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## REPORT

### ANNUAL JOINT RESEARCH SEMINAR

between February and December 2022 Ulaanbaatar, Mongolia

|                     |   |
|---------------------|---|
| <b>Title:</b>       | Urban Resilience and Adaptation for India and Mongolia: curricula, capacity, ICT and stakeholder collaboration to support green & blue infrastructure and nature-based solutions – URGENT |
| <b>Number:</b>      | 619050-EPP-1-2020-1-DE-EPPKA2-CBHE-JP   |
| <b>Coordinator:</b> | Mongolian University of Life Sciences- MULS   |
| <b>Partners:</b>    | National university of Mongolia – NUM<br>Khovd University – KHU<br>Urban planning and Design institute of Ulaanbaatar- UPRI<br>National Garden Park- NGP                                  |

Aim:

1. Researchers to present and discuss their work.
2. Disseminating and sharing knowledge.
3. Researcher can meet other scientists, exchange important information with them.
4. Find a researcher to collaborate with, and listen to new ideas and approaches to problem solving.
5. PhD students actively participate in scientific discussions and can evaluate own studies.
6. Graduate students improve research skills and students will reflect on the importance.

**Seminar moderator:**

Doctor BANZRAGCH Dalai, Mongolian University of Life Sciences

Doctor ODONGEREL Sangidorj, Mongolian University of Life Sciences




**Seminar link:** <https://zoom.us/j/94936278753?pwd=anZKeU40ZmFHOGxPQWRrVW50UIVYZz09>

#### Schedule for joint research seminar

| Date                     | Time     | Presenter       | Topic   |
|--------------------------|----------|-----------------|---|
| Monday<br>28<br>February | 10-12 am | A.Belguun       | Define the elements of design in the park garden planning                 |
|                          |          | U.Oyunzul       | Protecting drinking water resources for the residents of Ulaanbaatar city |
| Monday<br>21 March       | 10-12 am | Ch.Bolormaa     | Hydrogeochemical study of hot springs in the Westren region of Mongolia   |
|                          |          | G.Uranbaigal    | Issues of the environmental infrastructure planning                       |
| Monday<br>18 April       | 14-15 pm | Kh.Munkhtuvshin | Architectural planning of the orchard landscape                           |
|                          |          | N.Oyunchimeg    | Risk based management planning in protected areas                         |
|                          |          | R.Amartuvshin   |   |

|                             |          |              |  |
|-----------------------------|----------|--------------|--|
| Friday<br>03 June           | 10-12 am | G.Battsetseg | Tree Nursery planning and preparing seedlings of shrubs and trees for planting                     |
|                             |          | D.Banzragch  | Impact of urbanization and population on ecosystems of the river terraces                          |
| Thursday<br>27<br>September | 10-12 am | D.Davaadorj  | Geo-ecological study in Darkhan city area  |
|                             |          | E.Narankhuu  | Evaluation of the natural landscape aesthetic: a case study of Uvs province, Mongolia              |
| Monday<br>17 October        | 10-12 am | S.Oyuntuya   | Air layering trees   |
|                             |          | E.Enkhtuul   | Impact of urban heat island on the environment   |
| Monday<br>21<br>November    | 10-12 am | D.Batsuren   | Trend Analysis of Hydro-Climate Variables in Lake Baikal Basin                                     |
|                             |          | D.Khulan     | Urban Design-Appearance of Ulaanbaatar city of Mongolia  |
| Monday<br>19<br>December    | 10-12 am | D.Enkhtuul   | Green facility of the Khovd city   |
|                             |          | B. Batdelger | Health Risk Assessment, and Contamination of Heavy Metals in Street Dust of Erdenet City, Mongolia |

#### PRESENTERS BRIEF BIOGRAPHY

| N <sup>o</sup> | Presenter name                | Photo   | Biography  |
|----------------|-------------------------------|---|--|
| 1              | BELGUUN<br>Agvaannamkhaidorj  |  | A. Belguun is a lecturer at the Mongolian University of Life Sciences and the School of Agroecology. Teaches Project of landscape architecture, Landscape design Composition. Research interest: Landscape architecture of urban plan, Small garden design, River terrace landscape architectural planning, Slope landscape architectural planning |
| 2              | MUNKHTUVSHIN<br>Khishigzundui |  | Kh. Munkhtuvshin is a laboratory manager and lecturer at the Mongolian University of Life Sciences and the School of Agroecology. Teaches park planning and landscape architecture. Landscaping maps of several aimags and districts were completed.   |
| 3              | BANZRAGCH<br>Dalai            |  | Doctor (Ph.D), A senior lecturer at the Mongolian University of Life Sciences and the School of Agroecology, Research Interest: Plant protection, Forest entomology and phytopathology, Environmental risk assessment, Geochemistry and Geoarchaeology   |

|   |                                 |   |  |
|---|---------------------------------|---|--|
| 4 | ODONGEREL<br>Sangidorj          |    | <p>Doctor (Ph.D), A senior lecturer at the Mongolian University of Life Sciences and the School of Agroecology. Teaches urban green space planning, and landscape architecture art. Research interest: Landscape architecture planning, Ornamental botany, Landscape architecture art.</p> |
| 5 | ODONCHIMEG<br>Tumee             |    | <p>Tseaches T.Odonchimeg conducted researches of regional collaboration, teaches Education for sustainable development and philology.</p>  |
| 6 | BOLORMAA<br>Chimeddorj          |   | <p>Teaches biochemistry. She participated in several research project related to hydrochemistry and water ecology</p>  |
| 7 | NARANKHUU<br>Erdenejargal       |  | <p>Doctor (PhD)<br/>Teaches tourism management, landscape aesthetics at The Khovd state University. He has participated several researches regarding tourism management and regional tourism resources.</p>  |
| 8 | D. ENKHTUUL                     |  | <p>MS of Biological Sciences, Lecturer at Khovd Branch School of National University of Mongolia.<br/>Research area: botany and health</p>   |
| 9 | R.Amartuyshin<br>(N.Oyunchimeg) |  | <p>Ecologist. Specialist of Orkhon Valley National Park. Member of the research team that conducted the risk assessment in the protected area.<br/>Topic: Risk based management planning in protected areas</p>  |

|    |                        |   |  |
|----|------------------------|---|--|
| 10 | BATSUREN<br>Dorjsuren  |    | Doctor (Ph.D), Associate Professor, Department of Environment and Forest Engineering, School of Engineering and Applied Sciences, National University of Mongolia, Research Interest: Ecohydrological processes, Hydrological cycle, Water and Climate change, Risk of pollutants, Environmental management, Waste management, Protect the environment |
| 11 | BATDELGER<br>Byambaa   |    | Doctor (Ph.D), Associate Professor, School of Engineering and Applied Sciences, National University of Mongolia, Research Interest: Air pollution, Assessment, and risk of pollutants of Environmental Polycyclic Aromatic Hydrocarbons, Environmental audit   |
| 12 | URANBAIGAL<br>Gotov    |   | G.Uranbaigal, Mongolian Consulting Engineer in Land use and planning, works in the Urban Planning and Research Institute as a head of master plan monitoring and evaluation division. She was responsible for environmental research and planning in the development of the “Comprehensive Master plan for the development of Ulaanbaatar until 2040”. |
| 13 | KHULAN Dashdorj        |  | D.Khulan, Mongolian Certified Architect in Urban Planning, works in the Urban Planning and Research Institute as a senior specialist in urban development, social and economic research division.  |
| 14 | ENKHTUUL<br>Enkhtaivan |  | E.Enkhtuul, Master of industrial and ecological engineering, works in the Urban Planning and Research Institute as a specialist of environment, land ecology and economics in the Master Plan Monitoring and Evaluation Division.  |
| 15 | OYUNZUL<br>Unenbat     |  | Presenter U.Oyunzul Director National Garden Park, Author of “WHAT A WONDERFUL MONGOLIA” series, a travelogue of 21 aimags of Mongolia, Trainer, performed 82 trainings to 8000 managers in capital city and 21 provinces of Mongolia  |

|    |                   |   |  |
|----|-------------------|---|--|
| 16 | BATTSETSEG        |  | <p>Works: National Garden Park, Arboriculture engineer /2020-2022/<br/>National Garden Park, Head of Production and Green Building Department /2018-2020/<br/>Education: National University of Mongolia / 2004-2008/<br/>Profession: Forester</p>   |
| 17 | OYUNTUYA<br>Sugar |  | <p>Works: National Garden Park, Dendrologist<br/>National Garden Park, Production and Green Building Department<br/>Education: 2005 – 2009 Study of National University of Mongolia, Degree obtained: Bachelor. 2012 – 2014 Study of National University of Mongolia, Degree obtained: MSc</p> |

Appendix 1. 28 February 2022

Research online seminar link:

<https://mail.google.com/mail/u/0/#inbox/FMfcgzGrblhhBGGHIQnJjRTJCgQQnHpg?projector=1>



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# JOINT RESEARCH SEMINAR

ULAANBAATAR, MONGOLIA BETWEEN FEBRUARY AND DECEMBER, 2022



A. BELGUUN

MONGOLIAN UNIVERSITY OF LIFE SCIENCES AND THE SCHOOL OF AGROECOLOGY. RESEARCH INTEREST: LANDSCAPE ARCHITECTURE OF URBAN PLAN, SMALL GARDEN DESIGN, RIVER TERRACE LANDSCAPE ARCHITECTURAL PLANNING, SLOPE LANDSCAPE ARCHITECTURAL PLANNING.



U. OYUNZUL

Director National Garden Park, Author of "WHAT A WONDERFUL MONGOLIA" series, a travelogue of 21 aimags of Mongolia, Trainer, performed 82 trainings to 8000 managers in capital city and 21 provinces of Mongolia

DEFINE THE ELEMENTS OF DESIGN  
IN THE PARK GARDEN PLANNING.

PROTECTING DRINKING WATER  
RESOURCES FOR THE RESIDENTS  
OF ULAANBAATAR CITY.

**DATE**

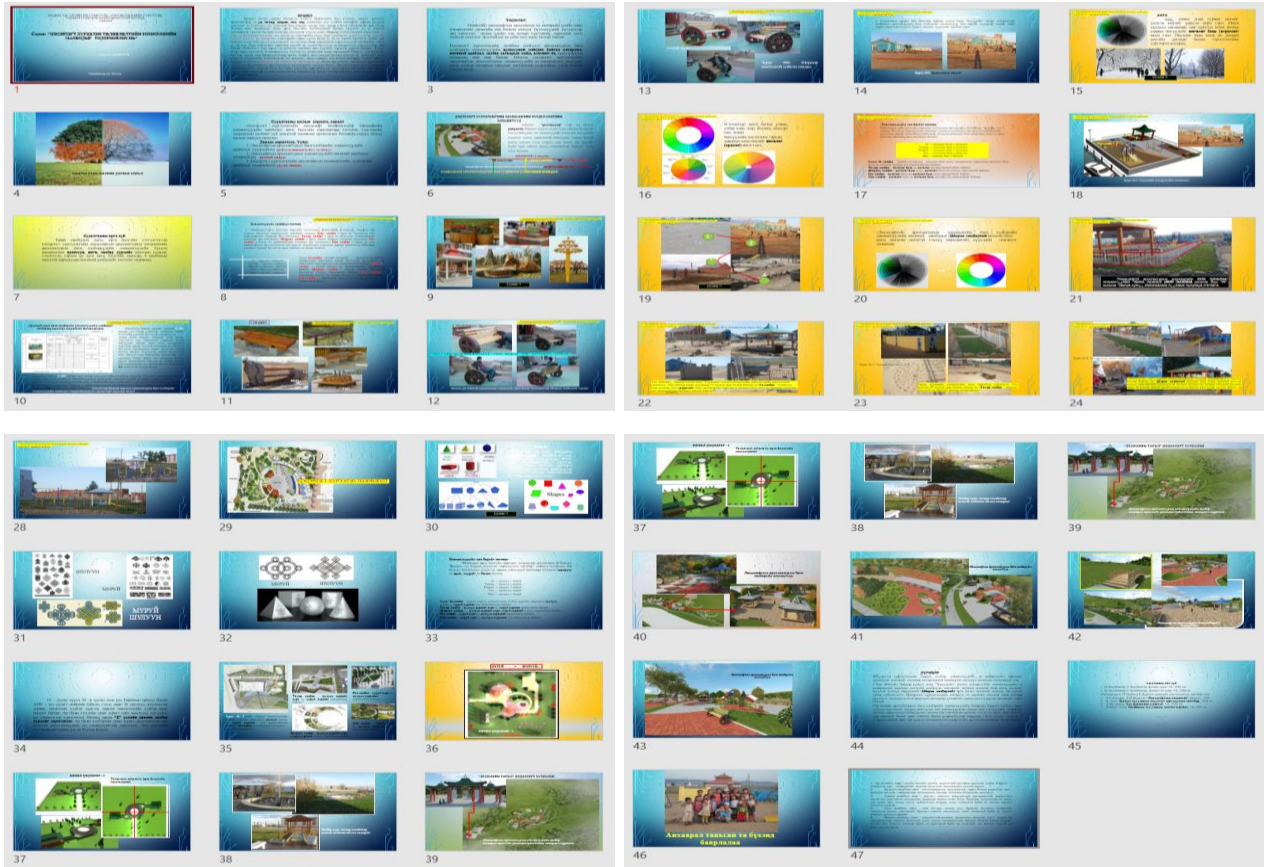
MONDAY

28 FEBRUARY

**TIME**

10-12 AM

## U.Oyunzul “Protecting drinking water resources for the residents of Ulaanbaatar city”



## A.Belguun “Define the elements of design in the park garden planning”



**Appendix 2.** 21 March 2022

Research online seminar link:

<https://mail.google.com/mail/u/0/#inbox/FMfcgzGrblhhBGGHIQnJjRTJCgQQnHpg?projector=1>



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## JOINT RESEARCH SEMINAR THE NATIONAL INTENSE PROGRAM IN MONGOLIA

ULAANBAATAR, MONGOLIA BETWEEN FEBRUARY AND DECEMBER, 2022



**CH. BOLORMAA**

Teaches biochemistry. She participated in several research project related to hydrochemistry and water ecology



**G. URANBAIGAL**

MONGOLIAN CONSULTING ENGINEER IN LAND USE AND PLANNING, WORKS IN THE URBAN PLANNING AND RESEARCH INSTITUTE AS A HEAD OF MASTER PLAN MONITORING AND EVALUATION DIVISION.

HYDROGEOCHEMICAL STUDY OF  
HOT SPRINGS IN THE WESTERN  
REGION OF MONGOLIA

ISSUES OF THE ENVIRONMENTAL  
INFRASTRUCTURE PLANNING

**DATE**

MONDAY

21 MARCH

**TIME**

10-12 AM





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## JOINT RESEARCH SEMINAR

ULAANBAATAR, MONGOLIA BETWEEN FEBRUARY AND DECEMBER, 2022



**KH.MUNKHTUVSHIN**

THE MONGOLIAN UNIVERSITY OF LIFE SCIENCES AND THE SCHOOL OF AGROECOLOGY. TEACHES PARK PLANNING AND LANDSCAPE ARCHITECTURE. LANDSCAPING MAPS OF SEVERAL AIMAGS AND DISTRICTS



**R.AMARTUVSHIN**

SPECIALIST OF ORKHON VALLEY NATIONAL PARK. MEMBER OF THE RESEARCH TEAM THAT CONDUCTED THE RISK ASSESSMENT IN THE PROTECTED AREA.

ARCHITECTURAL PLANNING OF THE  
ORCHARD LANDSCAPE

RISK BASED MANAGEMENT PLANNING  
IN PROTECTED AREAS

**DATE**

MONDAY

18 APRIL

**TIME**

14-15 PM





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## JOINT RESEARCH SEMINAR THE NATIONAL INTENSE PROGRAM IN MONGOLIA

ULAANBAATAR, MONGOLIA BETWEEN FEBRUARY AND DECEMBER, 2022



**G. BATTSETSEG**

WORKS: NATIONAL GARDEN PARK, ARBORI-  
CULTURE ENGINEER /2020-2022/  
NATIONAL GARDEN PARK, HEAD OF PRODU-  
TION AND GREEN BUILDING DEPARTMENT  
/2018-2020/  
EDUCATION: NATIONAL UNIVERSITY OF MON-  
GOLIA / 2004-2008/



**D. BANZRAGCH**

Doctor (Ph.D),  
A senior lecturer at the Mongolian Uni-  
versity of Life Sciences and the School of  
Agroecology, Research Interest: Plant  
protection, Forest entomology and  
phytopathology, Environmental risk  
assessment, Geochemistry and  
Geoarchaeology

TREE NURSERY PLANNING AND PRE-  
PARING SEEDLINGS OF SHRUBS AND  
TREES FOR PLANTING

IMPACT OF URBANIZATION AND POPU-  
LATION ON ECOSYSTEMS OF THE  
RIVER TERRACES

**DATE**

THURSDAY

3 JUNE

**TIME**

10-12 AM



Appendix 5. 27 September 2022

Research online seminar link: <https://youtu.be/eUSCJDgDx-s>



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## JOINT RESEARCH ONLINE SEMINAR

ULAANBAATAR, MONGOLIA BETWEEN FEBRUARY AND DECEMBER, 2022



### D. DAVAADORJ

DOCTOR (PHD), ASSOCIATE PROFESSOR  
DEPARTMENT OF GEOGRAPHY, SCHOOL OF  
ART & SCIENCE, NATIONAL UNIVERSITY OF  
MONGOLIA.

RESEARCH INTEREST: SOIL EROSION, LAND  
DEGRADATION, SOIL CONTAMINATION,  
REMEDATION TECHNOLOGY. PHYSICAL  
GEOGRAPHY AND PALEO-ENVIRONMENT  
RE-CONSTRUCTION



### E. NARANKHUU

Doctor (Ph.D),  
Teaches tourism management, land-  
scape aesthetics at The Khovd State  
University. She has participated several  
researches regarding tourism manage-  
ment and regional tourism resources.

TOPIC:  
GEO-ECOLOGICAL STUDY IN DARKHAN  
CITY AREA

TOPIC:  
EVALUATION OF THE NATURAL LAND-  
SCAPE AESTHETIC: A CASE STUDY OF  
UVS PROVINCE, MONGOLIA.

**DATE**

TUESDAY

27 SEPTEMBER

**TIME**

11-13 AM

# Doctor D.Davaadorj “Geo-ecological study I Darkhan city area”

The posters include the following sections:

- Судалгааны ажлын үндэслэл** (Justification of the study work)
- Судалгааны талбай** (Study area)
- Онолын үндэслэл** (Methodological justification)
- Хөрсний дээж авалт** (Soil sampling)
- Хөрсний бүрэлдэхүүн** (Soil composition)
- Экологийн эрсдэл** (Ecological risk)
- Хүнд металлын агуулгак** (Heavy metal content)
- Бохирдлын коэффициент** (Pollution coefficient)
- Дүнзэлт** (Conclusion)
- Зонхилгох хөрсний тархалт** (Soil distribution)
- Биеийн индекс** (Body index)
- Гео-хуримтлалын индекс** (Geo-concentration index)
- АНХААРЛ ХАНДУУЛСАН БАЯРЛАЛАА** (Acknowledgments)

# Doctor E.Narankhuu “Evaluation of the natural landscape aesthetic: cas estudy of Uvs province, Mongolia”

The posters are numbered 1 through 45 and cover various aspects of the study, including:

- Methodology and objectives
- Study area maps and location
- Data collection and analysis
- Statistical results and charts
- Conclusions and recommendations
- Acknowledgments (АНХААРЛ ХАНДУУЛСАН БАЯРЛАЛАА)

**Appendix 6.** 17 October 2022

Research online seminar link: <https://youtu.be/ANLOkaEAlFg>



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## JOINT RESEARCH ONLINE SEMINAR

ULAANBAATAR, MONGOLIA BETWEEN FEBRUARY AND DECEMBER, 2022



**S.OYUNTUYA**

WORKS:  
NATIONAL GARDEN PARK,  
DENDROLOGIST  
NATIONAL GARDEN PARK, PRODUCTION AND  
GREEN BUILDING DEPARTMENT.  
EDUCATION: 2012 – 2014 STUDY OF  
NATIONAL UNIVERSITY OF MONGOLIA,  
DEGREE OBTAINED: MSc



**E.ENKHTUUL**

Master of industrial and ecological  
engineering, works in the Urban Planning  
and Research Institute as a specialist of  
environment, land ecology and  
economics in the Master Plan Monitoring  
and Evaluation Division.

TOPIC:  
AIR LAYERING TREES

TOPIC:  
IMPACT OF URBAN HEAT ISLAND ON THE  
ENVIRONMENT

**DATE**

MONDAY

17 OCTOBER

**TIME**

11-13 AM

# S.Oyuntuya “Air layering trees”

# E.Enkhtuul “Impact of urban island on the environment”



**Appendix 8.** 21 November 2022

Research online seminar link: <https://youtu.be/wdJaIKPLXpk>



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# JOINT RESEARCH ONLINE SEMINAR

ULAANBAATAR, MONGOLIA BETWEEN FEBRUARY AND DECEMBER, 2022



**D. BATSUREN**

DOCTOR (PH.D), ASSOCIATE PROFESSOR,  
NATIONAL UNIVERSITY OF MONGOLIA.  
RESEARCH INTEREST: ECOHYDROLOGICAL  
PROCESSES, HYDROLOGICAL CYCLE,  
WATER AND CLIMATE CHANGE, RISK OF  
POLLUTANTS, ENVIRONMENTAL MANAGEMENT,  
WASTE MANAGEMENT, PROTECT THE  
ENVIRONMENT.



**D. KHULAN**

MONGOLIAN CERTIFIED ARCHITECT IN  
URBAN PLANNING, WORKS IN THE URBAN  
PLANNING AND RESEARCH INSTITUTE AS  
A SENIOR SPECIALIST IN URBAN  
DEVELOPMENT, SOCIAL AND ECONOMIC  
RESEARCH DIVISION.

TOPIC:  
TREND ANALYSIS OF  
HYDRO-CLIMATE VARIABLES IN  
LAKE BAIKAL BASIN

TOPIC:  
URBAN DESIGN-APPEARANCE OF  
ULAANBAATAR CITY OF MONGOLIA.

**DATE**

MONDAY

21 NOVEMBER

**TIME**

11-13 AM

# Doctor D.Batsuren “Trend analysis of hydro-climate variables in lake Baikal basin”

Department of Environmental and Forest Engineering  
School of Engineering and Applied Science  
National University of Mongolia

## Radioactive levels and human health effects in a dumpsite on Ulaanbaatar city, Mongolia

Dr. Batsuren Batsuren, Ph.D.  
2023.12.21

**2. Materials and Methods.**

**Results and Discussion**

The radionuclide's highest results show relatively little change. All samples measured in the dumpsite have high levels of radioactive isotopes, indicating that the waste content in the dumpsite has a strong impact.

| Radionuclide      | Activity (Bq/kg) | Standard (Bq/kg) |
|-------------------|------------------|------------------|
| $^{226}\text{Ra}$ | 15.2             | 10.0             |
| $^{232}\text{Th}$ | 12.8             | 8.0              |
| $^{137}\text{Cs}$ | 0.5              | 0.1              |
| $^{60}\text{Co}$  | 0.2              | 0.05             |
| $^{235}\text{U}$  | 1.1              | 0.7              |
| $^{238}\text{U}$  | 1.8              | 1.2              |

**1. Introduction**

Urban pollution has a significant negative impact on the health of the population and the economy (Cheng and Yin, 2021). Ulaanbaatar is located in central Mongolia and is the most important region in the country (Department of Statistics, 2021).

**Results and Discussion**

Table 1. Activity of radionuclides in soil (Bq/kg) in Ulaanbaatar.

| Radionuclide      | Activity (Bq/kg) |
|-------------------|------------------|
| $^{226}\text{Ra}$ | 15.2             |
| $^{232}\text{Th}$ | 12.8             |
| $^{137}\text{Cs}$ | 0.5              |
| $^{60}\text{Co}$  | 0.2              |
| $^{235}\text{U}$  | 1.1              |
| $^{238}\text{U}$  | 1.8              |

**Conclusions**

- The activity levels of the soil radionuclides as  $^{226}\text{Ra}$ ,  $^{232}\text{Th}$ ,  $^{137}\text{Cs}$ , and artificial  $^{60}\text{Co}$  were determined using GEM with Compton absorber in samples of soil collected from nearby of the dumpsite.
- The highest rate of radioactivity occurred in soil, indicating the radioactive elements and derived isotopes were as a result of air entering the landfill in Ulaanbaatar in winter. Radioactive isotopes around the waste point are higher than the reference radionuclide level.
- But it does not affect human health and the environment. The  $R_{\text{eq}}$  and other hazard indices were less than their respective limiting values showing that the surveyed area has no hazard from health point of view.

**1. Introduction**

Soil radionuclide is one of the main factors involved in the pollution of air and water bodies. It is important to estimate the natural radionuclide level in soils and data to estimate the individual person dose rate for outdoor environment (Sarkis et al., 2007).

**Table 1. Radionuclide level of natural radionuclides in soil (Bq/kg) of Ulaanbaatar**

| City address        | $^{226}\text{Ra}$ | $^{232}\text{Th}$ |
|---------------------|-------------------|-------------------|
| Ulaanbaatar (Bq/kg) | 15.2              | 12.8              |
| Ulaanbaatar (Bq/kg) | 15.2              | 12.8              |
| Ulaanbaatar (Bq/kg) | 15.2              | 12.8              |
| Ulaanbaatar (Bq/kg) | 15.2              | 12.8              |
| Ulaanbaatar (Bq/kg) | 15.2              | 12.8              |
| Ulaanbaatar (Bq/kg) | 15.2              | 12.8              |

**Results and Discussion**

$$R_{\text{eq}} = R_{\text{eq}} + R_{\text{eq}} + R_{\text{eq}} + R_{\text{eq}} \quad (1)$$

$$R_{\text{eq}} = R_{\text{eq}} + R_{\text{eq}} + R_{\text{eq}} + R_{\text{eq}} \quad (2)$$

$$R_{\text{eq}} = R_{\text{eq}} + R_{\text{eq}} + R_{\text{eq}} + R_{\text{eq}} \quad (3)$$

$$R_{\text{eq}} = R_{\text{eq}} + R_{\text{eq}} + R_{\text{eq}} + R_{\text{eq}} \quad (4)$$

$$R_{\text{eq}} = R_{\text{eq}} + R_{\text{eq}} + R_{\text{eq}} + R_{\text{eq}} \quad (5)$$

$$R_{\text{eq}} = R_{\text{eq}} + R_{\text{eq}} + R_{\text{eq}} + R_{\text{eq}} \quad (6)$$

$$R_{\text{eq}} = R_{\text{eq}} + R_{\text{eq}} + R_{\text{eq}} + R_{\text{eq}} \quad (7)$$

**Conclusions**

- Therefore, the data does provide a general reference level for the area studied and may also serve as an initial research study of future large landfill and surrounding area in Ulaanbaatar, Mongolia.
- In the future, we planning to continue the radioactive impact assessment of Ulaanbaatar, city and in other soil samples from different residential area and center for protect human health.
- In the future, response to take care of complex from different locations and to evaluate to be accelerated impacts on the environment and human health.

**1. Introduction**

Table 2 is a comparison of diffuse specific activity of isotopes including  $^{226}\text{Ra}$ ,  $^{232}\text{Th}$ , and  $^{137}\text{Cs}$  and  $^{60}\text{Co}$  with various Ulaanbaatar, China, Japan, America and average value across the world. The results activity of  $^{226}\text{Ra}$  in Ulaanbaatar is between 1.1 and 1.8 times higher than the average value across Earth. However, the activity percent of  $^{226}\text{Ra}$  is 1.1 to 2.7 times higher and  $^{60}\text{Co}$  is 0.2 to 2.4 times higher (Table 2).

**Table 2. Comparison of radionuclide levels in selected countries with level of Ulaanbaatar**

| Country               | $^{226}\text{Ra}$ | $^{232}\text{Th}$ | $^{137}\text{Cs}$ | $^{60}\text{Co}$ |
|-----------------------|-------------------|-------------------|-------------------|------------------|
| Ulaanbaatar, Mongolia | 15.2              | 12.8              | 0.5               | 0.2              |
| China                 | 10.0              | 8.0               | 0.1               | 0.05             |
| Japan                 | 12.0              | 10.0              | 0.2               | 0.1              |
| America               | 11.0              | 9.0               | 0.15              | 0.08             |
| World average         | 10.0              | 8.0               | 0.1               | 0.05             |

**Results and Discussion**

**Acknowledgments**

This work was supported by the Young Scientist Grant of the National University of Mongolia (grant: P2019-21715) with additional support from the Ministry of Education, Culture, Science and Sport and the Mongolian Foundation for Science and Technology (MFSST, 2020-26).

**1. Introduction**

Purpose of this research is quantify the soil radioactivity content and radionuclide isotopes and applied the hazard index to determine the overall health.

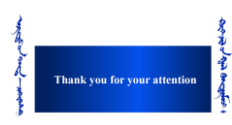
**Results and Discussion**

The strongest relationship (log) between a radionuclide activity and the hazard index across soil (Fig. 5).

**Published article**

Journal of Hazardous Waste and Radioactive Waste (JHRW) (Risk of Science and Safety of Industry 2.5)

DOI: 10.1002/jhrw.1234



# D.Khulan “Urban design-appearance of Ulaanbaatar city of Mongolia”

WATER PLAN OF ULAANBAATAR CITY 2040  
URBAN DESIGN - APPEARANCE OF ULAANBAATAR CITY

**INDICATOR NYC**

**REGULATORY ACTIVE TERRITORY**

**2040**

2040 ХОТЫН ДИЗАЙН  
УЛААНБААТАР ХОТЫН ДИЗАЙН

**2040**

**2040**

УЛААНБААТАР ХОТЫН ДИЗАЙН

**2040**

**2040**

УЛААНБААТАР ХОТЫН ДИЗАЙН

**2040**

**2040**

УЛААНБААТАР ХОТЫН ДИЗАЙН

**2040**

**2040**

Appendix 9. 19 December 2022

Research online seminar link: <https://youtu.be/6l-h-rJEN4k>



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# JOINT RESEARCH ONLINE SEMINAR

ULAANBAATAR, MONGOLIA BETWEEN FEBRUARY AND DECEMBER, 2022



**B. BATDELGER**

DOCTOR (PH.D), ASSOCIATE PROFESSOR,  
NATIONAL UNIVERSITY OF MONGOLIA.  
RESEARCH INTEREST: AIR POLLUTION,  
ASSESSMENT, AND RISK OF POLLUTANTS OF  
ENVIRONMENTAL POLYCYCLIC AROMATIC  
HYDROCARBONS, ENVIRONMENTAL AUDIT



**D. ENKHTUUL**

MS OF BIOLOGICAL SCIENCES,  
LECTURER AT KHOVD BRANCH SCHOOL OF  
NATIONAL UNIVERSITY OF MONGOLIA.  
RESEARCH AREA: BOTANY AND HEALTH.

TOPIC:  
HEALTH RISK ASSESSMENT,  
AND CONTAMINATION OF HEAVY METALS  
IN STREET DUST OF ERDENET CITY,  
MONGOLIA

TOPIC:  
GREEN FACILITY OF THE KHOVD CITY

**DATE**

MONDAY

19 DECEMBER

**TIME**

11-13 AM

# Doctor B.Batdelger “Health risk assessment and contamination of heavy metals in street dust of Erdenet city, Mongolia”

**1. NATIONAL UNIVERSITY OF MONGOLIA**  
SCHOOL OF ENGINEERING AND APPLIED SCIENCES  
Contamination and health risk assessment of the heavy metal in street dust of Erdenet city, Mongolia  
Batdelger Batmunkh  
2022.03.19

**2. Study area and Previous study**

**3. Previous study and Meteorological condition**

**4. Dust event (Background information)**

**5. This study goal and method**

**6. Heavy metal concentrations**

**7. Heavy metal concentrations**

**8. Correlation analysis and comparison**

|    | Cu   | Zn   | Co   | Pb   | Cr   | Pb   | Co   | Zn | Cu |
|----|------|------|------|------|------|------|------|----|----|
| Cu | 1    |      |      |      |      |      |      |    |    |
| Zn | 0.87 | 1    |      |      |      |      |      |    |    |
| Co | 0.46 | 0.34 | 1    |      |      |      |      |    |    |
| Pb | 0.48 | 0.33 | 0.12 | 1    |      |      |      |    |    |
| Cr | 0.22 | 0.13 | 0.46 | 0.13 | 1    |      |      |    |    |
| Co | 0.17 | 0.23 | 0.31 | 0.42 | 0.42 | 1    |      |    |    |
| Pb | 0.23 | 0.28 | 0.49 | 0.42 | 0.15 | 0.96 | 1    |    |    |
| Cr | 0.29 | 0.17 | 0.24 | 0.21 | 0.19 | 0.28 | 0.28 | 1  |    |

**9. Geo-accumulation index and Pollution index**

**10. Health risk assessment**

**11. Health risk assessment**

**12. Conclusion**

- The contaminated of Cu, Zn, Co, Cr, and Mn in the tailings pond were higher than Earth's upper crust, and Pb in the waste pond and Cu in the mining area had high was caused from mining activity and different anthropogenic source.
- Street dust pollution as a source of heavy metals in the urban environment is an increasingly complicated problem in Erdenet city.
- The findings of health risk assessment show that to be the major way of exposure to heavy metals in the street dust causing greater health risks.

**13. Thank you for attention**

# Master D.Enkhtuul “Green facility of the Khovd city”

**1. ХӨВД НОМИН ГОГИЙН БАЙРЫН ТАМГА**

**2. Introduction**

**3. Research objectives**

**4. Research methodology**

**5. Research results**

**6. Research results**

**7. Research results**

**8. Research results**

**9. Research results**

**10. Research results**

**11. Research results**

**12. Research results**

**13. Research results**

**14. Research results**

**15. Research results**

**16. Research results**

**17. Research results**

**18. Research results**

**19. Research results**

**20. Research results**

**21. Research results**

**22. Research results**

**23. Research results**

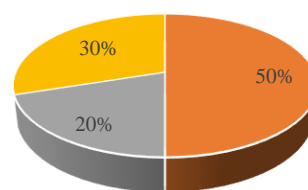
**24. Research results**

**25. Research results**

## Questionnaires for participants about the joint research seminar.

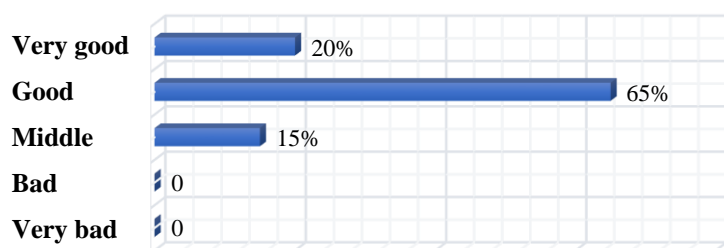
Totally 20 participants were fill out the questionnaires which developed for the participants about the joint research seminar.

50% of the respondents had a doctor degree, 20% had a master degree, and 30% had a bachelor's degree.

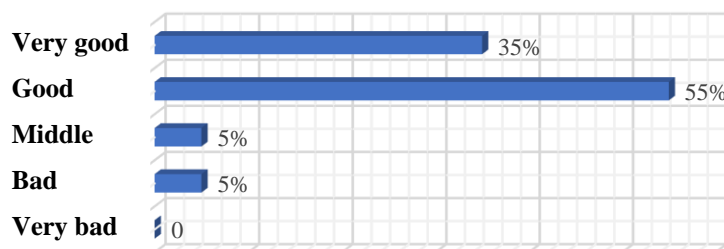


■ Доктор ■ Магистр ■ Бакалавр

**Diagram 1:** Educational level of the respondents

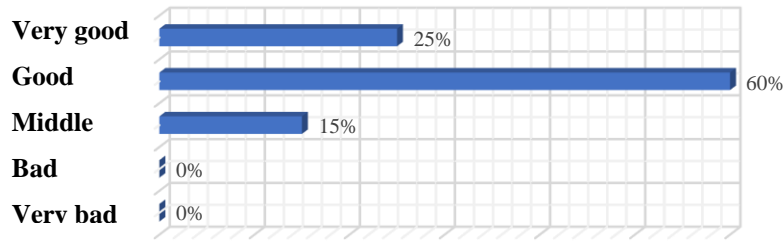


**Diagram 2:** Evaluation for speakers

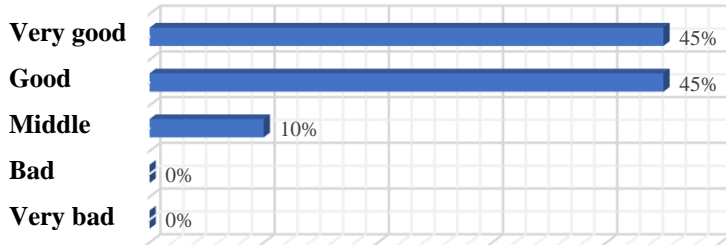


**Diagram 3:** Rating for speakers skills

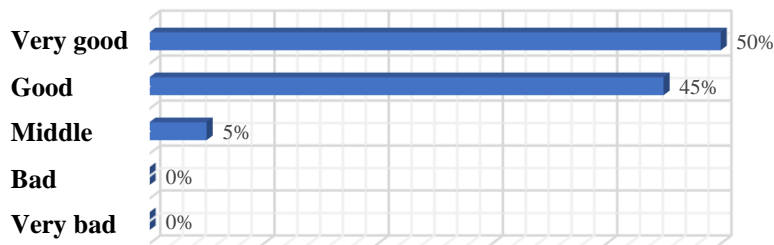
**Diagram 4:** Did the research seminar deliver the knowledge and information you expected?



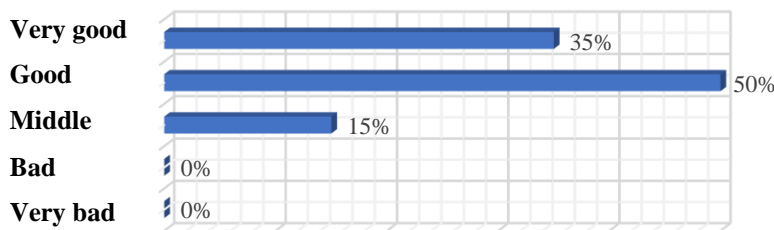
**Diagram 5:** Whether the duration of the research seminar was appropriate.



**Diagram 6:** Preparedness of the organizers during the research seminar.



**Chart 7:** How would you rate the quality of the research seminar?



**Suggestions and advice for research workshop organizers:**

- Involve more people
- Increase stakeholders

**Report written by:**

Doctor D.Banzrgch /MULS/

Doctor S.Odongerel /MULS/