ACTIVITIES OF GCOE LIAISON OFFICE IN MONGOLIA

Ya.Jambaljav\textsuperscript{1}, D.Battogtokh\textsuperscript{1}, D.Azzaya\textsuperscript{2}, S.Damdinsuren\textsuperscript{3}, N.Baatarbileg\textsuperscript{3}

\textsuperscript{1}Geography Institute of Mongolian Academy of Sciences
\textsuperscript{2}Institute of Metrology and Hydrology
\textsuperscript{3}Biology faculty of Mongolian National University
CONTENTS

I. Geographic location of Mongolia
II. Natural zones
III. Climate of Mongolia
IV. Activities of liaison office in Mongolia
V. Acknowledgement
Mongolia is located in the transition zones between the Siberian taiga and Steppe, and Central Asian Desert (Gobi desert), the environment of country is very sensitive to any changes that can be caused by climate change and by over grazing.

As Mongolia is located in transition zones there are 6 natural zones: such as High Mountain Zone, Taiga Forest Zone, Mountain Forest Steppe Zone, Steppe Zone, Desert-Steppe Zone, Gobi Desert Zone.
1. **High Mountain Zone.** All Mongolia is “mountain”, The average altitude of Mongolia is 1580m above the sea level.

   High Mountain Zone - winds, extreme cold, and very short growing season.

2. **Taiga forest zone.** Northern Mongolia includes the southern rim of Siberia 's vast taiga forest, the largest forest on the planet Earth. The taiga is boreal forest, mainly Siberian Larch and in higher areas Siberian Pine.
3. **Mountain forest steppe.** About 25% of Mongolia is a mix of forest and grassland, a transition zone between taiga forest and steppe with northern slopes clothed in trees and southern slopes carpets of wild flower of open grassland.

4. **Steppe Zone** is a sea grass covering 20% of Mongolia, crucial for the livestock of the semi-nomadic herder families with livestock such as horses, goats, sheep, cattle, and camels.
Natural zones of Mongolia

5. **Desert Steppe Zone** on the north rim of the Gobi Desert. A dry region of parched grasslands and salt pans, strong winds and dust storm. It has grasses and shrubs very different from those of the Steppe Zone many are unique to Central Asia.

6. **Gobi Desert Zone** is one of the world's great deserts, The climate is harsh, from 40°C in summer to -40°C in winter. The vast Gobi is host town of world’s wildlife such as wild camel, wild horse and etc.
Records from land stations indicate that the mean annual air temperature has been increased by 1.56 °C since 1940. This increase of air temperature is twice more than average increase of air temperature in globe. Models of global climate suggest that Central Asian regions of globe, such as Mongolia, may warm more than other regions.

Mean annual air temperatures range between 8.5°C in the Gobi desert and -7.8°C in the high mountain areas. The mean annual precipitation is 50-400mm per a year.
Activities of liaison office in Mongolia

1. Due to geographical location of Mongolia in the transition zones between the Siberian taiga and Gobi desert, the environment of Mongolia is very sensitive to any changes.

2. According to one of major tasks of GCOE program the liaison office is established at environmentally vulnerable region, such as Mongolia, which has more environmental issues of academic field and of public field.

3. Significant features of environment in Mongolia are (1) Extreme continental climate with cold winter and short hot summer, (2) High altitude (averaging height is 1580 m ASL), (3) High altitude and cold climate promote occurrence and development of permafrost. (4) Extreme different natural zones from Siberian taiga to Gobi desert, (5) Nomad with livestock and in 2008 the amount of livestock increased about twice more than it was before 1990.

4. Research target of our IFES-GCOE project is degradation of land and ecosystem service resulted from combined impacts of global and social change.
Major activities of the Liaison Office in Mongolia

Major activities of the Liaison Office will be
1) making web page, brochure, etc., in Mongolian language to introduce research and educational activities of GCOE guidance for the admission for international students;
2) making community to enhance academic exchange;
3) conducting collaborative researches, summer school, workshop, symposium;
4) assisting for applications of various permissions and documentations required for GCOE activities;
5) publishing text books and guidelines,
6) outreaching GCOE activities.
Activities of liaison office in Mongolia

1) making web page, brochure, etc. in national language to introduce research and educational activities of GCOE guidance for the admission for international students;

- In framework of this topic we translated the brochure of our IFES-GCOE project into Mongolian language.
- At present we are planning to translate the web page into Mongolian language

04/03/2009
Activities of liaison office in Mongolia

2) making community to enhance academic exchange;

- In framework of this topic the liaison office has been opened at Geography Institute of MAS, MONGOLIA
- GCOE Symposium on Integrated Field Environmental Science on Eurasian ecotone, Mongolia was held in Institute of Metrology and Hydrology of Mongolia on February 17th, 2009
- Two students came to Sapporo for PhD course in end of February.
3) conducting collaborative researches, summer school, workshop, symposium;

- It is one of major topics of IFES-GCOE project
- According to one of main plans of Global COE program the crucial environmental issues are (A) degradation of permafrost in arid land mountain permafrost regions; (B) overgrazing the grassland areas; (C) urbanize and pollution of air and areas surrounding of urban.

04/03/2009
Activities of liaison office in Mongolia

3) **conducting collaborative researches, summer school, workshop, symposium;**

A. **degradation of permafrost in arid land mountain permafrost regions**

Due to its geographical location, Mongolia is characterized by arid land mountain permafrost with temperature of closely to **zero** degree and with deep active layer.
Activities of liaison office in Mongolia

3) **conducting collaborative researches, summer school, workshop, symposium;**

- This permafrost is vulnerable to climate change. As Mongolia is at the southern fringe of Siberian permafrost, it is likely that changes in permafrost will involve **permafrost thaw**, not only **permafrost warming** (Etzelmuller, 2005).
3) conducting collaborative researches, summer school, workshop, symposium;

B. overgrazing the grassland areas;

Activities of liaison office in Mongolia

International Workshop on the Planning of field training course for the Integrated Environmental Sciences

04/03/2009
B. overgrazing the grassland areas;
Amount of livestock has increased twice more in 2008 than it was before 1990.
Activities of liaison office in Mongolia

3) conducting collaborative researches, summer school, workshop, symposium;

C. urbanize and pollution of urban air and areas. Approximately half of population of Mongolia live in Ulaanbaatar, capital city. Due to increase of population there are a lot of environmental issues, such as air pollution, pollution of near urban soil, etc.
C. urbanize and pollution of urban air and areas.
Approximately half of population of Mongolia live in Ulaanbaatar, capital city.
Due to increase of population there are a lot of environmental issues, such as air pollution, pollution of near urban soil, etc.
Activities of liaison office in Mongolia

4) assisting for applications of various permissions and documentations required for GCOE activities;

We have a experience to conduct the international projects. Our institutes (Geography Institute, Institute of Metrology and Hydrology, National University of Mongolia) closely has collaborated with Hokkaido University from 1990s. Since 2002 we have been collaborated with Institute of Observational Research for Global Change at JAMSTEC in which some of our colleagues from HU works as invited research scientist (Dr Yuji Kodama, Mamoru Ishikawa).

04/03/2009
5. **publishing text books and guidelines,**

We are planning to prepare the text books and guidelines for 2011\textsuperscript{th} summer school in Mongolia.

Also in 2011 we are planning second international symposium on mountain and arid land permafrost. First symposium was held in 2001 in Ulaanbaatar, Mongolia.
Activity of liaison office in Mongolia

6) outreaching GCOE activities;

Propose adaptive strategies for Earth System
I wish to thanks the colleagues from Faculty of Environmental Earth Science, HU and especial thanks Dr Mamoru Ishikawa, Atsuko Sugimoto for their kind supports to open the liaison office in Mongolia.
Thank you for your attention
We invite you to visit our country, MONGOLIA