UNFCCC Asian Regional Workshop on Adaptation
Beijing, China, 11 to 13 April 2007

POTENTIAL IMPACTS OF CLIMATE CHANGE & EVALUATION OF ADAPTATION MEASURES FOR LIVESTOCK SECTOR, MONGOLIA

P.BATIMA
B.NANDINTSETSEG

Institute of Meteorology & Hydrology, NAMHEM

NATIONAL CIRCUMSTANCES

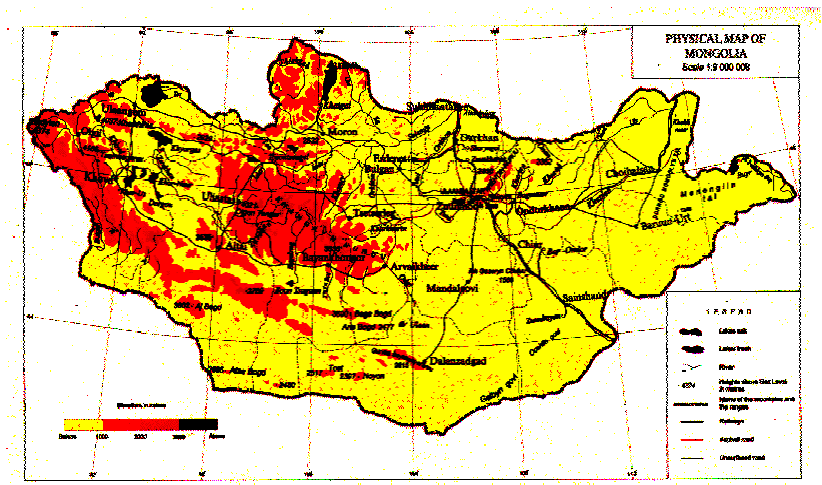
Mongolia is land-locked developing country located in the northern latitudes where is the highest global warming is occurring on our Earth.

Location: 41°35'N and 52°09'N and 87°44'E and 119°56'E.

Total area: 1,566 600 km2
Population: 2.5 ml
Annual Mean Temp: -7.8° … 8.4°C
Annual Precipitation: 200-220mm

The Mongolian economy is relatively diversified.

- Agriculture
- Industry and construction
- Tourism
- Mining



Climate Changes Studies in Mongolia

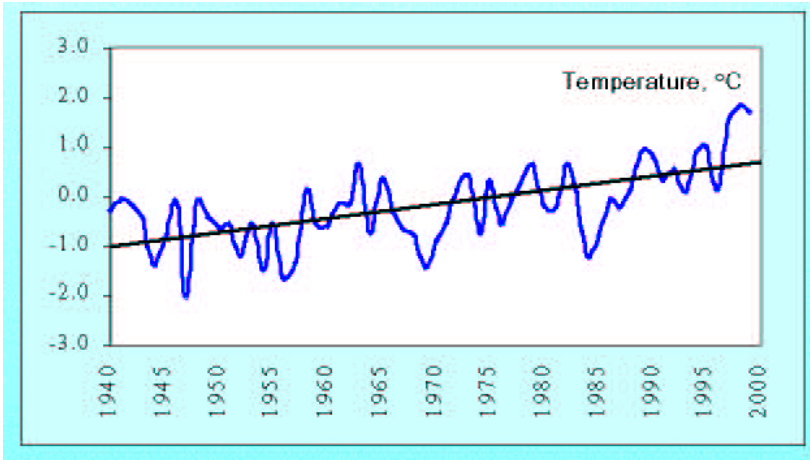
- The government of Mongolia signed the UNFCCC on June 12, 1992 and the Parliament of Mongolia ratified it on September 30, 1993.
- The first climate change study was carried out under the US Country Studies Program (USCSP
- In 2000, Mongolia developed its National Action Programme on Climate Change (NAPCC) with assistance from the Government of the Netherlands.
- The latest studies of climate change impact on natural resources (environment), rangeland and animal husbandry are carried out by “Potential Impacts of Climate change and Vulnerability and Adaptation Assessment for Grassland Ecosystem and Livestock Sector in Mongolia” project (supported by GEF, START, TWAS, UNEP), Mongolia2002-2005.

Animal Husbandry

- The pastoral livestock sector directly engages half of the Mongolian population & provides food and fiber to the other half.
- Livestock and livestock-processed exports amount to about one-third of foreign exchange earnings.
- Mongolia's development is highly dependent on pastoralism.
- The total number of Livestock: 37.4ml.
- Mongolian native breeds of animals are characterized by en excellent adaptation to the harsh environmental conditions.
- Nevertheless, about 2.4% of the population dies each year because of severe weather conditions.

Climate Change in Mongolia

- Temperature in Mongolia has increased by 1.9ºC since 1940.
- The occurrence of natural disasters like extreme hot and cold weather, drought, dzud, flood and sand storms in Mongolia has increased.
- Melting of high mountain glaciers has increased.
- Permafrost is degrading intensively mountainous areas of Mongolia.



- Ground water table is decreasing in arid regions, and degradation and desertification of the land due to shortage of water and precipitation have been intensifying.

Impacts of Climate Change

- **A climatic factor that is associated with animal grazing in summer high temperature.**
- **Expected ewe weight changes estimated for climate change projections from HadCM3 model as an example of animal weight decline under future climate.**
- **The incidence of drought is expected to increase in the future. There is also a strong relationship between drought/dzud (severe winter) and animal deaths.**
- **Dzud represents a high risk of humans in the affected areas because of their reliance on livestock for livelihoods and food.**

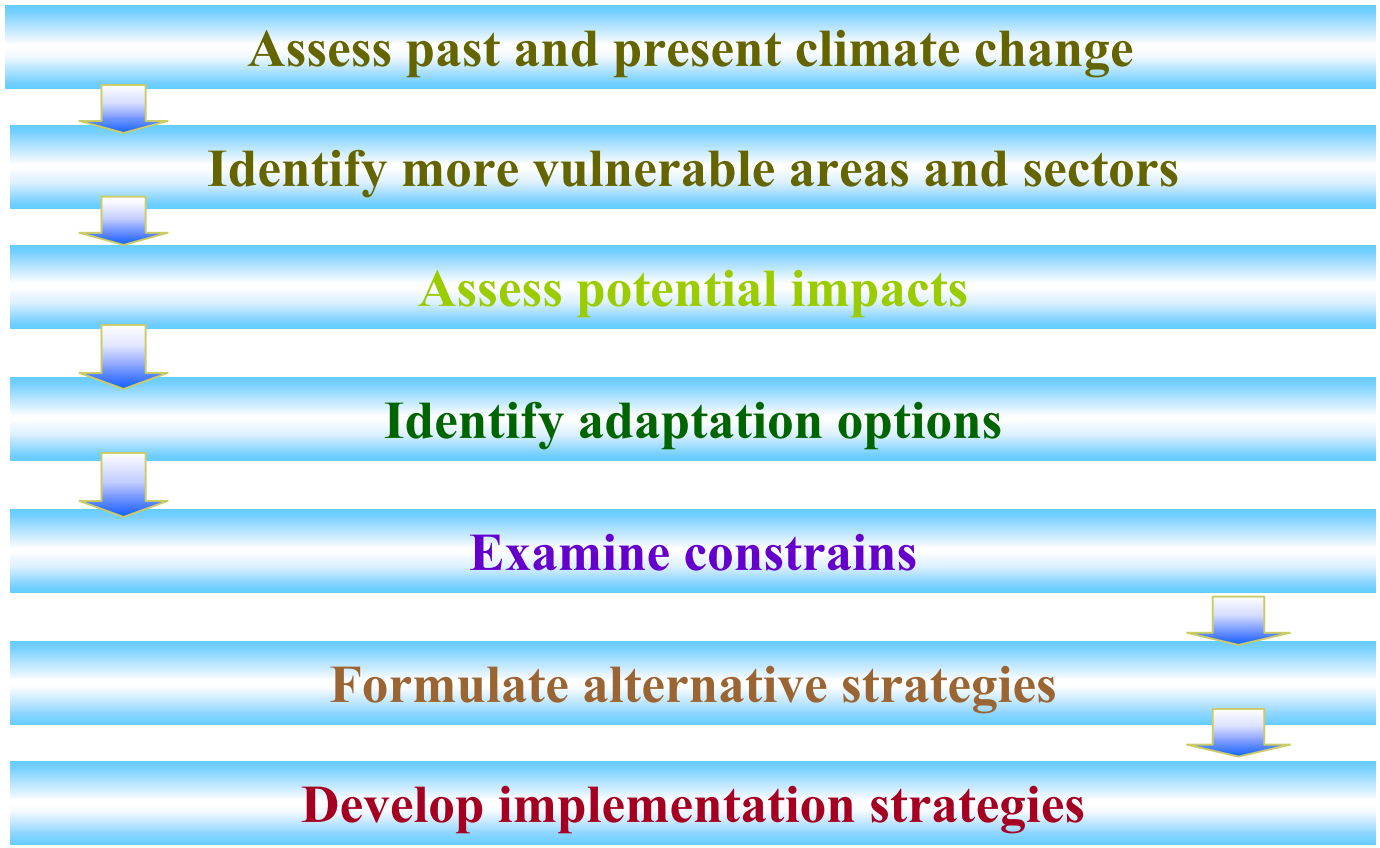
Contd…

- **In addition to climate variability and changes are affecting the herder's perspective on the use natural resources for the purpose of livestock production and livelihood sustainability.**

- **Livestock privatization provided tremendous incentives for increasing livestock number and possessing more pasture recourse free. Increasing overstocking, overgrazing, and distortion of traditional grazing technologies have started to destroy ecological balances.**

- **Therefore, balanced agriculture policy and strategies are needed to provide both demands for increased agriculture production and sustainable development.**

Development of adaptation strategy



Legal Framework

- **Mongolia developed its National Action programme on Climate Change (NAPCC) in 2000.**
- **NAPCC includes adaptation measures in Agriculture Sector of Mongolia.**
- **NAPCC has three phases:**
  - **Short term 2000 – 2005**
  - **Medium term 2006 – 2015**
  - **Long term Beyond 2015**

Major adaptation measures planned in NAPCC in Agro sector

- **Education herdsmen and farmers on sensitive issues of climate change**
- **Technology and information transfer to farmers and herdsmen**
- **Research and technology to ensure agricultural development capable of dealing with various environmental problem in the 21st century.**
- **Coordination of information from research, inventories and monitoring**

Lessons learned and best practices identified impacts of CC on the Agriculture

- **During 2001-2005, the research project was undertaken under Assessment of Impacts & Adaptation to Climate Change aimed to formulate adaptation measures that focus on those issues national concern.**

- **It also aimed at evaluating concrete and practical adaptations that could possibly decrease the livestock sector's vulnerability to climate change.**

Adaptation measures

- Conserving the natural recourses
- Strengthening animal biocapacity
- Enhancing capacities and livelihood opportunities of rural communities
- Increasing food security and supply
- Improving understanding of climate extremes and forecasting

Discussion Adaptation Measure

- **Adaptations for the purpose of improving the economic sustainability of livestock production and the ecological sustainability of natural resources used in livestock production is focused on improving feed availability to livestock during annual production cycles.**

- **Reduction of vulnerability of livestock to impacts of climate change through the suggested adaptation measures requires actions in a coordinated way and incorporation in long-term planning.**

Cont…

- **Research, training, strengthening, and building upon existing capacity might be most important measure in strengthening the adaptive capacity.**

- **Improvement of the forecasting and warning systems is essential, although implementation could be deterred by institutional and communication infrastructure. Increase disaster forecasting as drought and dzud, would however help in preparing to meet potential dangers.**

Barriers

- Institutional-Problems in Mongolia seem more or less recognized at sectoral levels, and they are being addressed to a certain extent.
- Financial-Because of the economic difficulties in Mongolia– as the country is undergoing a transition period-the government as failing to resolve financing issues.
- Technical–Lack of modern machinery and equipment that could ease work like preparing hay, milking of animals, cutting of wool and cashmere, storing, packing of animal products etc.
- Legislative-Adequate polices and strategies should be established both at the national and the local level.

Conclusions

- **If we cannot adapt to current climate risks, it will be difficult, even possible, to adapt to future risks associated with climate change.**

- **The time already come to implement the adaptation measures obtained thought assessment. (to find financing in implementation of adaptation measures)**

- **The suggested adaptations measures are useful in coping with climate change. However, it may make sense to start with existing adaptations that people have already made to deal with climate variability and extreme events.**

How can the UNFCCC process better facilitate adaptation planning and implementation ?

- To provide complementary financial resources for developing country
- To increase number of regional workshop and training on Vulnerability and Adaptation Assessment