

TTÜ Tartu Kolledž

2019.a. teadus- ja arendustegevuse aruanne

Struktuuriüksuse struktuur 2019.a

Tartu kolledž
Lembit.Nei, direktor
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Kolledžis tegutsevad uurimisrühmad:

- Ehitatud keskkonna uurimisrühm / Built Environment Research group
- Keskkonnatehnoloogia uurimisrühm / Research group of Environmental Technologies

1 EHITATUD KESKKONNA UURIMISRÜHM

1.1 Uurimisrühma juht: Aime Ruus, dotsent, aime.ruus@taltech.ee

1.2 Uurimisrühma liikmed

Zenia Kotval, PhD, kaasatud professor
Epi Tohvri, PhD, dotsent (kuni 31.05.19)
Merik Meriste, PhD, dotsent
Ernst Tungel, PhD, dotsent
Nele Nutt, PhD, vanemlektor
Helle Hallik, PhD, vanemlektor
Ago Rootsi, MSc, lektor
Jiri Tintera, PhD (alates 05.12.19), lektor
Sven Oras, PhD, lektor
Ants Soon, MSc, lektor/koostöökoordinaator
Illimar Kalk, lektor
Jane Raamets MSc, lektor/doktorant (ekstern)
Lehar Leetsaar, MSc, lektor/doktorant
Minea Kaplinski-Sauk, MSc, projekti spetsialist/doktorant
Sirle Salmistu, PhD, täienduskoolituse peaspetsialist (kuni 29.09.2019)

1.3 Võtmesõnad

Mahajäetud ja alakasutatud alad (*brownfields*), linnaplaneerimine, puitarhitektuuri ajalugu, ehitusmaterjalid, sisekliima

1.4 Uurimisalused teemad ja uurimisrühma kompetentsid

(1) ehitatud keskkond, linna- ja regionaalplaneering; (2) kogukondlik areng, linna- ja maa-asustuse majanduslikult ökonoomne taaskasutamine ja ümberkujundamine; (3) kultuuripärandi konserveerimine linnaplaneerimisel, ning ajaloolistel maastikel ning parkides. (4) Mahajäetud ja alakasutatud alade taaskasutus; (5) puitarhitektuuri ajalugu, (6) ajalooliste hoonete uurimine; (7) õppekeskkondade ja nende arhitektuursete lahenduste uurimine; (8) ehitusmaterjalid, sisekliima, ehitusfüüsikalised ja energiatõhususe aspektid; (9) küber-füüsikalised süsteemid hoonete ja linna- ning regionaalplaneerimise teenistuses.

Teemad on aktuaalsed linnaplaneerimise valdkonnas ning aitavad lahendada probleeme küberfüüsikaliste süsteemide rakendamisega ehituses, tööstuses ja muudes eluvaldkondades.

1.5 Uurimisrühma 2019. aasta rahvusvahelisel tasemel väljapaistvad teadustulemused

- Zenia Kotvali juhendamisel jõudsid doktorikraadini Sulev Nurme ja Jiri Tintera (kaasjuhendamine koos Aime Ruusiga), Nele Nuti kaasjuhendamisel kaitses doktorikraadi Siim Sultson.
- Lehar Leetsaare doktoritöö raames said lõplikult tehtud seismilise surupenetratsiooni katsed kolmel kinnistul Tallinnas. Selliseid katseid pole Eestis varem kunagi tehtud. Esimene artikkel nendest katsetest ilmub 2020.
- Kahanevate linnade uurimisteema baseerub Valga linna probleematial ja mitmed väljapakutud lahendused on ka realiseeritud. Savikrohvide uuringu tulemused on rakendatavad konkreetsete toodete puhul ning kasutatavad mudelarvutustes.

Projektid

VEU19008 "CA17136 - INDoor AIR POLLution NETwork (2018–2022)", A.Ruus

Konverentsid

- Jiri Tintera - ettekanded "The conflict between urban redevelopment and heritage protection - a comparative case study in Görlitz (Germany) and Tartu (Estonia)" on 9th International and Interdisciplinary Symposium Land Use and Land Development in the field of tensions between environmental, social and economic sustainability in Kaunas, Leedu ja "Spatial Policy Tools for Local Governments in Shrinking Communities: A Case Study of Valga town, Estonia", VASAB Workshop
- Aime Ruus – *keynote*: 2019 Wood Forum Building Baltic 27. märts - 1. Märts Tallinna Tehnikaülikool (Tallinn). Revitalization of wooden apartments as a tool to deal with shrinkage – case study from Valga.

Kaitstud doktoritööd

[Jiri Tintera, doktorikraad, 2019, \(juh\) Aime Ruus; Zenia Kotval, Urban Regeneration Strategies for Shrinking Post-Soviet European Communities: A Case Study of Valga, Estonia \(Kahanevate linnade elukeskkonna taaselustamine Valga linna näitel\), Tallinna Tehnikaülikool, Inseneriteaduskond, Tartu kolledž.](#)

[Sulev Nurme, doktorikraad, 2019, \(juh\) Zenia Kotval, Understanding the Role of 18th Century Estonian Manor Ensembles in Contemporary Planning and Conservation \(Eesti 18. sajandi mõisaansamblid 21. sajandi maastikuplaneerimises: avastamine, mõistmine, tõlgendamine\), Tallinna Tehnikaülikool, Inseneriteaduskond, Tartu kolledž.](#)

Publikatsioonid

- Hendricks, A.; Tintera, J. (2019). Stadtumbau in Ostdeutschland und Valga (Estland) – Ähnlichkeiten und Unterschiede. Zeitschrift für Geodäsie, Geoinformation und Landmanagement, 144 (2), 85–93.10.12902/zfv-0245-2018.

- Tintëra, J. (2019). Innovative Housing Policy Tools for Local Governments in Shrinking Communities with a large share of privately owned apartments: A Case Study of Valga, Estonia. *Transylvanian Review of Administrative Sciences, Special Issue 2019*, 124–139.10.24193/tras.SI2019.7.
- Ruus, A.; Tintera, J. (2019). Revitalization of wooden apartments as a tool to deal with shrinkage – case study from Valga. *Journal of Sustainable Architecture and Civil Engineering*, 25 (2), 16–24.10.5755/j01.sace.25.2.22074.
- Kaplinski-Sauk, M. (2019). Kvalitatiivse kaardianalüüsi meetodi kasutamine külade plaanistruktuuri säilivuse uurimisel. *Eesti Hageri küla näitel (1691 – 2019)*. *Acta Architecturae Naturalis*, 5, 15–36.
- Raamets, J.; Ruus, A.; Ivask, M. (2019). Assessment of indoor air quality and hygrothermal conditions of boarders during autumn, winter and spring in two of Estonian straw-bale houses. *Cold Climate HVAC 2018: Sustainable Buildings in Cold Climates: Cold Climate HVAC 2018 The 9th International Cold Climate Conference Sustainable new and renovated buildings in cold climates Kiruna – Sweden 12-15, March 2018*. Ed. D. Johansson, H. Bagge, Å. Wahlström. Springer, 815–823. (Springer Proceedings in Energy).10.1007/978-3-030-00662-4_68.
- Altmäe, E.; Ruus, A.; Raamets, J.; Tungal, E. (2019). Determination of Clay-Sand Plaster Hygrothermal Performance: Influence of Different Types of Clays on Sorption and Water Vapour Permeability. *Cold Climate HVAC 2018: Sustainable Buildings in Cold Climates: The Cold Climate HVAC2018 The 9th International Cold Climate Conference Sustainable new and renovated buildings in cold climates Kiruna – Sweden 12-15, March 2018*. Ed. D. Johansson, H. Bagge, Å. Wahlström. Springer, 945–955. (Springer Proceedings in Energy).10.1007/978-3-030-00662-4_80.

Monograafia

Tohvri, E. (2019). Georges Frédéric Parrot. Tartu keiserliku ülikooli esimene rektor. Tartu: Tartu Ülikooli kirjastus.

1.6 uurimisrühma seotus AAK prioriteetse suunaga (kuni kaks olulisemat suunda)

Targad ja enrgiatõhusad keskkonnad, usaldusväärsed IT lahendused

1.7 uurimisrühma tegevusega seotud teadusvaldkond (Frascati Manuali teadusvaldkondade ja -erialade klassifikaator)

2.1 Ehitusteadused; 2.11 Teised tehnika- ja tehnoloogiateadused

1.8 uurimisrühma liikmete osalus välisriikide akadeemiate ja/või muude oluliste TA&I-ga seotud välisorganisatsioonide töös lõppenud aastal

Epi Tohvri - European Early American Studies Association

Zenia Kotval - Fellow of the American Institute of Certified Planners

Zenia Kotval - Board Member, Planning Accreditation Board 2015-18

Aime Ruus – MC member of COST Action CA17136 - INDoor AIR POLLution NETwork

1 BUILT ENVIRONMENT RESEARCH GROUP

1.1 Head of the research group: Aime Ruus, Associate Professor, aime.ruus@taltech.ee

1.2 Members of research group

Zenia Kotval, PhD, adjunct professor

Epi Tohvri, PhD, associated professor (until 31.05.19)

Merik Meriste, PhD, associated professor

Ernst Tungel, PhD, associated professor
Nele Nutt, PhD, senior lecturer,
Helle Hallik, PhD, senior lecturer,
Ago Roots, MSc, lecturer,
Jiri Tintera, lecturer, PhD since 05.12.19
Sven Oras, PhD, lecturer
Ants Soon, MSc, coordinator/lecturer
Illimar Kalk, lecturer
Jane Raamets, MSc, lecturer, doctoral student
Lehar Leetsaar, MSc, lecturer, doctoral student
Minea Kaplinski-Sauk, MSc, doctoral student
Sirle Salmistu, PhD (until 29.09.2019)

1.3 Keywords

Keywords: brownfields, shrinking cities, urban planning, history of wooden architecture, building materials, indoor climate

1.4 Research areas and competences of the group

(1) built environment, urban and regional planning; (2) community development, economic revitalization, reuse and restoration, urban and rural settlement assessment; (3) heritage conservation in urban planning and historical landscapes and parks; (4) revitalization of brownfield's; (5) history of wooden architecture; (6) examination of historical buildings; (7) exploring learning environments and its architectural design; (8) construction materials, indoor climate, aspects of building physics and energy efficiency; (9) cyber-physical systems for buildings and urban and regional planning.

1.5 Overview of research activities (year 2019)

- Under supervision of Zenia Kotval Sulev Nurme and Jiri Tintera (together with Aime Ruus) defended their doctoral degree. Nele Nutt cosupervised successfully Siim Sultson to PhD.
- Within doctoral studies of Lehar Leetsaar a total of 8 CPTU (Cone Penetration Testing including piezocone) soundings were made at three sites in Tallinn. In Estonia that kind of tests were performed for first time.
- Research of shrinking cities bases on problems of Valga town and solutions are practised in real situations. Results of clay plaster study are numerical values of hygrothermal properties of different products and could be used in hygrothermal modelling as well.

Conferences

Jiri Tintera – presentations "The conflict between urban redevelopment and heritage protection - a comparative case study in Görlitz (Germany) and Tartu (Estonia)" on 9th International and Interdisciplinary Symposium Land Use and Land Development in the field of tensions between environmental, social and economic sustainability in Kaunas and "Spatial Policy Tools for Local Governments in Shrinking Communities: A Case Study of Valga town, Estonia", VASAB Workshop

Aime Ruus – presentation Revitalization of wooden apartments as a tool to deal with shrinkage – case study from Valga. 2019 Wood Forum Building Baltic 27. märts - 1. Märts Tallinna Tehnikaülikool (Tallinn).

Projects

VEU19008 "CA17136 - INDoor AIR POLLution NETwork (2018–2022)", A.Ruus,

Publications

- Hendricks, A.; Tintëra, J. (2019). Stadtumbau in Ostdeutschland und Valga (Estland) – Ähnlichkeiten und Unterschiede. Zeitschrift für Geodäsie, Geoinformation und Landmanagement, 144 (2), 85–93.10.12902/zfv-0245-2018.
- Tintëra, J. (2019). Innovative Housing Policy Tools for Local Governments in Shrinking Communities with a large share of privately owned apartments: A Case Study of Valga, Estonia. Transylvanian Review of Administrative Sciences, Special Issue 2019, 124–139.10.24193/tras.SI2019.7.
- Ruus, A.; Tintera, J. (2019). Revitalization of wooden apartments as a tool to deal with shrinkage – case study from Valga. Journal of Sustainable Architecture and Civil Engineering, 25 (2), 16–24.10.5755/j01.sace.25.2.22074.
- Kaganski, S.; Eerme, M.; Tungal, E. (2019). Optimization of enterprise analysis model for KPI selection. Proceedings of the Estonian Academy of Sciences, 68 (4), 371–375.
- Nutt, N. (2019). Challenge of Urban Regeneration in Post-Socialist City. Supilinn Gentrification - Recovered District. Acta Architecturae Naturalis, 5, 70–83.
- Kaplinski-Sauk, M. (2019). Kvalitatiivse kaardianalüüsi meetodi kasutamine külade plaanistruktuuri säilivuse uurimisel. Eesti Hageri küla näitel (1691 – 2019). Acta Architecturae Naturalis, 5, 15–36.
- Raamets, J.; Ruus, A.; Ivask, M. (2019). Assessment of indoor air quality and hygrothermal conditions of boarders during autumn, winter and spring in two of Estonian straw-bale houses. *Cold Climate HVAC 2018: Sustainable Buildings in Cold Climates: Cold Climate HVAC 2018 The 9th International Cold Climate Conference Sustainable new and renovated buildings in cold climates Kiruna – Sweden 12-15, March 2018*. Ed. D. Johansson, H. Bagge, Å. Wahlström. Springer, 815–823. (Springer Proceedings in Energy).10.1007/978-3-030-00662-4_68.
- Altmäe, E.; Ruus, A.; Raamets, J.; Tungal, E. (2019). Determination of Clay-Sand Plaster Hygrothermal Performance: Influence of Different Types of Clays on Sorption and Water Vapour Permeability. *Cold Climate HVAC 2018: Sustainable Buildings in Cold Climates: The Cold Climate HVAC2018 The 9th International Cold Climate Conference Sustainable new and renovated buildings in cold climates Kiruna – Sweden 12-15, March 2018*. Ed. D. Johansson, H. Bagge, Å. Wahlström. Springer, 945–955. (Springer Proceedings in Energy).10.1007/978-3-030-00662-4_80.

Monography

Tohvri, E. (2019). Georges Frédéric Parrot. Tartu keiserliku ülikooli esimene rektor [Georges Frédéric Parrot.The First Rector of the Imperial Tartu University.]. Tartu: Tartu Ülikooli kirjastus.

1.6 Contribution to R&D priority areas (according to the Academic Strategic Plan of TalTech)

Smart and energy efficient environments; . Dependable IT solutions

1.7 Fields of research according to Frascati Manual Cclassification

2.1 Civil Engineering; 2.11 Teised tehnika- ja tehnoloogiateadused

1.8 Networks & Associations

Epi Tohvri - European Early American Studies Association

Zenia Kotval - Fellow of the American Institute of Certified Planners

Zenia Kotval - Board Member, Planning Accreditation Board 2015-18

Aime Ruus – MC member of COST Action CA17136 - INDoor AIR POLLution NETwork

2 Keskkonnatehnoloogia uurimisrühm

2.1 Uurimisrühma juht: Annely Kuu, dotsent, annely.kuu@taltech.ee

2.2 Uurimisrühma liikmed:

Lembit Nei, direktor, professor

Mari Ivask, emeriitprofessor

Egge Haiba, PhD, vanemlektor

Jane Raamets, MSc, lektor, (osaleb ka Ehitatud keskkonna uurimisrühma teemades)

Kärt Kanger, MSc, projektijuht (alates 01.12.2019 lapsehoolduspuhkusel)

Tiit Lepasaar, MSc, nõunik/lektor

Kai Kalda, MSc, avalike suhete juht/lektor

Tiina Niine, MSc, lektor

Aija Kosk, MSc, lektor

Rinaldo Rütli, MSc, insener

2.3 Vötmesõnad

tööstusökoloogia; keskkonnatehnoloogia, ökosüsteemiteenused, keskkonnamikrobioloogia ja -keemia, mullabioloogia, ringmajandus

2.4 Uurimisalused teemad ja uurimisrühma kompetentsid

- Tootmisprotsessiga seotud energia- ja materjalivoogude uurimine, olelusringi hindamine, ressursside efektiivne kasutamine.
- Kompetents jäätmete taaskasutustehnoloogiate arendamisel ja rakendamisel, (ravimijäätmete reoveesetetes ja nende lagundamise efektiivsus).
- Keskkonnaseisundi hindamise meetodikate väljatöötamine, kasutades mulla mikrobioloogilisi parameetreid ja elustikuparameetreid bioindikaatoritena.

2.5 Uurimisrühma 2019. aasta rahvusvahelisel tasemel väljapaistvad teadustulemused

Projektid

VEU19008. "CA17136". Siseõhu saasteaineid uuriv koostöövõrgustik (2018–2022). A.Ruus, TTÜ, Tartu kolledž.

VEU16054. Mullafauna - mulla orgaanilise aine dünaamika ja modelleerimise võti (KEYSOM) (2015–2019). M.Ivask, TTÜ, Tartu Kolledž.

Konverentsid

Haiba, E. (2019). SETAC Europe 29th Annual Meeting Helsinki. "CWPharma – case study about active pharmaceutical ingredients emissions and sources in Estonia".

Nei L. (2019). 9th International Scientific Conference "Rural Development 2019: Research and Innovation for Bioeconomy" (Kaunas).

Nei L. (2019). Euroopa Biotehnoloogia Kongress (Valencia).

Publikatsioonid

- Vacht, P.; Niglas, H.; Kuu, A.; Koff, T.; Kutti, S.; Raamets, J. (2019). Oribatid mite (Acari: Oribatida) communities of urban brownfields in Tallinn, Estonia, and their potential as bioindicators of wasteland successional stage. *Acarologia*, 59 (1), 26–32
- Ivask, M.; Kuu, A.; Meriste, M.; Kutti, S.; Raamets, J.; Palo, A. (2019). Chilopoda and Diplopoda of semi natural flooded meadows in Matsalu, Estonia. *Pedobiologia*, 74, 24–33.10.1016/j.pedobi.2019.02.002.
- Melts, I.; Ivask, M.; Geetha, M.; Takeuchi, K.; Heinsoo, K. (2019). Combining Bioenergy and Nature Conservation: An Example in Wetlands. *Renewable and Sustainable Energy Reviews*, 111, 293–302.10.1016/j.rser.2019.05.028.
- Raamets, J.; Ruus, A.; Ivask, M. (2019). Assessment of indoor air quality and hygrothermal conditions of boarders during autumn, winter and spring in two of Estonian straw-bale houses. *Cold Climate HVAC 2018: Sustainable Buildings in Cold Climates: Cold Climate HVAC 2018 The 9th International Cold Climate Conference Sustainable new and renovated buildings in cold climates Kiruna – Sweden 12-15, March 2018*. Ed. D. Johansson, H. Bagge, Å. Wahlström. Springer, 815–823. (Springer Proceedings in Energy).10.1007/978-3-030-00662-4_68.
- Altmäe, E.; Ruus, A.; Raamets, J.; Tungal, E. (2019). Determination of Clay-Sand Plaster Hygrothermal Performance: Influence of Different Types of Clays on Sorption and Water Vapour Permeability. *Cold Climate HVAC 2018: Sustainable Buildings in Cold Climates: The Cold Climate HVAC2018 The 9th International Cold Climate Conference Sustainable new and renovated buildings in cold climates Kiruna – Sweden 12-15, March 2018*. Ed. D. Johansson, H. Bagge, Å. Wahlström. Springer, 945–955. (Springer Proceedings in Energy).10.1007/978-3-030-00662-4_80.
- Ivask, M.; Rütli, R.; Lepasaar, T.; Nei, L.; Raamets, J.; Kuu, A. (2019). Innovatsioon keskkonnamõõtmises ühendab droonid ja vihmaussid. *Jälg*, 2, 52–58.
- Nei, L.; Haiba, E. (2019). Sewage Sludge, Pharmaceuticals and Composting. *Journal of Biotechnology*, 305S, S33.10.1016/j.jbiotec.2019.05.120.
- Nei, L.; Haiba, E.; Nei, S. V. (2019). Sewage Sludge and Pharmaceuticals – Problems and Solutions. *Book of Abstracts: 9th International Scientific Conference “RURAL DEVELOPMENT 2019: Research and Innovation for Bioeconomy”*, Kaunas. Vytautas Magnus University, [ilmumas].

2.6 uurimisrühma seotus AAK prioriteetse suunaga (kuni kaks olulisemat suunda)

Keskkonnaressursside vääristamine

2.7 uurimisrühma tegevusega seotud teadusvaldkond (Frascati Manuali teadusvaldkondade ja -erialade klassifikaator)

2.7 Keskkonnatehnika; 2.11 Teised tehnika- ja tehnoloogiateadused

2.8 uurimisrühma liikmete osalus välisriikide akadeemiate ja/või muude oluliste TA&I-ga seotud välisorganisatsioonide töös lõppenud aastal

M.Ivask - ESSEM COST Action ES1406 - Soil fauna - Key to Soil Organic Matter Dynamics and Modelling (KEYSOM)

M.Ivask- COST. CA18237 European Soil-Biology Data Warehouse for Soil Protection. 2019 sept. - 2023 sept.

M.Ivask - Maailma looduskaitseorganisatsiooni IUCN juures asuva Euroopa Säästva Kasutamise Grupi (European Sustainable Use Group by IUNC) juhtkomitee liige

E.Haiba - Eesti vee-ettevõtete liidu liige

E.Haiba - Rahvusvahelise Inseneripedagoogika Ühingu IGIP liige

L.Nei. ERASMUS+ CBHE taotluste hindamise ekspert, Education, Audiovisual and Culture Executive Agency (EU)

L.Nei. Euroopa Biotehnoloogia Assotsiatsiooni Eesti koordinaator

2 RESEARCH GROUP OF ENVIRONMENTAL TECHNOLOGIES

2.1 Head of the research group: Annely Kuu, Associate Professor, Annely.kuu@taltech.ee

2.2 Members of the research group:

Lembit.Nei, director, professor

Mari Ivask, professor emeritus

Egge Haiba, PhD, senior lecturer

Jane Raamets, MSc, lecturer

Kärt Kanger, MSc, project manager (on parental leave since 01.12.2019)

Tiit Lepasaar, MSc, advisor/lecturer

Kai Kalda, MSc, head of public relations/lecturer

Tiina Niine, MSc, lecturer

Aija Kosk, MSc, lecturer

2.3 Keywords:

industrial ecology; environmental technology, ecosystem services, environmental microbiology and -chemistry, soil biology.

2.4 Research areas and competences of the group:

- The studies of energy and material flow, LCA, efficiency in using resources
- Competent in the development and implementation of waste recycling technologies. (drug residues in sewage sludge and their degradation efficiency)
- Development of methodologies for assessing the status of the environment, we use soil microbiological parameters and soil invertebrates' parameters as bioindicators

2.5 Overview of research activities (year 2019)

Projects

VEU19008 "CA17136 - INDoor AIR POLLution NETwork (2018–2022)", A.Ruus, TUT, Tartu College.

VEU16054 "Soil fauna - Key to Soil Organic Matter Dynamics and Modelling (KEYSOM) (2015–2019)", M.Ivask, TUT, Tartu College.

Conferences:

Haiba, E. (2019). SETAC Europe 29th Annual Meeting Helsinki. "CWPharma – case study about active pharmaceutical ingredients emissions and sources in Estonia".

Nei L. (2019). 9th International Scientific Conference "Rural Development 2019: Research and Innovation for Bioeconomy" (Kaunas).

Nei L. (2019). European Biotechnology Congress (Valencia).

Publications:

- Vacht, P.; Niglas, H.; Kuu, A.; Koff, T.; Kutti, S.; Raamets, J. (2019). Oribatid mite (Acari: Oribatida) communities of urban brownfields in Tallinn, Estonia, and their potential as bioindicators of wasteland successional stage. *Acarologia*, 59 (1), 26–32
- Ivask, M; Kuu, A; Meriste, M; Kutti, S.; Raamets, J.; Palo, A. (2019). Chilopoda and Diplopoda of semi natural flooded meadows in Matsalu, Estonia. *Pedobiologia*, 74, 24–33.10.1016/j.pedobi.2019.02.002.

- Melts, I.; Ivask, M.; Geetha, M.; Takeuchi, K.; Heinsoo, K. (2019). Combining Bioenergy and Nature Conservation: An Example in Wetlands. *Renewable and Sustainable Energy Reviews*, 111, 293–302.10.1016/j.rser.2019.05.028.
- Raamets, J.; Ruus, A.; Ivask, M. (2019). Assessment of indoor air quality and hygrothermal conditions of boarders during autumn, winter and spring in two of Estonian straw-bale houses. *Cold Climate HVAC 2018: Sustainable Buildings in Cold Climates: Cold Climate HVAC 2018 The 9th International Cold Climate Conference Sustainable new and renovated buildings in cold climates Kiruna – Sweden 12-15, March 2018*. Ed. D. Johansson, H. Bagge, Å. Wahlström. Springer, 815–823. (Springer Proceedings in Energy).10.1007/978-3-030-00662-4_68.
- Altmäe, E.; Ruus, A.; Raamets, J.; Tungal, E. (2019). Determination of Clay-Sand Plaster Hygrothermal Performance: Influence of Different Types of Clays on Sorption and Water Vapour Permeability. *Cold Climate HVAC 2018: Sustainable Buildings in Cold Climates: The Cold Climate HVAC2018 The 9th International Cold Climate Conference Sustainable new and renovated buildings in cold climates Kiruna – Sweden 12-15, March 2018*. Ed. D. Johansson, H. Bagge, Å. Wahlström. Springer, 945–955. (Springer Proceedings in Energy).10.1007/978-3-030-00662-4_80.
- Ivask, M.; Rütli, R.; Lepasaar, T.; Nei, L.; Raamets, J.; Kuu, A. (2019). Innovatsioon keskkonnamõõtmises ühendab droonid ja vihmaussid. *Jälg*, 2, 52–58.
- Nei, L.; Haiba, E. (2019). Sewage Sludge, Pharmaceuticals and Composting. *Journal of Biotechnology*, 305S, S33.10.1016/j.jbiotec.2019.05.120.
- Nei, L.; Haiba, E.; Nei, S. V. (2019). Sewage Sludge and Pharmaceuticals – Problems and Solutions. *Book of Abstracts: 9th International Scientific Conference “RURAL DEVELOPMENT 2019: Research and Innovation for Bioeconomy”*, Kaunas. Vytautas Magnus University , [forthcoming].

2.6 Contribution to R&D priority areas (according to the Academic Strategic Plan of TalTech)

Valorisation of natural resources

2.7 Fields of research according to Frascati Manual Classification

2.7 Environmental engineering; 2.11 Other engineering and technologies

2.8 Networks & Associations

M.Ivask - ESSEM COST Action ES1406 - Soil fauna - Key to Soil Organic Matter Dynamics and Modelling (KEYSOM)

M.Ivask- COST. CA18237 European Soil-Biology Data Warehouse for Soil Protection. 2019 sept. - 2023 sept.

M.Ivask - European Sustainable Use Group by IUCN, Committee member

E.Haiba - Estonian Water Works Association (EVEL), member

E.Haiba - International Society for Engineering Pedagogy (IGIP), member.

L. Nei. Expert for the evaluation of ERASMUS+ CBHE applications, Education, Audiovisual and Culture Executive Agency (EU).

L.Nei. Coordinator of EBTNA for Estonia