DESERTIFICATION AND LAND DEGRADATION IN MONGOLIA

A brief history of desertification study in Mongolia

- The status of desertification and hot spots for the national policy development were assessed 3 times.
  - In 1990 using methodology of Turkmen Institute of Desert Study
  - In 2000 using FAO methodology
  - In 2006 using MEDALLUS approach
  - In 2010 using DPSIR approach and LADA methodology

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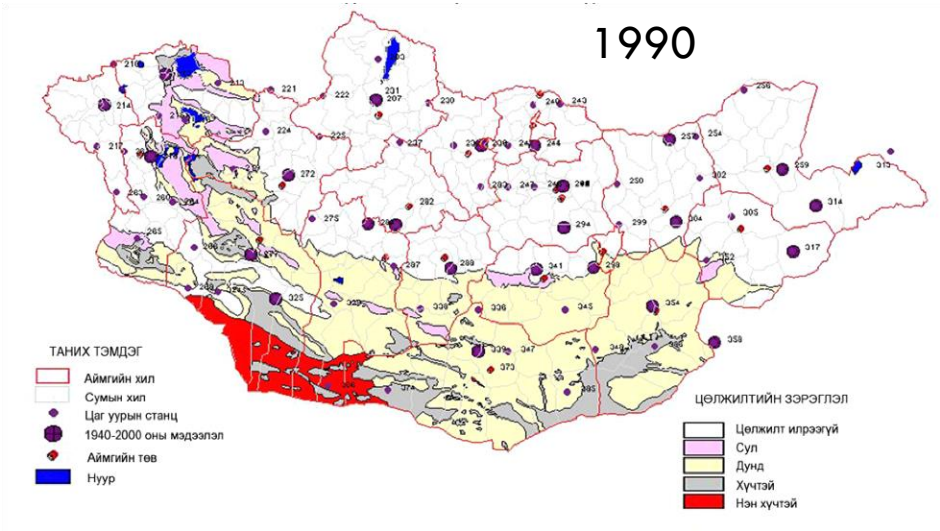
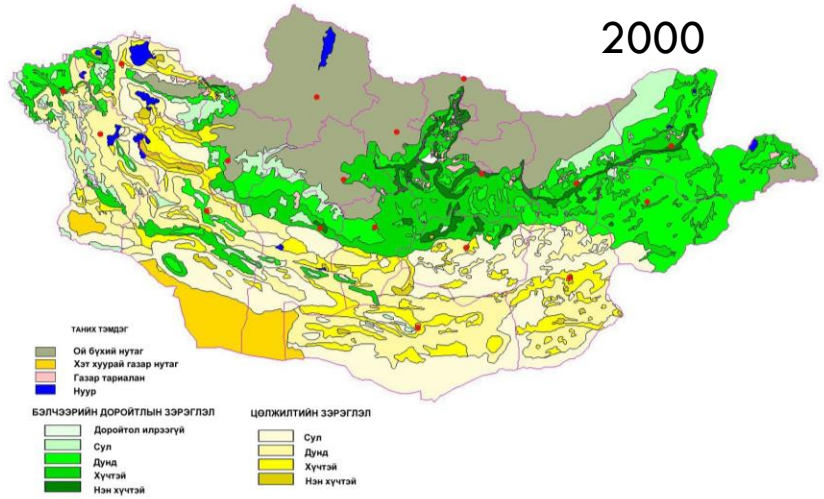
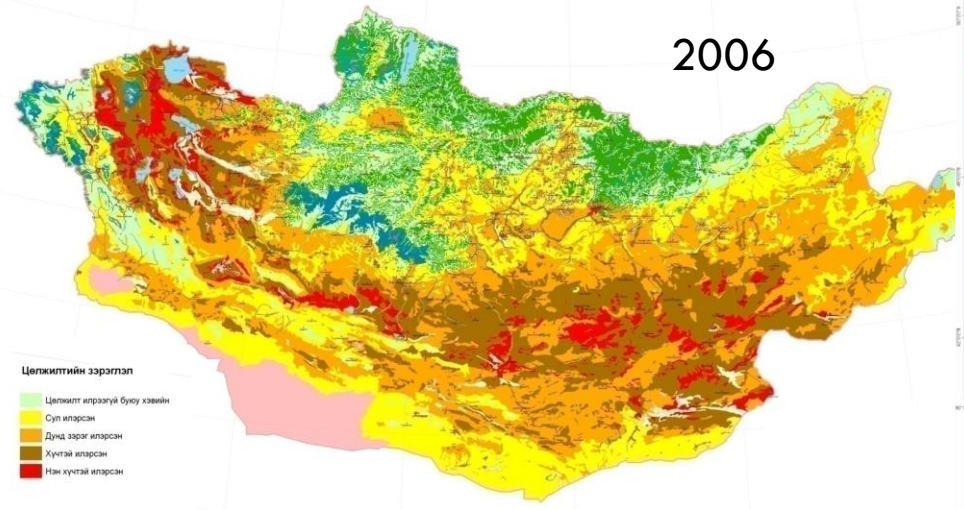
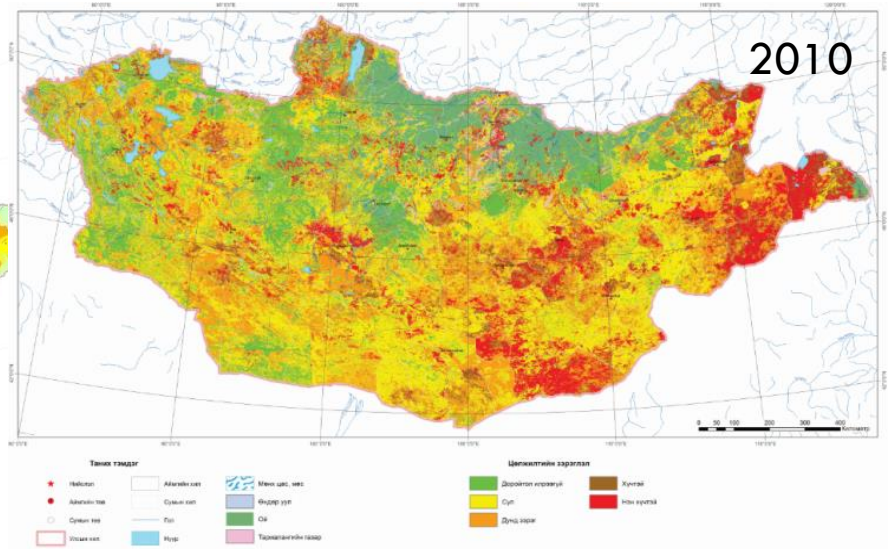






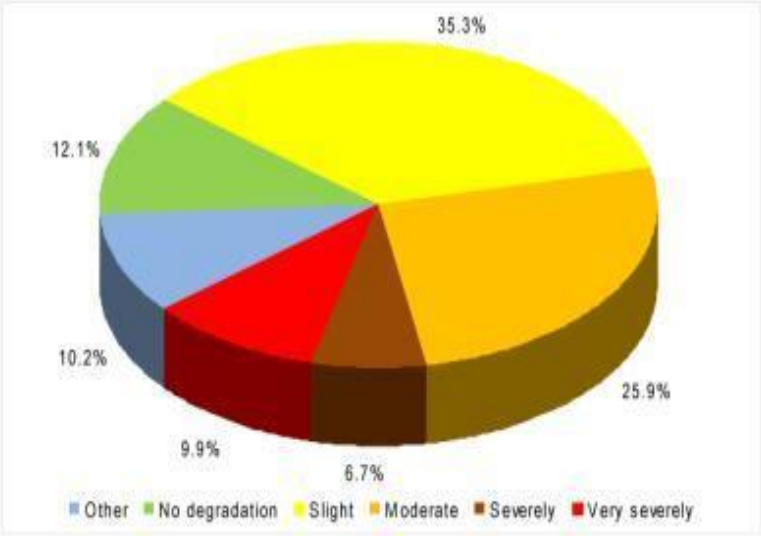


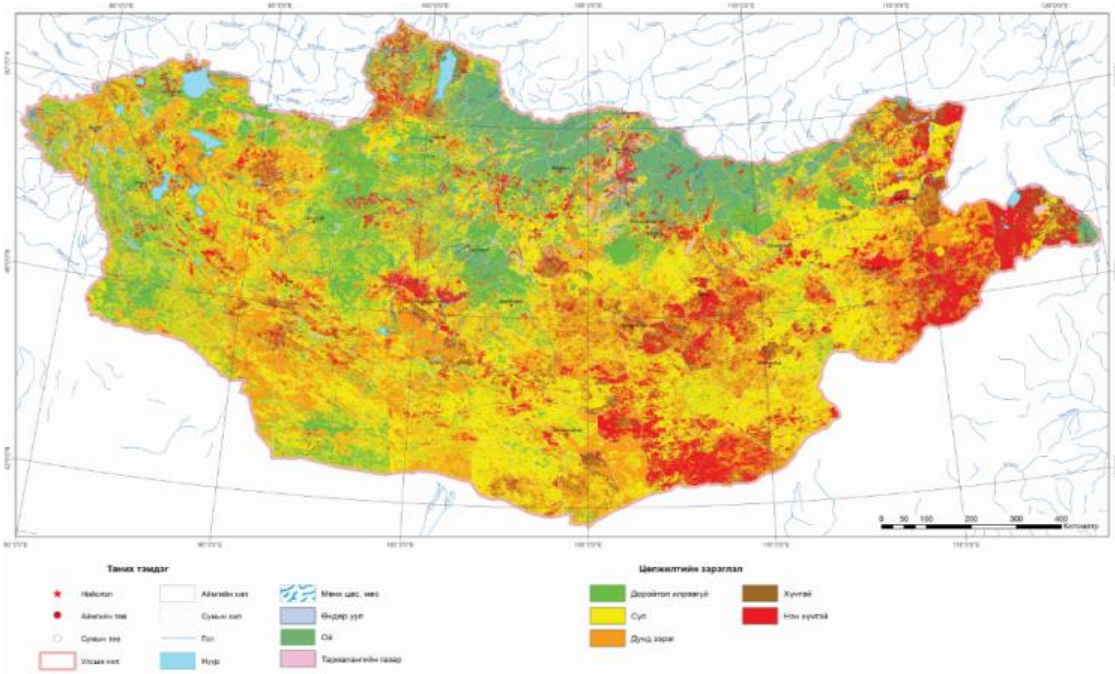
A brief history of desertification study in Mongolia

- Combating desertification activities in Mongolia
  - 1980s: The first measures to combat sand encroachment began in Gobi region
  - 1990s: The first windbreak forest to protect settlement from dust and sand storm is established in Zamiin-Uud
  - 2000s:
    - The National Green Belts programme is initiated.
    - Several international projects funded by UNDP, SDC are implemented.
    - The law on combating desertification and soil conservation is adopted.
    - The monitoring system is established.
    - The first research and experimental center for developing technologies to combat desertification is established.

Current state of desertification

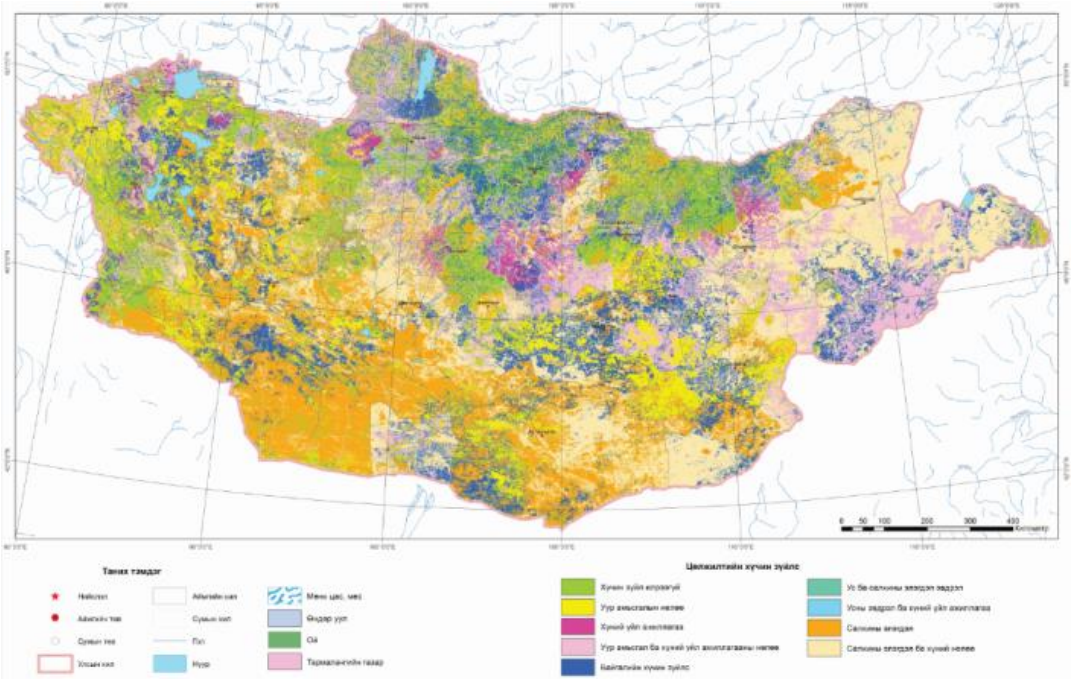
- About 77 % of the total territory affected by land degradation and desertification.





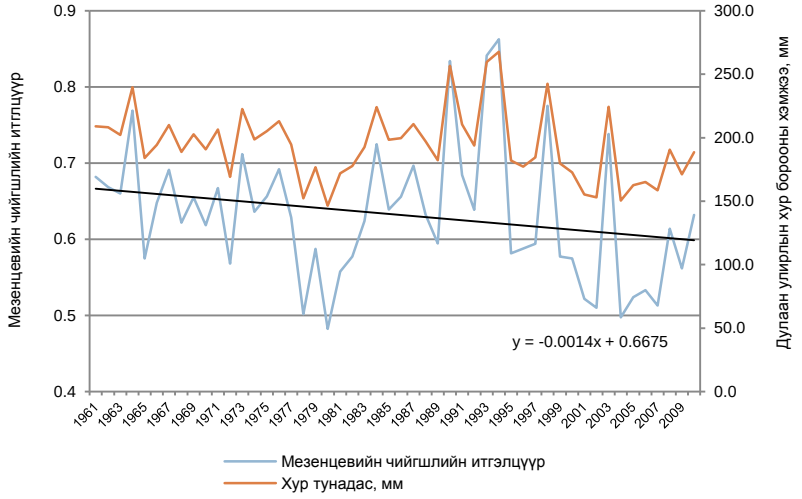
Current state of desertification

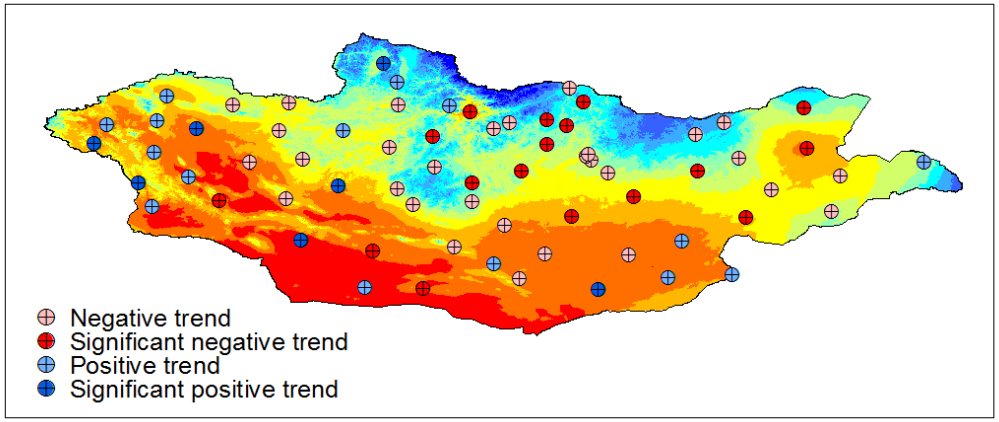
- The main factors of desertification are:
  - Drought and increased aridity
  - Wind erosion
  - Increase of livestock density in a certain places
  - Increased centralization
- As of spatial distribution of land degradation processes
  - 20.8 % affected by wind erosion
  - 36 % affected due to overgrazing
  - 16 % of the territory have experienced successive drought events

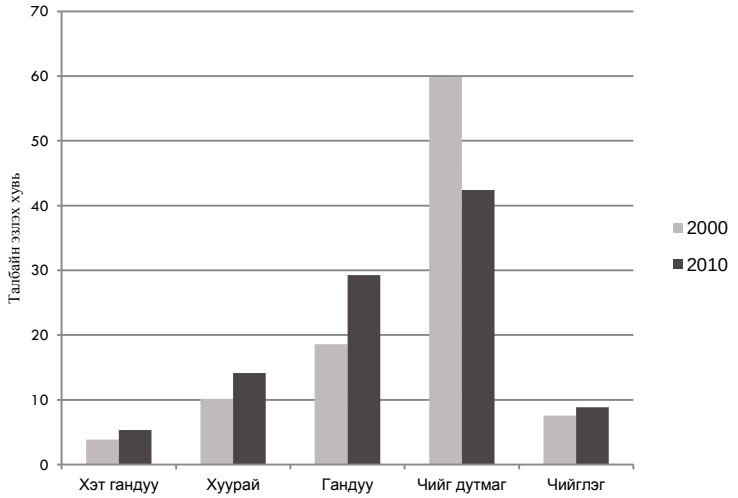


Climate impact on land

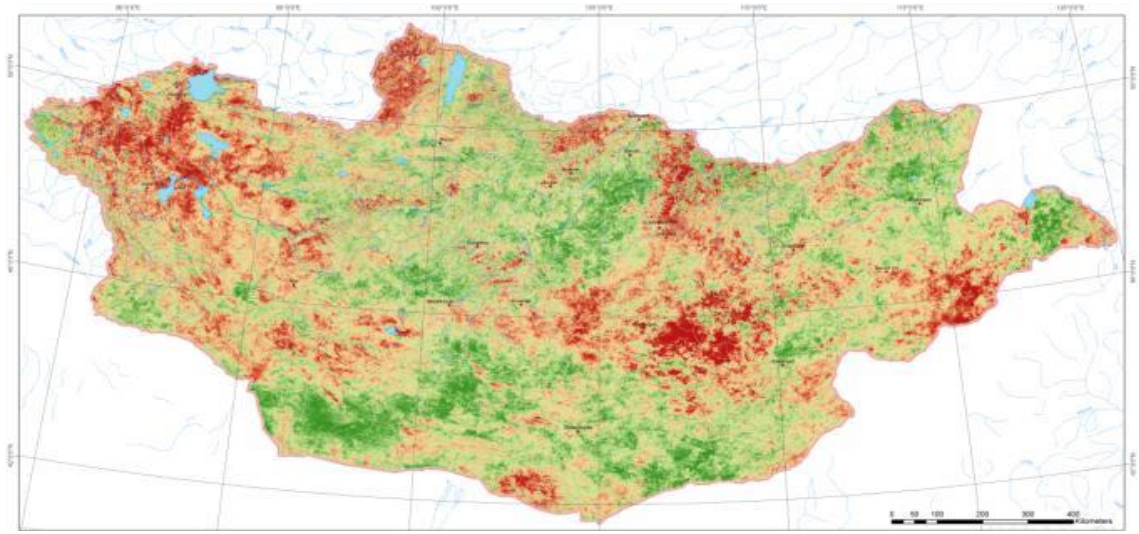
- The climate aridity is assessed using data from 69 stations.
- An increase of aridity have observed in 49 stations of which statistically significant increase was for 16 stations.
- In the west and south west of the country the aridity if slightly decreasing.

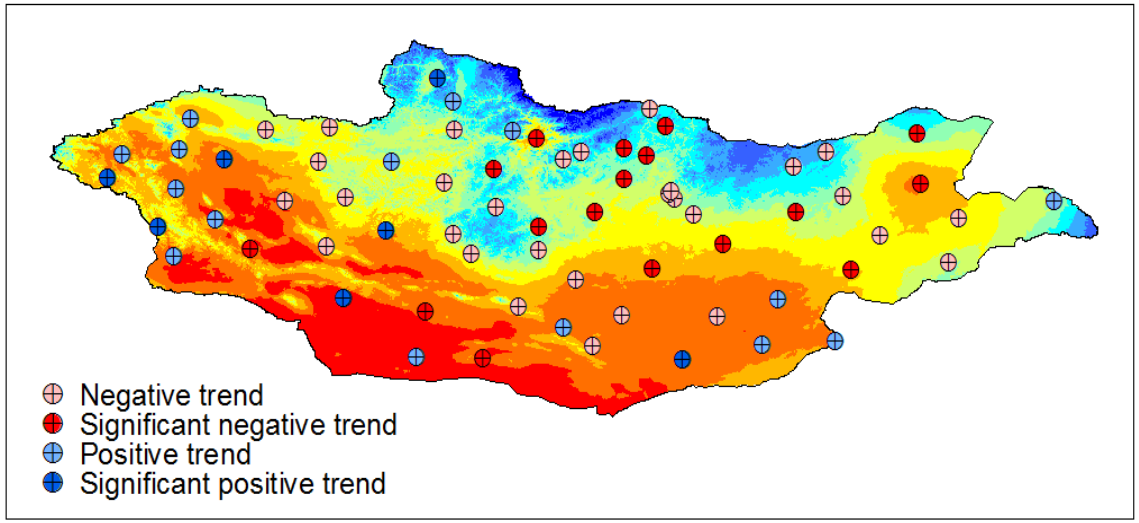






Climate impact on land

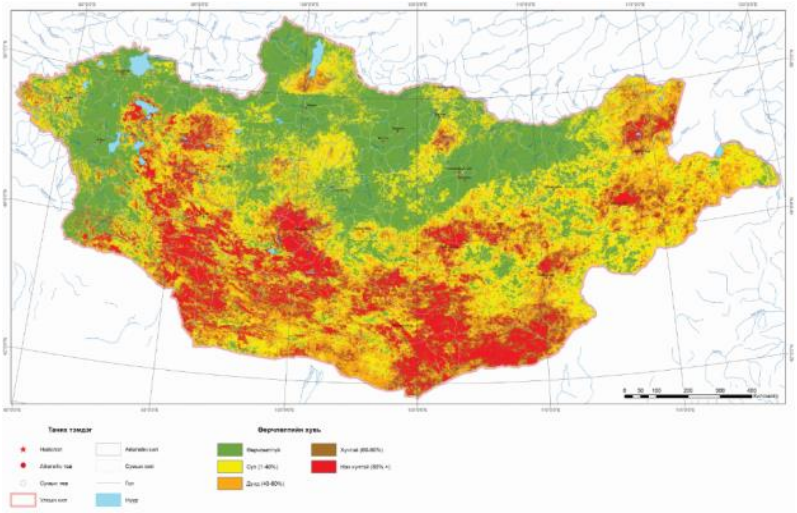


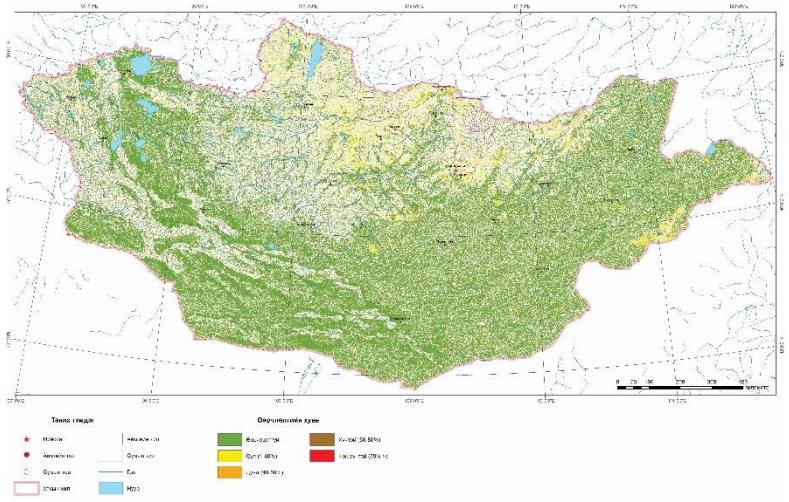


- Comparing the trend of vegetation cover change by means of NDVI and aridity index it can be concluded that central part of the country has experiencing a great impact of climate change and the environment is becoming arid.
- The NDVI analysis revealed a large scale hot spots here vegetation is gradually getting sparse during the last decade.

Natural processes

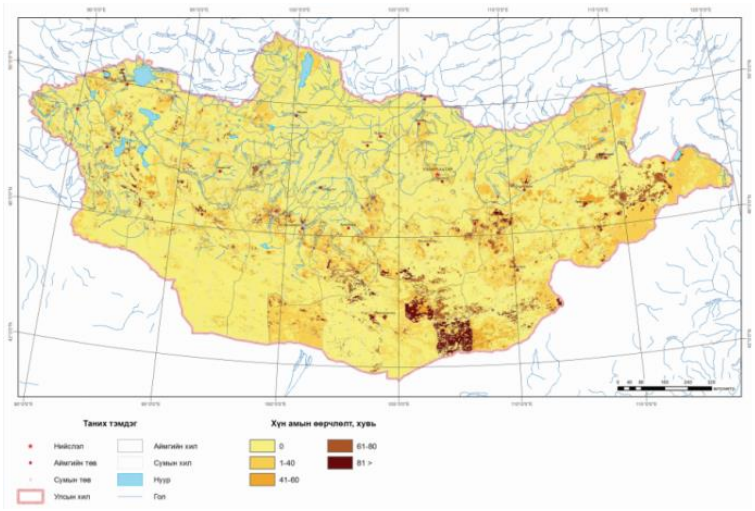
- Results of erosion models revealed that:
  - More than 60% of total territory are affected by wind erosion.
  - About 9 % of total territory are affected by water erosion.





Socio-economic situation

- Population
  - During the last two decades Mongolia faces intensive internal migration of the population from rural areas to cities.
  - By the 2010 in the capital city Ulaanbaatar was living 41.4 % of the Mongolian population .
  - Nationally, 63.3 % of the total population (1760.4 thousand people) is living in urban areas
- Livestock
  - The growth and decline pattern of livestock numbers since 1960, it fluctuated somewhere between 20-25 million during 1970-1990. However, livestock number doubled since 1995.
  - In the past livestock number has not remained constant and has been fluctuating in a "growing-declining-growing-declining" pattern.
  - the results of our estimations showed that 32 % of the total livestock of Mongolia is in Khangai region, 29 % is in western region, 15 % in eastern region, 14 % in Govi region and 9 % in central part of Mongolia.



Conclusions and discussions

- The land degradation is a crucial problem for Mongolia.
- The underlying factors of the increasing trend of land degradation and desertification is a climate and changes occurred in climate system.
- The spatio-temporal distribution of the livestock is leading to the concentration, thus increasing the severity of the land degradation.
- The most challenging issue in respect to combating desertification is how to make the current land management effective and sustainable.

Perspectives in science and technology

- Linking remote sensing and ground monitoring data to obtain more reliable information on mechanisms of land degradation in Mongolian grasslands
- Improve forest, water and land management through best practices and technology transfer at the community level.
- Adapt, transfer and invent suitable technologies to expand the current afforestation practices.
- Erosion control system, drought early warning and all other relevant research communication is essential to increase awareness, support policies and implement actions.