

Research activities of Professors and Students at Environmental Engineering, 2019-2024

Research, Projects:

Publications

- 1) Sodnomdarjaa, E., Knippertz, M., Karthe, D., Alekseenko, A.V., **Ganbat, G.**, Römer, W., F. Lehmkuhl, 2024: Resource conundrum in Mongolia: Soil contamination from coal and copper–molybdenum mining. *Soil Use and Management*, 40, e13025. <https://doi.org/10.1111/sum.13025>
- 2) Byambakhorol, B., **Ganbat, G.**, B. Nasanjargal, 2023: Measurement and 3-dimensional Simulations of Carbon Monoxide (CO) Distribution in Mongolian Ger. *Proceedings of the second International Conference on Resources and Technology (RESAT 2023)*. Atlantis Press. 117-131. https://doi.org/10.2991/978-94-6463-318-4_10
- 3) Oyun-Erdene, Ts., **Ganbat, G.**, M. Knippertz, 2023: Natural rehabilitation potential in two distinct mining areas in Mongolia. *Proceedings of the second International Conference on Resources and Technology (RESAT 2023)*. Atlantis Press. 160-174. https://doi.org/10.2991/978-94-6463-318-4_13
- 4) Esposito De Vita, G., Visconti, C., **Ganbat, G.**, M. A. Rigillo, 2023: A Collaborative Approach for Triggering Environmental Awareness: The 3Rs for Sustainable Use of Natural Resources in Ulaanbaatar (3R4UB). *Sustainability* 15, no. 18: 13846. <https://doi.org/10.3390/su151813846>
- 5) Lee, H., **Ganbat, G***, Jin, H.-G., Seo, J.M., Moon, S., Bok, H., J.-J. Baik, 2023: Effects of Lake Baikal on Summertime Precipitation Climatology Over the Lake Surface. *Geophysical Research Letter*, 50, 10, e2023GL103426. <https://doi.org/10.1029/2023GL103426>
- 6) Otgonbyamba, O., **Ganbat, G.**, Khuyag, S., Altangerel, E., Ganbold, B., Bayanjargal, A., Bat-Erdene, A., Chuluunbaatar, B., Badrakh, B., S. Batbaatar, 2023: Health Risk Assessment of Volatile Organic Compounds for Children in Indoor Air, Ulaanbaatar, Mongolia. *Aerosol Air Qual. Res.* 23, 230028. <https://doi.org/10.4209/aaqr.230028>
- 7) Otgonbyamba, O., Altangerel, E., **Ganbat, G.**, Ganbold, B., Sodnomjamts, A., Chuluunbaatar, B., Badrakh, B., S. Batbaatar, 2023: Unintentional Carbon Monoxide Poisoning Outbreak from 2 to 9 October 2019 in Ulaanbaatar, Mongolia. *Occupational Diseases and Environmental Medicine*, 11, 97-114. doi:[10.4236/odem.2023.112006](https://doi.org/10.4236/odem.2023.112006)
- 8) Sodnomdarjaa, E., Lehmkuhl, F., Karthe, D. Knippertz, M., **G. Ganbat**, 2023: Assessment of soil loss using RUSLE around Mongolian mining sites: a case study on soil erosion at the Baganuur lignite and Erdenet copper–molybdenum mines. *Environmental Earth Sciences*. 82, 230. <https://doi.org/10.1007/s12665-023-10897-0>
- 9) Nasanjargal B., **G. Ganbat**, 2022: Experience of Project-Based Learning for First-Year Engineering Students at GMIT. *Embedded Selforganising Systems*. 10(4), 10-14. <https://doi.org/10.14464/ess.v9i4.560>
- 10) Nasanjargal B., **G. Ganbat**, 2022: Implementation of Project-Based Learning for Freshmen in Online Learning During COVID-19 Pandemic. *Embedded Selforganising Systems*. 9(3), 20-21. <https://doi.org/10.14464/ess.v9i3.527>
- 11) Danaa G., **G. Ganbat**, 2022: Results of simulations of atmosphere-lake interactions using numerical model. *Embedded Selforganising Systems*. 9(3), 37-38. <https://doi.org/10.14464/ess.v9i3.535>
- 12) Vazaeva NV, Repina IA, Shestakova AA, **G. Ganbat**, 2022: Mesoscale vortex over Uvs-Nuur: analysis and numerical simulation. *Sovremennye problemy distantsionnogo zondirovaniya Zemli iz kosmosa*, 19(4), 306–317. DOI: 10.21046/2070-7401-2022-19-4-306-317

- 13) KARTHE, D.; LEE, H. & GANBAT, G. (2022): Fragmented Infrastructure Systems in Ulaanbaatar, Mongolia: Assessment from an Environmental Resource Nexus and Public Health Perspective. In: IOSSIFOVA, D.; GASPARATOS, A.; ZAVOS, S.; GAMAL, Y. & LONG, Y. (Eds.): Urban Infrastructuring - Reconfigurations, Transformations and Sustainability in the Global South, pp. 15-34. Sustainable Development Goals Series. Singapore: Springer. DOI:10.1007/978-981-16-8352-7_2, https://link.springer.com/chapter/10.1007/978-981-16-8352-7_2
- 14) **Ganbat, G**, Lee H, Jo HW, Jadamba B, and D. Karthe, 2022: Assessment of COVID-19 impacts on air quality in Ulaanbaatar, Mongolia, based on terrestrial and Sentinel-5P TROPOMI data. *Aerosol and Air Quality Research*. 22, 220196, <https://doi.org/10.4209/aaqr.220196>
- 15) Soyol-Erdene T.O., **G. Ganbat**, B. Baldorj, 2021: Urban Air Quality Studies in Mongolia: Pollution Characteristics and Future Research Needs. *Aerosol and Air Quality Research*, 21, 210163. <https://doi.org/10.4209/aaqr.210163>
- 16) **Terbish, N.**, Popuri, S. R., & Lee, C. H. (2023). Improved performance of organic–inorganic nanocomposite membrane for bioelectricity generation and wastewater treatment in microbial fuel cells. *Fuel*, 332, 126167.
- 17) **Terbish, N.**, Lee, C. H., & Popuri, S. R. (2023). Preparation of hybrid nanotube proton exchange membrane for microbial fuel cell applications. In *Hybrid Nanomaterials for Sustainable Applications* (pp. 157-177). Elsevier.
- 18) Ochirbold B-E, **Ariuntuya Ts**, Westphal K, Karthe D. Hygienic Condition of Different Water Sources in the Kharaa River Basin, Mongolia in the Light of a Rapid Warming Trend. *Atmosphere*. 2020; 11(10):1113. <https://doi.org/10.3390/atmos11101113>

Conferences

- 1) Knippertz M, **Enkhjargal S**: Environmental issues of coal mining in Mongolia (2023.06.20)
- 2) Baterdene P, P.Usukhbayar, D.Gerelt-Od, S.Tuya **Ts.Ariuntuya**: Prediction of reaeration and deoxygenation rate constant in Selbe river, Mongolia: dissolved oxygen and bod assimilative capacity of the river (2023.06.16)
- 3) **Enkhjargal S**, Lehmkuhl F, Karthe D, Knippertz M, **Ganbat G**: Soil erosion using RUSLE in coal and copper-molybdenum mining in Mongolia. Annual Meeting of the German Society of Geomorphology ([линк](#))
- 4) **Narangarav T.**, Battengel B., Ankhchimeg G., Dugar D.: Reprocessing of tailing from Erdenet copper ores: Optimization of the flotation. RESAT-2023
- 5) Oyun-erdene Ts, **Ganbat G**, Knippertz M: Natural Rehabilitation Potential in Two Distinct Mining Areas in Mongolia. RESAT-2023
- 6) Oyun-Erdene O., Buuviedulam A., **Gantuya G.**, Suvd S., Bilguun G., Byambatogtokh B., Battsetseg N., Bataa Ch., Burmaajav B., Suvd B. (2022) Impact of Integrated Home Insulation and Heating Solutions in Mongolia on Air Quality and Health. International Conference of Applied Sciences and Engineering (ICASE) 2023, Ulaanbaatar, Mongolia (oral)
- 7) Suvd B., Oyun-Erdene O., Erdenetsteseg D., Buuveidulam A., Zul A., Chinzorig B., Suvd S., **Gantuya G.**, Bayarbold D., Burmaajav B. (2022) Assessment of Indoor Environmental Conditions in Schools in Ulaanbaatar, Mongolia. International Conference of Applied Sciences and Engineering (ICASE) 2023, Ulaanbaatar, Mongolia (oral)
- 8) Byambakhorol B, **Ganbat G**, Battulga N (2023) Measurements and 3-dimensional simulations of carbon-monoxide distribution in Mongolian ger. Resources and Technology RESAT-2023, Ulaanbaatar, Mongolia, (oral)
- 9) Uelun M, Luisa Prates, Karthe D, **Ganbat G**. (2023) Management of end-of-life electric vehicles and lithium-ion batteries in Mongolia. Resources and Technology RESAT-2023, Ulaanbaatar, Mongolia. (oral)
- 10) Oyun-erdene Tsogtsaikhan, **Ganbat G.**, Knippertz M. (2023) Natural Rehabilitation Potential in Two Distinct Mining Areas in Mongolia. Resources and Technology RESAT-2023, Ulaanbaatar, Mongolia. (poster)

- 11) **Ganbat G., Ariuntuya Ts.,** Batsumber Adiyatumur, Bayanmunkh Myagmarsuren, Thomas Hollenberg (2023) Heavy metal pollution of water and soil in tannery area in Ulaanbaatar, Mongolia. The 12th Regional Meeting of the Society of Mining Professors (SOMP). Ulaanbaatar, Mongolia. (oral)
- 12) Б.Бямбахорол, Н.Баттулга, **Г.Гантуяа** (2022) "Монгол гэр доторх нүүрстөрөгчийн дутуу ислийн тархалтыг загварчилсан үр дүнгээс". "Хүрээлэн буй орчин 2022", ЭШБХ, Дархан. https://sab.edu.mn/view_news.php?id=ZW5jb2RldXNlcmkNDI= (oral)
- 13) Battulga N, **Ganbat G.** (2022) Implementation of Project-Based Learning for Freshmen in Online Learning During COVID-19 Pandemic. International Symposium on Computer Science and Educational Technology, 24-26 October 2022, Tashkent, Uzbekistan. (oral)
- 14) Danaa G., **Ganbat G.** (2022) [Results of simulations of atmosphere-lake interactions using numerical model](#). International Symposium on Computer Science and Educational Technology, 24-26 October 2022, Tashkent, Uzbekistan. (oral)
- 15) Н.Баттулга, Ч.Энхзаяа, **Г.Гантуяа** (2022) МГТИС-ийн Төслийн 7 хоног. "ЗААХУЙ, СУРАЛЦАХУЙ" Багш нарын IX бага хурал. 2022.10.22, GMIT, Ulaanbaatar, Mongolia. (oral)
- 16) Н.Буянбилиг, **Г.Гантуяа**. Монгол орны Говийн бүс нутгийн хүлэмжийн хийн олон жилийн явц, цаашдын хандлага, дулааралд үзүүлэх нөлөө, "Хүрээлэн буй орчны инженерчлэл" ЭШБХ, 2022.06.03 (oral)
- 17) Б.Дагийсүрэн, **Г.Гантуяа**. УБ хотын агаар бохирдуулагчийн орон зайн өөрчлөлтийн судалгаа. "Хүрээлэн буй орчны инженерчлэл" ЭШБХ, 2022.06.03 (oral)
- 18) **Г.Гантуяа**, Д.Ганбат, Н.А.Репина. Нуур-агаар мандлын харилцан үйлчлэлийн тоон загварчлал, симуляцийн зарим үр дүнгээс. "Монгол инженер 2022" ЭШХ, 2022.04.22-24. <http://mongol-engineer.mn/poster> (oral)
- 19) **Г.Гантуяа**, H.Lee, H.Jo, D.Karthe. Impact of COVID-19 strict lockdown on air quality in Ulaanbaatar. Environment-2021. 2021.09.09 (oral)
- 20) Н.Буянбилиг, **Г.Гантуяа**, Д.Оюунчимэг. Монгол орны хүлэмжийн хийн агууламжийн харьцуулсан судалгааны дүнгээс. Applied mathematics-2021. National University of Mongolia, 2022.01.24. <https://www.seas.num.edu.mn/dep/am/conf/2021> (oral)
- 21) Karthe DK, Lee H, **G.Ganbat** (2021) Fragmented infrastructure systems in Ulaanbaatar, Mongolia: Assessment from a Resource Nexus and public health perspective. INFRA+ /online/. <https://padlet.com/susinfra/PLUS>, <https://www.youtube.com/watch?v=Zgv8eOIVMIs&t=2985s> 2021.04.27 (oral)
- 22) Soyol-Erdene Ts, **G. Ganbat** (2021) Urban air quality in Mongolia: concentrations, sources and future needs of studies. FORECOMON 2021 – The 9th Forest Ecosystem Monitoring Conference /online/ https://forecomon2021.thuenen.de/fileadmin/forecomon/FORECOMON2021_Proceedings.pdf 2021.06.09 (oral)
- 23) **Ganbat G**, Danaa G (2021) Lake-atmosphere interactions in the Mongolian Great lakes and the Baikal lake. Climate risks and space weather /online/ <https://sites.google.com/view/isumeteoconf?authuser=0> 2021.06.17 (oral)

Projects

Prof. Dr. Gantuya G:

- 1) Assessing environmental and green jobs potentials in the former coal region Nalaikh, Mongolia (2023) /funded by the GIZ/ Project leader
- 2) Environmental education in TVET sector Mongolia (2022-2023) /funded by the GIZ/ Project leader
- 3) TACKling the Climate change through Modernizing Environmental Engineering program (TACMEE) (2021-2024) /funded by the EU/ Project manager at GMIT
- 4) Soil and Water Sampling and Lab Analysis works Khan Uul District, Ulaanbaatar, Mongolia (2022-2023) /funded by the World Bank/ Project investigator

- 5) The Joint Lab Project on Risk and Governance of Climate Change on Atmospheric Environment and Public Health in the Context of Carbon Neutrality (2022-2025) /funded by Belt&Road, China/
Project leader in Mongolia
- 6) GREEN Nalaikh (2023) /funded by the Australian Volunteer's Program/ Project leader
Dr. Narangarav Terbish:
- 7) ADRIANA funded by BMBF (2019-2022)
Ms. Enkhjargal Sodnomdarjaa:
- 8) Hazard or Benefit for Soils: Ash disposal in the Ger and Urban district of Nalaikh (2023) SRDF
funded project