Getachew Bayable Tiruneh
Assistant Professor (PhD)
Department of Natural Resource Management
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Education

- PhD, Environmental Engineering for Symbiosis (GIS & Remote Sensing Applications), Soka University, Japan, 2025
  Dissertation: Spatiotemporal Variability Analysis of Water Hyacinth (Eichhornia crassipes) and Its Impact on the Lake Tana Ecosystem Using Remote Sensing Technology
- MSc, Remote Sensing, Addis Ababa University, Ethiopia, 2017
- BSc, Land Administration and Surveying, Bahir Dar University, Ethiopia, 2013

Professional Experience

- Assistant Professor: Department of Natural Resource Management, College of Agriculture and Environmental Sciences, Bahir Dar University, Ethiopia, April 2025–Present
- Graduate Research Assistant: Graduate School of Science and Engineering, Soka University, Japan, April 2022–March 2025
- Research Assistant: SATREPS EARTH Project (funded by JST/JICA), April 2022–March 2025
- Lecturer and Researcher: Department of Natural Resource Management, College of Agriculture and Environmental Sciences, Bahir Dar University, Ethiopia, October 2019–April 2022
- Dean: Institute of Land Administration, Oda Bultum University, Ethiopia, April 2018 – September 2019
- Lecturer and Researcher: Department of Land Administration and Surveying, Institute of Land Administration, Oda Bultum University, Ethiopia, July 2017–October 2019
- Assistant Lecturer: Department of Land Administration and Surveying, College of Agro-Industry and Land Resources, Haramaya University, Ethiopia, October 2014– July 2017
- Graduate Assistant II: Department of Land Administration and Surveying, College of Agro-Industry and Land Resources, Haramaya University, Ethiopia, October 2013–October 2014

Awards and Affiliations

- Awarded the Gold Medal for Academic Excellence as one of the top graduates at the Institute of Land Administration, Bahir Dar University, Ethiopia (2013)
- MEXT Scholarship (Japanese Government Scholarship), Awarded for academic excellence to support postgraduate research at Soka University, Japan (2022–2025)
- Research Team Member, SATREPS EARTH Project, Contributing to environmental and agricultural research initiatives under the Japan–Ethiopia collaboration (2022–Present)

International Experience and Visits

- Japan, Soka University
- Greece, Athens
- Tanzania, Zanzibar

Advising

- Supervision of 1 MSc student and co-supervision of 1 PhD student
- Examiner for 3 MSc theses

Research Metrics

- Total Publications: 14 (58 % in Q1 journals)
- h-index: 9, i10-index: 8

Peer-Reviewed Publications

1. **Bayable, G**., Melaku, Mekonnen, M., Melese, T, Senamaw, A. (2026). Spatiotemporal dynamics of water use efficiency and its drivers in the Gilgel Abay Watershed, Ethiopia. *Discover Environment (In Press).* https://doi.org/10.1007/s44274-026-00595-6
2. Melaku, A., Sahle, M., Pastor Ivars, J., **Bayable**, G. (2026). Small but significant contributions of urban sacred forests to biodiversity conservation and sustainability agendas. *International Journal of Forestry Research (In Press), 2026*
3. **Bayable, G.,** Gebrie, G., Melese, T., & Melaku, A. (2025). Land use/cover classification using machine learning algorithms and their impacts on land surface temperature and soil moisture in the Alawuha Watershed, Ethiopia. Environmental and Sustainability Indicators, 27(April). https://doi.org/10.1016/j.indic.2025.100797
4. **Bayable, G.,** & Lebeza, T. M. (2025). Assessment of long-term spatiotemporal variability of vegetation drought and its link with teleconnection factors in Ethiopia. Natural Hazards Research.

https://doi.org/10.1016/j.nhres.2025.06.001

5. Melese, T., Assefa, G., Terefe, B., Belay, T., **Bayable, G.,** & Senamew, A. (2025). Machine learning-based drought prediction using Palmer Drought Severity Index and TerraClimate data in Ethiopia. Plos One, 20(6 June), 1–19. https://doi.org/10.1371/journal.pone.0326174
6. **Bayable, G.,** Cai, J., Mekonnen, M., Legesse, S. A., Ishikawa, K., Sato, S., & Kuwahara, V. S. (2024). Impact of Water Hyacinth Infestation on Water Quality Parameters in Lake Tana, Ethiopia. *IGARSS 2024 - 2024 IEEE International Geoscience and Remote Sensing Symposium*, 5108–5112. https://doi.org/10.1109/igarss53475.2024.10642074
7. **Bayable, G**., Cai, J., Mekonnen, M., Legesse, S. A., Ishikawa, K., Sato, S., & Kuwahara, V. S. (2024). Spatiotemporal variability of lake surface water temperature and water quality parameters and its interrelationship with water hyacinth biomass in Lake Tana, Ethiopia. *Environmental Science and Pollution Research*, 31(33), 45929–45953. https://doi.org/10.1007/s11356-024-34212-x
8. **Bayable, G**., Cai, J., Mekonnen, M., Legesse, S. A., Ishikawa, K., Imamura, H., & Kuwahara, V. S. (2023). Detection of Water Hyacinth (Eichhornia crassipes) in Lake Tana, Ethiopia, Using Machine Learning Algorithms. *Water (Switzerland)*, 15(5). https://doi.org/10.3390/w15050880
9. Gashaw, T., Worqlul, A. W., Dile, Y. T., Sahle, M., Adem, A. A., Bantider, A., Teixeira, Z., Alamirew, T., Meshesha, D. T., & **Bayable, G**. (2022). Evaluating InVEST model for simulating annual and seasonal water yield in data-scarce regions of the Abbay (Upper Blue Nile) Basin: implications for water resource planners and managers. *Sustainable Water Resources Management,* 8(5)*,* 1–13. https://doi.org/10.1007/s40899-022-00757-3
10. **Bayable, G.,** & Alemu, G. (2022). Spatiotemporal variability of land surface temperature in north-western Ethiopia. *Environmental Science and Pollution Research*, *29*(2), 2629–2641. https://doi.org/10.1007/s11356-021-15763-9
11. **Bayable, G.,** Amare, G., Alemu, G., & Gashaw, T. (2021). Spatiotemporal variability and rainfall trends and its association with Pacific Ocean Sea surface temperature in West Harerge Zone, Eastern Ethiopia. *Environmental Systems Research*, *10*(1). https://doi.org/10.1186/s40068-020-00216-y
12. **Bayable, G.,** & Gashaw, T. (2021). Spatiotemporal variability of agricultural drought and its association with climatic variables in the Upper Awash Basin, Ethiopia. *SN Applied Sciences*, *3*(4), 1–20. https://doi.org/10.1007/s42452-021-04471-1
13. Melese, T., Senamaw, A., Belay, T., & **Bayable, G.** (2021). The Spatiotemporal Dynamics of Land Use Land Cover Change, and Its Impact on Soil Erosion in Tagaw Watershed, Blue Nile Basin, Ethiopia. *Global Challenges*, *5*(7). https://doi.org/10.1002/gch2.202000109
14. **Tiruneh, G. B.,** Gessesse, B., Besha, T., & Workineh, G. (2018). Evaluating the Association between Climate Variability and Vegetation Dynamics by Using Remote Sensing Techniques: The Case of Upper Awash Basin, Ethiopia. *World Journal of Agricultural Research*, *6*(4), 153–166.

Manuscripts Under Review

1. **Bayable, G.,** Mekonnen, M., Legesse, S. A., Ishikawa, K., Sato, S., Melese, T., & Kuwahara, V. S. Spatiotemporal variability of water hyacinth *(Eichhornia crassipes)* and its impact on water loss and surrounding land surface temperature in Lake Tana, Ethiopia. *Applied Water Science, Under review.*
2. Cai, J., **Bayable,** G., Mekonnen, M., Legesse, S. A., Ishikawa, K., Sato, S. Towards Sustainable Management of Water Hyacinth in Lake Tana: Evidence from Long-Term Observations. *Journal of Water and Environment Technology, Under review.*
3. Melese, T., W/Senbet, S., **Bayable G.,** Fon, U.N..Spatial Modelling of Psychological Resilience in Climate-Vulnerable Communities: Evidence from Amhara Region, Ethiopia. *Geocarto International, Under review.*

Manuscripts in Preparation

1. **Bayable, G.,** Mekonnen, M., Legesse, S. A., Ishikawa, K., Sato, S., Melese, T., & Kuwahara, V. S. Quantifying water hyacinth biomass and morphological characteristics in Lake Tana, Ethiopia, *Manuscript in preparation*

Conference Abstracts

1. **Bayable, G.,** Cai, J., Mekonnen, M., Legesse, S. A., Ishikawa, K., & Kuwahara, V. S. (2023). Spatiotemporal variability analysis of surface water temperature and water quality parameters in Lake Tana, Ethiopia. *6th International Postgraduate Conference on Biotechnology (IPCB2023)*, Abstract number: ST1-O6, 22–24 August, National University of Singapore, Singapore.
2. Kuwahara, V. S., Shimode, S., Imamura, H., Fujiki, T., Yano, K., **Bayable, G.,** & Milashu, R. (2023). Characterization and application of GCOM-C bio-optical products in oceanic, coastal, and inland waters. *2023 JAXA Joint Meeting Global Environmental Observation Mission*, Annual report: JX-PSPC-550429, 8 November, Tokyo, Japan.
3. Kuwahara, V. S., Shimode, S., Imamura, H., Fujiki, T., Yano, K., **Bayable, G.,** & Milashu, R. (2023). Characterization and application of GCOM-C bio-optical products in oceanic, coastal, and inland waters. *6th Institute for Space-Earth Environmental Research (ISEE) Symposium*, Abstract number: P30, 18 December, Nagoya University, Japan.
4. **Bayable, G.,** Cai, J., Mekonnen, M., Legesse, S. A., Ishikawa, K., Sato, S., & Kuwahara, V. S. (2024). Impact of water hyacinth infestation on water quality parameters in Lake Tana, Ethiopia. *2024 IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, Abstract number: TUPB.PA.76, 7–12 July, Athens, Greece.

5. Milashu, R., Yano, K., **Bayable, G.,** & Kuwahara, V. S. (2024). Spatiotemporal variability of sea surface temperature and Chl-a in the coastal waters of Sagami Bay. *2nd UN Ocean Decade Regional Conference & 11th WESTPAC International Marine Science Conference (2024)*, Abstract number: D3-436, 22–25 April, Bangkok, Thailand.
6. Kuwahara, V. S., Milashu, R., Yano, K., & **Bayable, G.** (2024). Monitoring coastal ocean ecosystem climate change using GCOM-C and in situ bio-optical observations. *16th Asia-Oceania Group on Earth Observations (AOGEO) Symposium*, Abstract number: R219, 3–5 September, Tokyo, Japan.
7. Imamura, H., Lebeza, T. M., **Bayable, G.,** Kuwahara, V. S., & Ishikawa, K. (2024). Study on image recognition of water hyacinth in Lake Tana using satellites and drones. *Japanese Society of Limnology Kumamoto Conference*, 2024.
8. **Bayable, G.,** & Gashaw, G. (2021). Spatiotemporal variability of agricultural drought and its association with climatic variables in the Upper Awash Basin, Ethiopia. *9th Annual National Research Conference, May 13–15, 2021, Wolaita Sodo University,* Ethiopia.
9. **Bayable, G.,** Gessesse, B., Besha, T., (2020). Analyzing time series variation of vegetation cover and its association with climate variability: The case of Upper Awash Basin, Ethiopia. *4th National Conference, Department of Geography and Environmental Studies, April 1, 2020, Mekelle University*, Ethiopia.
10. **Bayable, G.,** Gessesse, B., Besha, T., (2018). Evaluating the association between climate variability (ENSO) and vegetation dynamics by using remote sensing techniques: The case of Upper Awash Basin, Ethiopia. 5th Annual Conference of the Ethiopian Forestry Society (EFS), April 12–13, 2018, Addis Ababa, Ethiopia.

Research Grant

- GIS and Participatory-Based Suitable Waste Disposal Site Selection for Chiro Town, West Hararge Zone, Ethiopia, Funded by Oda Bultum University (2017–2019), 90,000 Ethiopian Birr
- Analyzing the Impact of Climate Change on Crop Production in West Hararge Zone, Oromia Region, Ethiopia, Funded by Oda Bultum University (2019–2020), 85,000 Ethiopian Birr

Research Interests

- Remote sensing and geospatial analysis for environmental monitoring
- Land administration, cadastral surveying, and urban and regional land-use planning
- Climate change impacts on water resources, drought prediction, and hydrological modeling
- Application of machine learning to ecological and environmental data
- Land use/cover dynamics, tropical forest change, and ecosystem services
- Spatiotemporal modeling of vegetation-climate-hydrology interactions in vulnerable ecosystems

Software and Programming Skills

- Geospatial Tools: ArcGIS, QGIS, Google Earth Engine, ENVI, ERDAS Imagine
- Programming: Python, R, MATLAB
- Others: Jupyter Notebook, Visual Studio Code

References

- **Victor S. Kuwahara (Ph.D.),** Professor, Soka University, Japan
  Expertise: Remote Sensing, Biological, Optical Oceanography, Email: victor@soka.ac.jp
- **Dr. Mulatie Mekonnen**, Associate Professor, Bahir Dar University, Ethiopia
  Expertise: Soil and Water Conservation, Hydrologic Modeling, GIS and Remote Sensing, Email: mulatiemekonneng@gmail.com
- **Dr. Getachew Workineh Gella**, Postdoctoral Researcher, Paris Lodron University of Salzburg, Austria
  Expertise: Geoinformatics, Deep Learning, Machine Learning, Environmental Science, Drought Verified email: getawork71@gmail.com
- **Dr. Temesgen Gashaw Tarkegn**, Postdoctoral Researcher, Prairie View A&M University, Texas, USA
  Expertise: Hydrology, Climate, Geospatial Data Analysis, Drought, Sediment Studies
  Email: gtemesgen114@gmail.com
- **Dr. Anwar Assefa Adem,** Postdoctoral Researcher, Prairie View A & M University, Texas, USA
  Expertise: Hydrology and Water Resources Engineering, Geospatial Data Analysis, Remote Sensing & GIS Email: anwarasefa@gmail.co

Journal Peer Reviewer

- *Environmental Monitoring and Assessment*