MICHIGAN STATE UNIVERSITY

Center for Global Change and Earth Observations

САРУУЛ ХОДОО

HOSTS:

Institute of Geography-Geo-ecology, Mongolia Academy of Science (IGG, MAS)
Saruul Khuduu Environmental Research & Consulting (SKERC)
Center for Global Change and Earth Observations (CGCEO), Michigan State University (MSU)

WORKSHOP LOCATION:

Conference is located at Chinggis Khaan Hotel Tokyo Street - 10, Ulaanbaatar - 49, Mongolia,
http://www.chinggis-hotel.com
WORKSHOP WEBSITE
http://lees.geo.msu.edu/research/UB2017/
http://senacgc.org/

WORKSHOP ORGANIZING COMMITTEE:

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AGENDA

May 31 and June 1, Wednesday and Thursday
Participants arrive to Ulaanbaatar

June 2, 2017, Friday – Day 1
8:15-8:30: Registration & informal exchange (drop your business card please, Ochirbat & Park)

8:30-9:30:
Introduction
Welcome (Directors of IGG/MAS, SKERC and CGCEO/MSU)
Logistics: Questions and Answers (Tungalag, Ohirbat, Park)
Keynote address (20 min): Garik Gutman

9:30-10:0: Workshop objectives & procedure (Fan & Chen)

10:00-10:30: Tea break
10:30-12:00:
Informative presentation of resources (3-5 minutes)
Available data for sharing at MSU: John, Shao, Ouyang, & Park (10 min)

- Ochirbat
- Bao
- Mack
- Yue
- Zhang
- Chi
- Liu
- Xin

12:00-13:30: Group photo and lunch

13:30-15:00:
Synthesis working session (I)
Synthesis objectives
1) Groisman et al. (5+2 min)
2) Fernández-Giménez, Allington et al. (5+2 min)
Parallel Group Discussion
1) Groisman et al.
2) Fernández-Giménez, Allington et al.

15:00-15:30: Tea break
15:30-17:00:
Synthesis working session (II)
Synthesis objectives
3) Zhuang et al. (5+2 min)
4) Fan et al. (5+2 min)
Parallel group discussion

3) Zhuang et al.
4) Fan et al.

18:00: Welcome reception

June 3, 2017, Saturday – Day 2

9:00-16:30: Field trip (outskirt of Ulaanbaatar, Bat and John)

June 4, 2017, Sunday – Day 3

8:30-10:00:
Synthesis working session (III)
Synthesis objectives
5) Chen, Wu et al. (5+2 min)
6) Leisz et al. (5+2 min)
Parallel Group Discussion
5) Chen, Wu et al.
6) Leisz et al.

10:00-10:30: Tea break
10:30-12:00
Synthesis working session (IV)
Synthesis objectives
7) Henebry et al. (5+2 min)
8) Lu et al. (5+2 min)
Parallel Group Discussion
7) Henebry et al.
8) Lu et al.

12:00-13:00: Lunch
13:00-14:30:
Group report (5-6 min each)
Groisman, Fernández-Giménez, Zhuang, Fan, Chen, Leisz, Henebry, Lu

14:30-15:00: Tea break
15:00-16:00
Future actions (Henebry)
Future Earth: Qi
NEFI, Groisman
Open floor

16:00: Products, schedule, others (Chen)
16:00-16:30: Adjourn (Fan, Chen, Ochirbat, Tungalag)

June 5, 2017, Monday – Day 4

8:30-12:00 Ulaanbaatar field trip (Park)

Participants

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Synthesis Manuscripts

Ulaanbaatar, Mongolia
Jiquan Chen and Peilei Fan
(Coordinators)
May 2, 2017

GOALS

- Synthesize the lessons learned from active researchers/labs for cross-team publications
- Discuss potential collaborations via proposal development

FOCI

- Coupled Human Nature Systems in Mongolian Plateau
- Urbanization and Sustainability Under Global Change and Transitional Economies in Southeast, East, and North Asia

ADDITIONAL INFORMATION

There are several opportunities as potential outlets for proposed manuscripts:

- **ERL** (*Environment Research Letters*): A special issue (SI) on NEFI is in progress (by invitation ONLY).
- **LE** (*Landscape Ecology*): We are encouraged to recommend (or orchestrate) 3-5 synthesis manuscripts for a "special section".
- **LAND** (*Landscape and Urban Planning*): There is a special issue (SI) on urban landscapes in transitional economies. The deadline is: June 1, 2017.
- **EP** (*Ecological Processes*): A non-SCI, open access journal with rising influence.
- **ALT** (alternatives): Authors are encouraged to consider other journals, e.g., *Bioscience*, *Society and Ecology*, etc. The organizers are willing to facilitate the communication if needed.

ROLES & RESPONSIBILITIES FOR LEAD (CO-) AUTHORS

- The role of the lead author is to guide the development of the manuscript, coordinate the contributions of co-authors, and lead the integration and writing of the manuscript from early drafts to submission, revision, and publication.
- The lead author also needs to: (1) ensure the scientific and intellectual integrity of the research presented in the manuscript; (2) ensure that anyone who is willing to participate as a co-author is given the opportunity; (3) serve as a corresponding author with the journal; (4) serve as a corresponding author with workshop sponsors; (5) make sure that anyone who makes contributions to the discussion at the workshop are invited as co-author or acknowledged; and (6) acknowledge the support from our workshop sponsors in any publications based on this workshop.
- The co-author needs to contribute material to the production of the manuscript, approve the final version submitted for review, contribute to the revision of the manuscript, and approve the revised version.
- More specifically, a co-author needs to: (1) ensure the scientific and intellectual integrity of the co-author's research contributed to the manuscript; (2) make material contributions to the manuscript in terms of data and/or results and/or interpretation as well as write sections and/or review manuscript drafts; and (3) respond timely to manuscript-related requests from lead author and other co-authors.

SUMMARY

* *This reflects the initial opinion of Jiquan and Peilei. The author(s) of each manuscript will decide the journal for submission.*

Lead Author	Title	Objectives	Journal*
1) Groisman et al.	Dry land belt of northern Eurasia: contemporary climate changes and their consequences	To address the climatic changes observed over the dryland belt (DLB) of Asia in the past decades; and outline the possible links of these changes with other external and internal factors of the contemporary regional environmental changes in the DLB.	ERL
2) Fernández-Giménez, Allington et al.	Group-level rules, resource tenure, and household-level pastoral management practices predict ecological outcomes across Mongolian steppe ecosystems	To use structural equation models to explore the relative strengths of the contributions of community-level rules, household resource tenure, and household-level management practices on ecological outcomes at the pasture scale.	ERL
3) Zhuang et al.	Quantify the responses of plant biomass and carbon budget to extreme climate events and land-use change on the Mongolian plateau	To use some in situ data to check the model before having a product run for the region. Specifically, this synthesis manuscript is designed to: (1) link plant productivity (biomass supply) with meteorological (historical) and climatic (future) data, especially, temperature and precipitation, this will need to collaborate with climate experts in this team or beyond the team. The focus could be examining the extreme events etc.; (2) link biomass with anthropogenic activities, including land use change, this will need your inputs; and (3) use tower data to test if models are doing well for key ecosystem types on the plateau, this need a few tower measurement folks.	ERL
4) Fan et al.	Urbanization and sustainable societal development under transitional economies and global change: A synthesis of North Asian cities	To synthesize knowledge and link key socioeconomic and biophysical drivers, especially institutional mechanism unique in transitional economies and global climate changes, to the spatiotemporal changes of urbanization and urban sustainability in North Asia.	ERL
5) Chen, Wu et	Ecosystem-society	To synthesis data, knowledge, and	ERL

al.	interactions on a changing Mongolian Plateau Or A retrospective and prospective assessment of the sustainability of the Mongolian Plateau: The end of nomadism?	quantitative models on ecosystem and social resilience to the changing climate and dynamic socioeconomic pressures placed on the fragile ecosystems of the Mongolian Plateau, through a multi-disciplinary analysis of ecosystem and social resilience to the changing climate and dynamic socioeconomic pressures placed. Specifically, our objectives are to: 1) assess the sustainability of the plateau during the past several decades; (2) identify key socioeconomic and biophysical drivers for unsustainability in the region; and (3) propose a set of evidence-based and policy-relevant guidelines for promoting the future sustainability of the Mongolian Plateau.	
6) Leisz et al.	Telecoupling and secondary cities in transitional economies in Southeast Asia	To investigate the role that telecoupling have on the growth of secondary cities along the network of transnational economic corridors in the Greater Mekong Subregion (GMS). This paper will look at the impacts of these corridors on the urban growth patterns of previously isolated secondary cities that are found in these corridors.	LAND
7) Henebry et al.	Ties that bind: Dynamics of remittance networks in Central Asia	To compare remittance networks across the CAC-5 and Mongolia on the receiving side and Russia, China, US, and key other sending countries to examine the regional and international linkages that arise from migrating workers as well as macroeconomic shocks (e.g., the Great Recession, Russia's annexation of Crimea).	ERL or current opinion in environ-mental sustain-ability
8) Lu et al.	Examining spatial patterns and rates of urban expansion through a comparative analysis of coastal and inland metropolitans	To conduct a comparative analysis of coastal metropolitans (Shanghai and Shenzhen in China, and Ho Chi Minh city in Vietnam) and inland metropolitans (Ulaanbaatar in Mongolia, Lanzhou in China, and Vientiane in Lao PDR) for the spatiotemporal changes in 1985-2015.	LE

9) Ochirbat et al.	Pasture land soil properties change in Central Mongolia	To assess soil properties change in grazing land area in case study of Central Mongolia or Tuul river basin area.	TBD
10) BaoGang et al.	Assessing the impacts of summer drought and phenology on net primary productivity in the Mongolian Plateau	To assess and quantify (or separate) the impacts of summer drought and spring and autumn phenology on variations of NPP in the Mongolian Plateau during 1982–2011 using second- and third-generation GIMMS NDVI and MODIS NDVI datasets and meteorological data. The Carnegie-Ames-Stanford-Approach (CASA) ecosystem model will be used to model NPP, and a cumulative NDVI-based logistic regression model will be used to extract the phenological variables.	LE
11) Shao et al.	Vegetation change effects on evapotranspiration and its biophysical controls in Mongolia	To quantifying the effects of vegetation type change on evapotranspiration (ET) and the underlying mechanism of biophysical regulations in various ecosystems under similar environmental conditions is critical for an accurate understanding of water budgets and modeling predictions. For the first time, a cluster of four eddy covariance towers were set up to answer how ET fluxes shift among four different ecosystems in Mongolia – meadow steppe (MDW), typical steppe (TPL), dry typical steppe (DRT) and shrubland (SHB).	ERL
12) Mack et al.	Biophysical and human drivers of water availability in drylands east Asia	To examine the linkages between biophysical and human dimensions of water availability in the Drylands area of East Asia. Time period to be determined by data availability.	LE
13) Yue et al.	Evaluation and comparison of urban vitality among typical cities in Southeast, East, and North Asia	To conceptualize urban vitality into several specific dimensions and to evaluate the urban vitality by integrating the remote sensing data, census data and crowd-sourced data from SENA.	TBD

14) Zhang et al.	The changing population, livestock and land use of Mongolia in transition	To quantify the changing population, the migration patterns and their distribution, the dynamics of livestock and the land use particularly in mining and cropland in transition. Our emphases are to understand how the people, animals and land are connected and how the climate and policies changes affect the coupled natural and human systems.	TBD
15) Chi et al.	Ecological migration in rural drylands of central and east Asia within a coupled community and pasture system framework: the implications of climate change, demographic dynamics, globalization, and geopolitics	To extend the coupled human and natural (CHN) system framework for understanding ecological migration both as a consequence of and a cause to changes in landscape structure and ecosystem services in rural drylands. This synthesis manuscript is focused on the herding communities that have traditionally formed the basis of local economics in rural Kyrgyzstan, Mongolia, and Inner Mongolia of China.	*Global Environ. Change*
16) Liu et al.	How land-use change affect the water use over the Monsoon Asia over the past 30 years	To analysis the agricultural land use change over the Monsoon Asia during 1980-2010 and estimate how irrigation water demand change in the long-term trends, inter-annual variability and its seasonality. By using the coupled VIC-CropSyst model, we will attribute the water demand to climate change and variability, irrigation technology, land use, and crop varieties with controlled simulation experiments.	LE
17) Xin et al.	Anthropogenic and climate impacts on grassland ecosystems' carbon dynamics in northern China	To understand: 1) increases in grazing intensity did not necessarily result in significant impact on ecosystem productivity in the northern grasslands in China, 2) grassland ecosystems appear to have a mechanism to adjust its ecological process to maintain resilient, and 3) one of ecosystem adjustment mechanisms is to change its biomass allocation between stems and roots.	TBD

Emergency contacts

In case of emergency, please contact our local organizers

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Field Trip Plan

1 Day tour of Mongolian nomads show and Lun Flux station

2017 June 3, Saturday

08:30: Board bus for field trip (50 km)

Program of the day and logistics for the field trip (Ochirbat Batkhishig, student assistant)

10:00: Arrive at Mongolian nomad performance (http://www.mongolnomadic.com/en/)

10:00: The show “Mongolian nomads” demonstrates traditional living way of real Mongolian nomads and breeding and using of five kinds of livestock and movement from one place to another using ox, yak, camel and horse carts. Also traditional Mongolian ger and all furniture and clothing are antiques that reflect the features and manners of the Central Khalk Mongols in the beginning of 20th century.

12:30: Lunch in the “Mongol Nomadic” camp

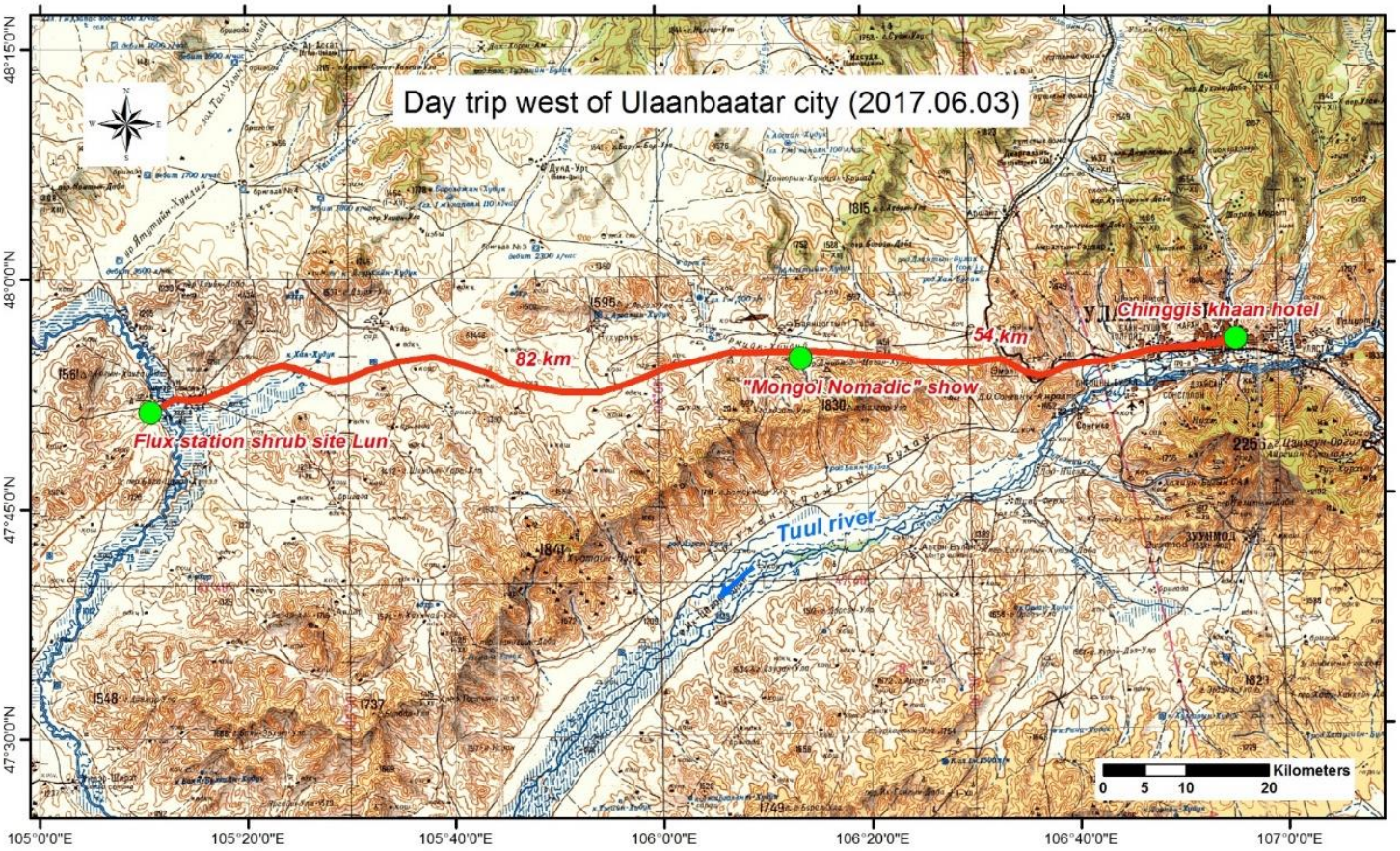
13:30: Go to the “Flux station shrub site” in Lun area (80 km)

14:30: Visit “Flux station shrub site” in Lun area (Dr. Changliang)

15:00: Begin return journey (130 km)

16:30: Rest stop at any place of interest on the way

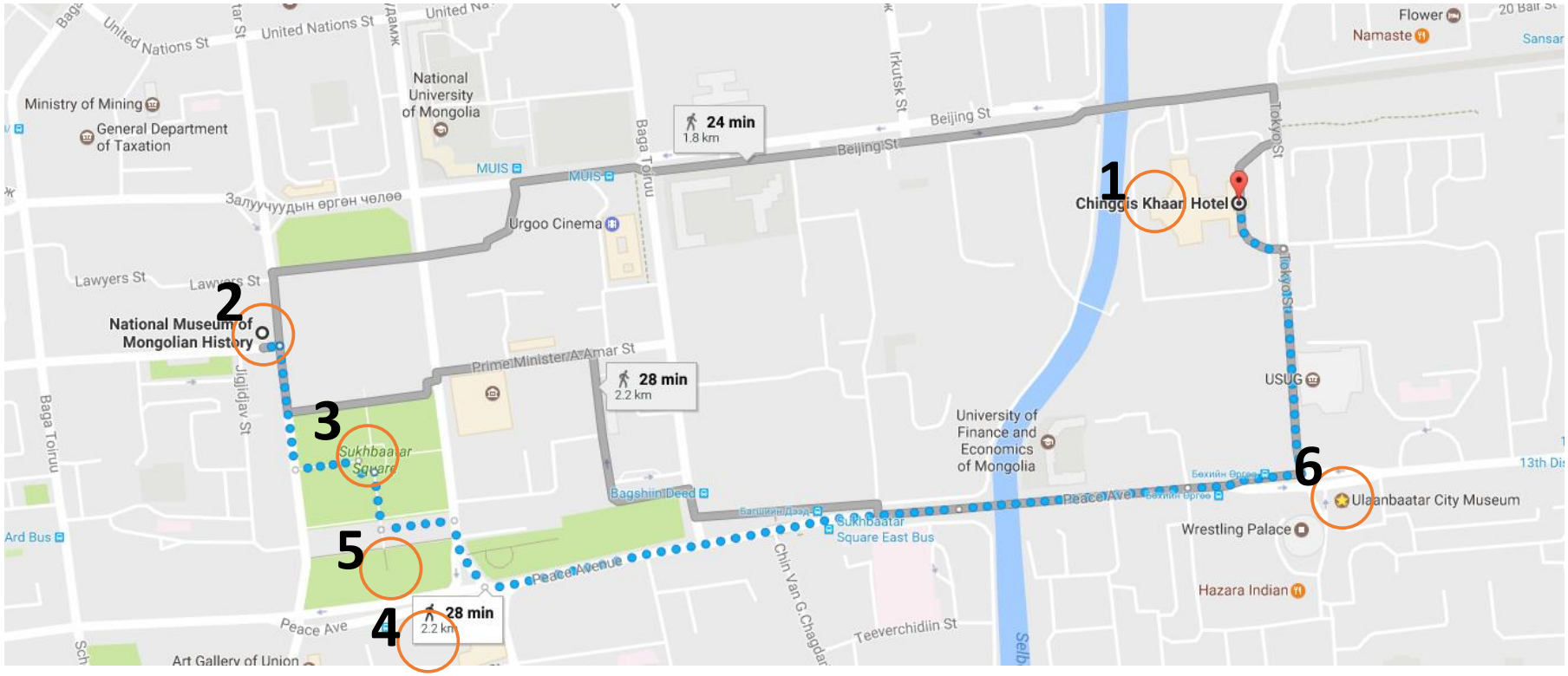
17:30 Reach Hotel



"Mongol Nomadic" show Demonstrates traditional living way of real Mongolian nomads and breeding and using of five kinds of livestock and movement from one place to another using ox, yak, camel and horse carts. Also Mongolian ger is made of by traditional making and all furniture pots and clothing are antiques reflecting the feature and manner of Central Khalks in the beginning of 20th century.

Flux station shrub site Lun Eddy flux system and Automatic Weather Station (AWS) located in the west of Lun soum (soum - country administrative subdivision) center in the typical dry steppe with Caragana bushes. The Eddy flux station is a key atmospheric measurement technique to measure and calculate vertical turbulent fluxes and CO2 gas concentration within atmospheric boundary layers.

Half day city field trip: June 5, 2017, Monday



09:00 | (1) Meet at the hotel – Walking tour

09:30 | (2) National Museum of Mongolian History

The National Museum of Mongolia is the museum in Mongolia, established in 1924, that became the basis for other museums. Exhibitions cover prehistory, pre-Mongol Empire history, Mongol Empire, Mongolia during Qing rule, ethnography and traditional life, and twentieth-century history.
Admission: 8,000 MNT

11:00 | (3) Sukhbaatar Square

The grounds of the present day government palace and public square were largely occupied by the monastery and temple complex of Ikh Khüree in the late 19th and early 20th centuries. The temple-complex was razed shortly after the Outer Mongolian Revolution of 1921 and was replaced with the National Theater. The theater was destroyed by fire in 1949. Mongolia's leader Khorloogiin Choibalsan then ordered the construction of the Government Palace on its site in 1951.

11:20 | (4) Choijin Lama Temple

The Choijin Lama Temple (Mongolian: Чойжин ламын сүм; Official name given by Manchu Qing Emperor Guangxu, is a Buddhist monastery in Ulaanbaatar.
Admission: 8,000 MNT

12:00 | (5) Blue Sky Hotel – Returning to the hotel

We highly recommend spending time in the observatory café in Blue Sky hotel.

12:20 | (6) Ulaanbaatar city museum (tentative)

*/ schedule is weather contingent and depends on museum exhibitions.

Workshop Tips

- Bring at least $100 USD cash, as you might need it for taxis, admission tickets, and food.
- Travel from the airport to the hotel: You can take a taxi at about $20 for a one-way trip. Chinggis Khaan Hotel also provides transportation to and from the airport. Contact the hotel (reservation@chinggis-hotel.com) and provide your travel information within 72 hours and they will schedule a ride. Fees apply at 70$ per vehicle for round trip. Details can be checked online: http://www.chinggis-hotel.com/7-3.php
- If you are an international traveler, bring AC power adapters for your cell phones and laptops. The voltage in Mongolia is 220 V. There are two different types of power outlets used in Mongolia, types E and C with the primary power supply being type E:

  Plug Type C - You can identify the power supply by the two holes adjacent to each other for live and neutral pins.
  Plug Type E - This sunken circular wall socket can be recognized by its two 4.8mm round adjacent holes for live and neutral pins plus one long metal grounding pin protruding in the top in a triangular configuration.