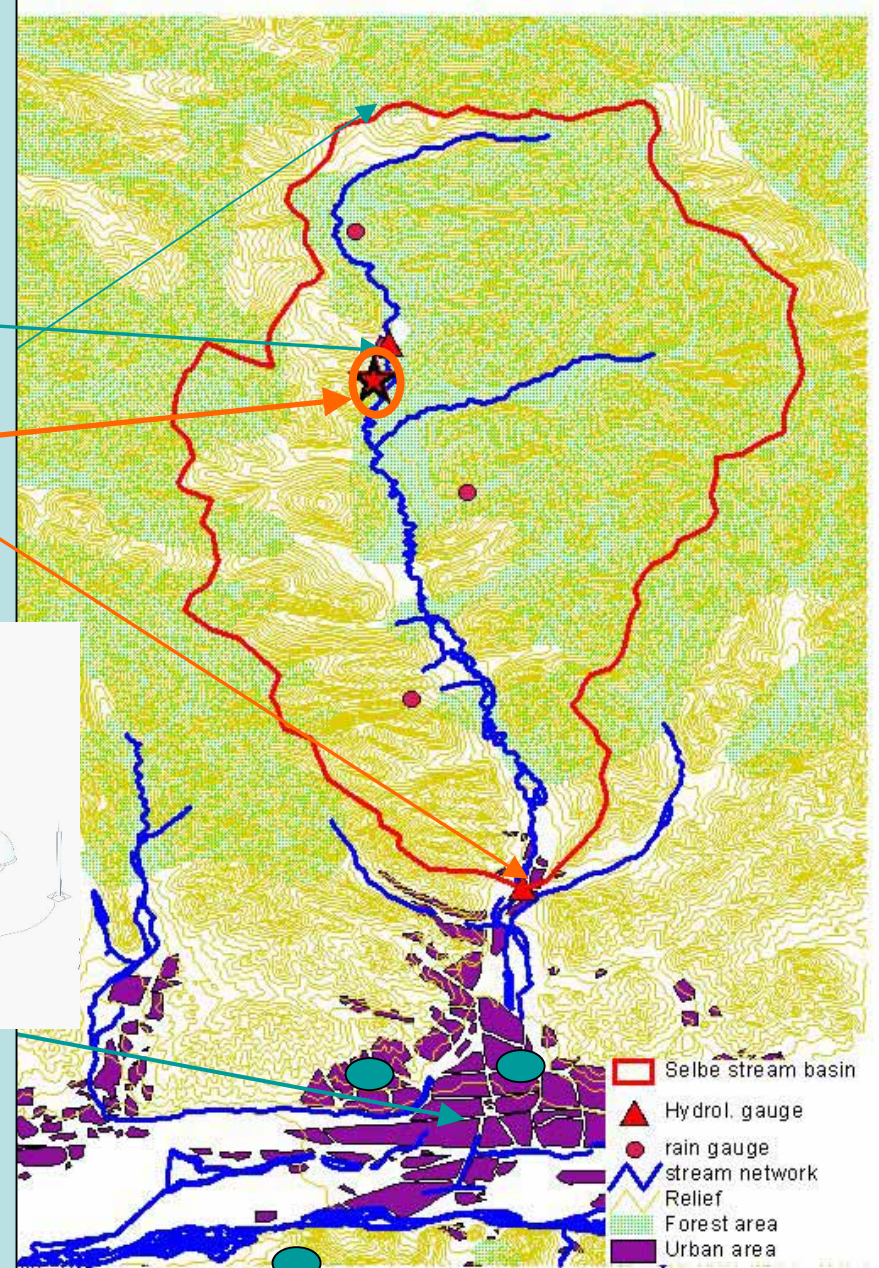
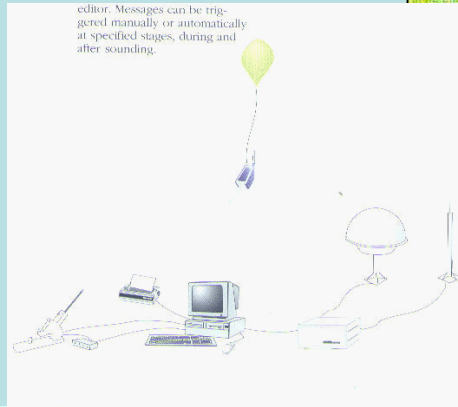
Selbe stream, 220 sq.km area in the Tuul River basin of 6300 km²
(Ulaanbaatar) – data nearly available.

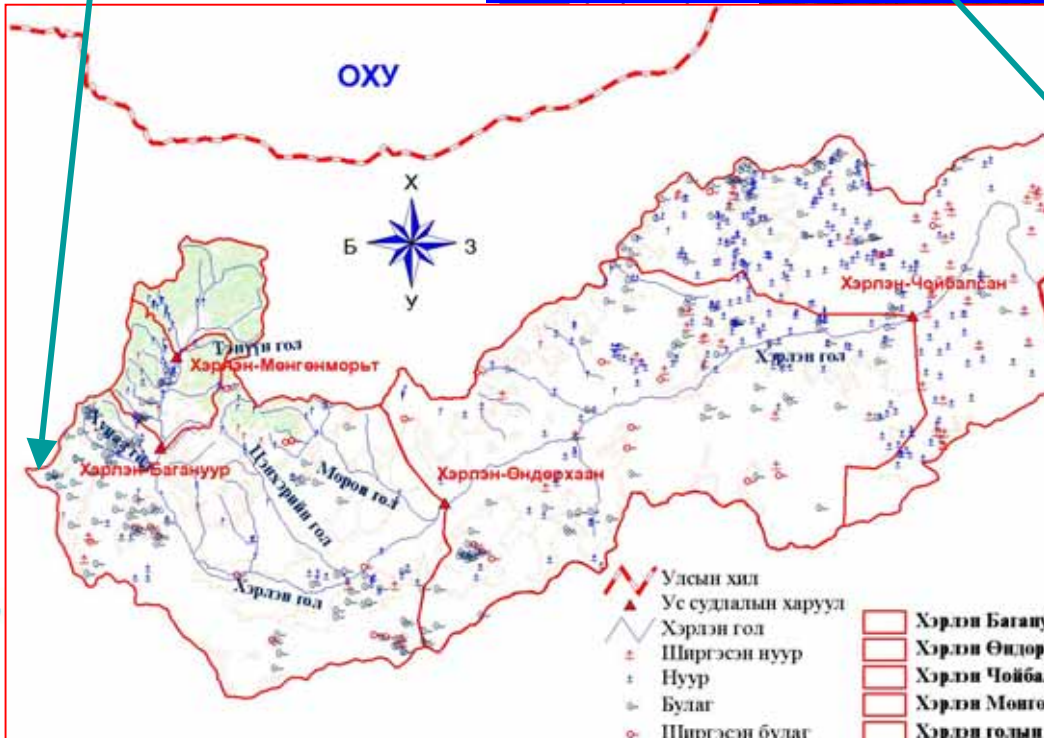
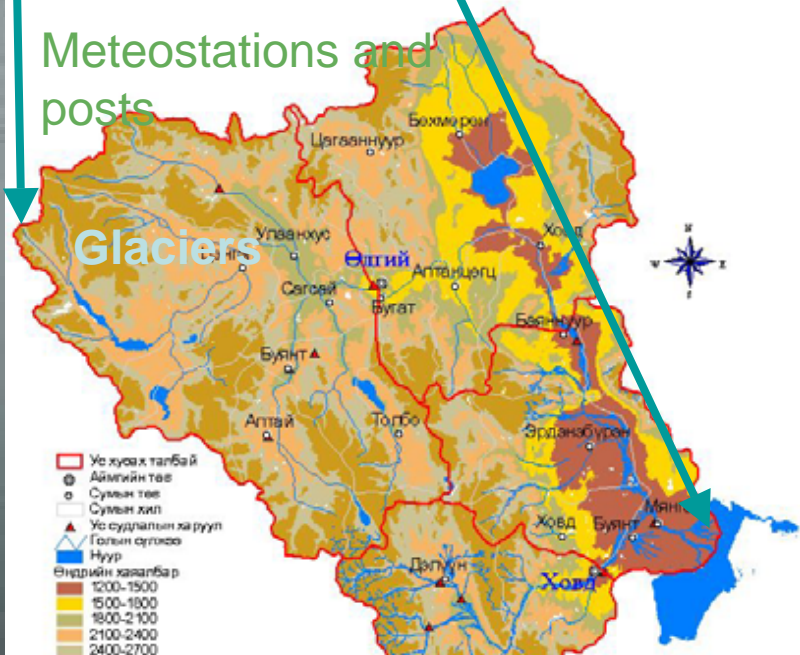
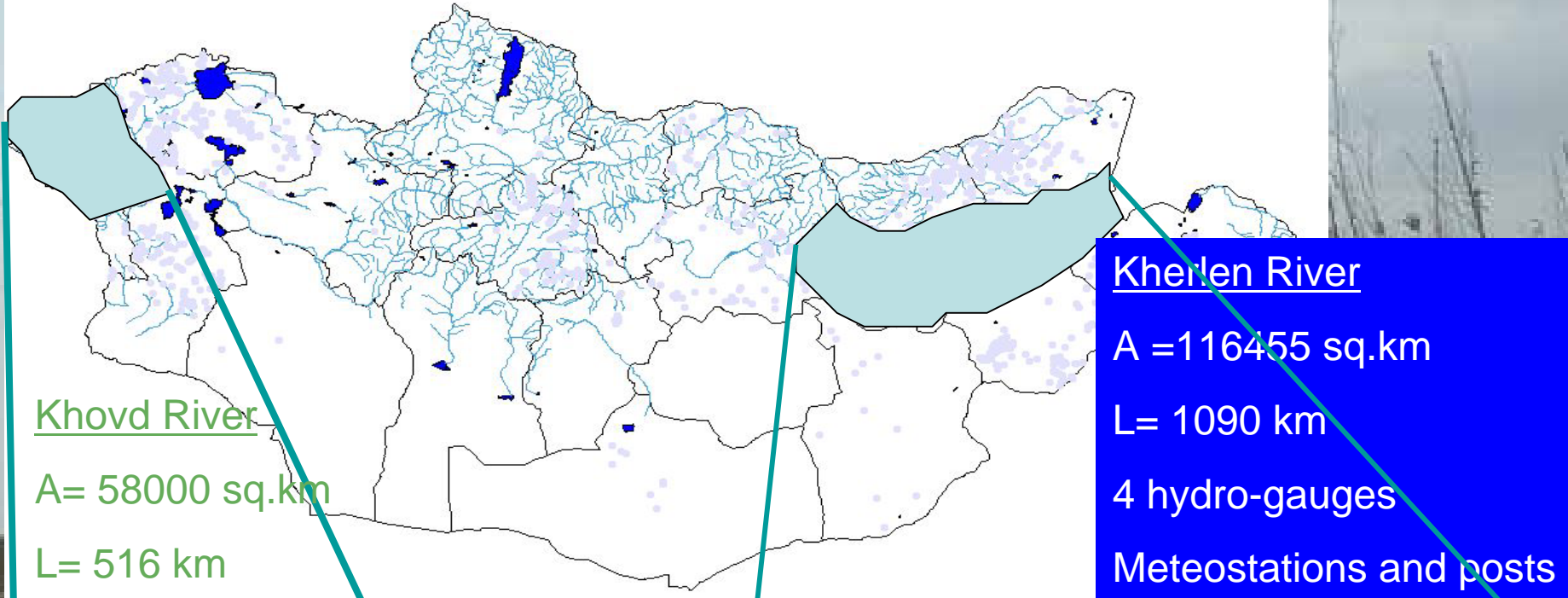
Khovd river basin, 58000 sq.km - Limited data available (conventional hydrological and meteorological data)

Kherlen river basin: 116455 sq.km- Limited data available (conventional hydrological and meteorological data and 2 MOLTS)

Data availability

- 2 stream flow gauges
- AWS in upper basin area
- 3 meteorological stations in lower basin area
- Radio sonde station
- Doppler Radar
- 7 rain gauge sites





Socio-economic data availability

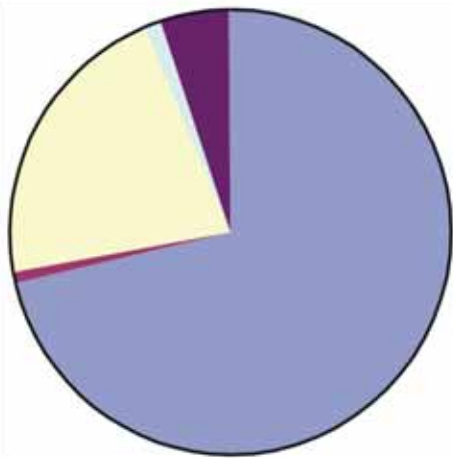
MASTER PLAN UB-2020

2004 оны Нийслэлийн статистикийн үзүүлэлтүүдийг
2020 оны үзүүлэлтүүдтэй харьцуулснаар

№	Тусламт	Хэмжээ млн	2004 он хэмжээ млн	2020 он
1	Нийслэл доторх тусам	1,200	1,200	1,200
2	Хөдөө, тосгоны газруудад	10,000	10,000	10,000
3	Агаарын тээвэр	20,000	20,000	20,000
4	Мотортай ажил үйлдэл	500	500	500
5	Төрийн үйлчилгээний байр	100	100	100
6	Хүнд үйлдвэр	100	100	100
7	Хөдөө аж ахуйн үйлдвэр	100	100	100
8	Хүнд үйлдвэр	100	100	100
9	Хөдөө аж ахуйн үйлдвэр	100	100	100
10	Хүнд үйлдвэр	100	100	100
11	Хөдөө аж ахуйн үйлдвэр	100	100	100
12	Хүнд үйлдвэр	100	100	100
13	Хөдөө аж ахуйн үйлдвэр	100	100	100
14	Хүнд үйлдвэр	100	100	100
15	Хөдөө аж ахуйн үйлдвэр	100	100	100
16	Хүнд үйлдвэр	100	100	100
17	Хөдөө аж ахуйн үйлдвэр	100	100	100
18	Хүнд үйлдвэр	100	100	100
19	Хөдөө аж ахуйн үйлдвэр	100	100	100
20	Хүнд үйлдвэр	100	100	100

•Hydrological study on Flood hazards and mapping flood inundation area in Ulaanbaatar, 2005 (GIS data base)

Inventory of point and non-point sources of pollution in the Selbe river basin, 2006



- Agriculture land: 71%
- Water bodies: 1%
- Forest: 22%
- Transportation and Utilities: 1%
- towns, villages and settlements: 5%

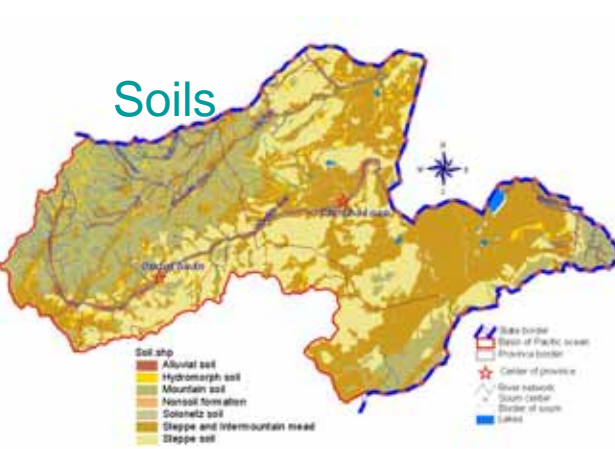
Expected population of UB in 2010-2020

	2000	2005	2010	2015	2020	Annual Growth Rate (2000-2020)
Greater Ulaanbaatar /9 districts/	735.5	1160.0	1339.6	11548.5	1648.8	4.23%
City of Ulaanbaatar (6 districts)	668.2	927.5	1108.4	1270.0	1396.0	3.75%



Environmental and socio-economic data

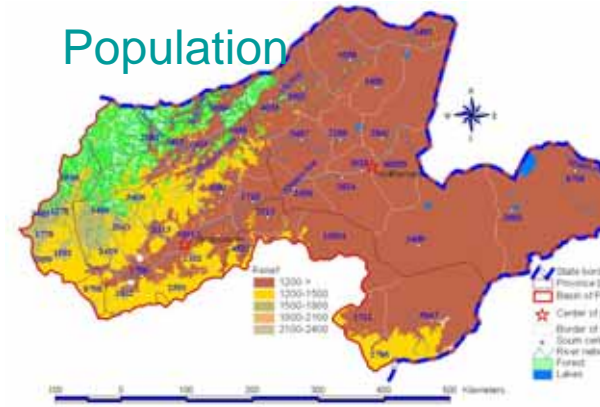
Soils



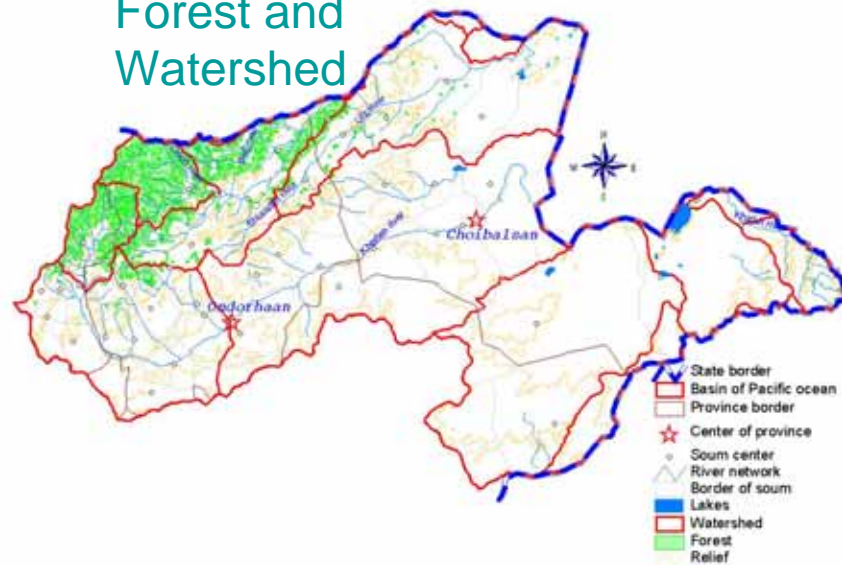
Vegetation



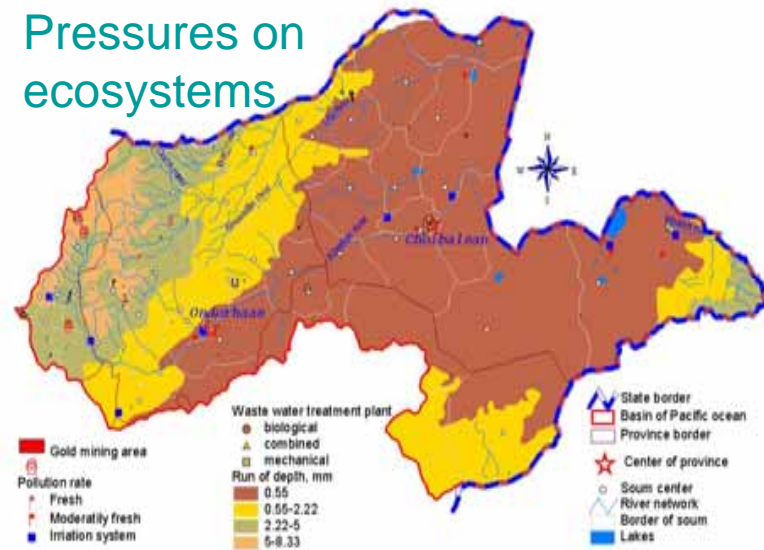
Population



Forest and Watershed



Pressures on ecosystems



Reference basin	Selbe river	Lat.	Long.	Herlen	Lat.	Long.	Hovd	Lat.	Long.
METADATA (River Basin Description)									
Location (longitude and latitude extent)		48.25-47.9167 N	106.8333-107.000 E		49.0909-49.3364 N	107.4-116.0667		47.2727-50.4 N	88.2667-92.2933
Catchment outlet longitude and latitude		47.9781 N	106.928 E		48.1	115.5333		48.1454 N	92.2933
Catchment area, sq. km	220			116455			58000		
Number of MOLTS points in the basin	2			2					
MOLTS point1 longitude and latitude	Ulanbaator	47.628 N	106.726 E	Herlen-Bayan-Ulaan	47.213 N	108.742 E	No		
MOLTS point1 elevation	1200								
MOLTS point2 longitude and latitude	Mandalgobi	45.743 N	106.264 E	Forest site	48.352 N	108.654 E	No		
MOLTS point2 elevation									
...									
MOLTS point X									
Basin Contacts (Name, office address, phone, fax, email)									
Basin Maps	available			available			available		
Basin Pictures	available			available			available		
River Network Maps	available			available			available		
Soil Maps and Soil Characteristics	limited data available			unavailable			unavailable		
Land Use Maps and Vegetation Characteristics	available			available			available		
River Constructions (dams, weirs, etc.) - type, location (longitude, latitude)	No			No			No		
OBSERVATION DATA - HYDROLOGICAL									
Streamflow	available			available			available		
Reservoir (Water level, Outflow)	available			No			No		
Groundwater Table	limited			Very limited			Very limited		
Others - please specify (each data type on a single line)									
OBSERVATION DATA - SUB-SURFACE									
Soil Temperature	available			available			available		
Soil Moisture	available			unavailable			unavailable		
OBSERVATION DATA - SURFACE									
Air Temperature	available			available			available		
Humidity	available			available			available		
Wind	available			available			available		
Pressure	available			available			available		
Precipitation	available			available			available		
Snow	available			available			available		
Skin Temperature	available			available			available		
Upward Shortwave Radiation	available			unavailable			unavailable		
Downward Shortwave Radiation	available			unavailable			unavailable		
Upward Longwave Radiation	available			unavailable			unavailable		
Downward Longwave Radiation	available			unavailable			unavailable		
Upward Photosynthetically Active Radiation	available			unavailable			unavailable		
Downward Photosynthetically Active Radiation	unavailable			unavailable			unavailable		
Net Radiation	available			unavailable			unavailable		
Sensible Heat Flux	available			unavailable			unavailable		
Latent Heat Flux	available			unavailable			unavailable		
Ground Heat Flux	available			unavailable			unavailable		
Momentum Flux	unavailable			unavailable			unavailable		
CO2 Flux	unavailable			unavailable			unavailable		
Evaporation	unavailable			unavailable			unavailable		
Vegetation	limited data available			limited data available			limited data available		
OBSERVATION DATA - Atmosphere									
Planetary Boundary Layer Tower	unavailable			unavailable			unavailable		
Radiosonde	available			limited			limited		
Radar	available			unavailable			unavailable		
Lidar	unavailable			unavailable			unavailable		
Profiler	unavailable			unavailable			unavailable		
RASS	unavailable			unavailable			unavailable		

Modeling strategy



Downscaling /reanalysis data

Distributed Hydrological Model /Water Gap

Development of land and water use and other scenarios

Climate change and human Impact assessment and analysis

Strengthening Integrated River basin Management in a River basin



THANK YOU FOR YOUR ATTENSION