



PROFESSIONAL SUMMARY

Kavinda is a results-driven project lead with over 18 years of experience in project management, data innovation, geospatial applications and digital transformation across Asia. He currently serves as **Project Management Specialist at the Food and Agriculture Organization (FAO) of the United Nations in Sri Lanka**, leading the country's **Digital Agriculture Transformation FAO portfolio** under the Gates Foundation-funded *Inclusive Digital Agriculture Transformation (IDAT)* programme. His work focuses on advancing national data interoperability frameworks, integrated databases, and API gateways, AI integrations, fostering cross-ministerial collaboration and policy-driven digital ecosystems that support evidence-based agricultural decision-making.

Previously, as **Chief Operating Officer at the Global Water & Sanitation Center (GWSC)**, Asian Institute of Technology, Thailand, Kavinda led a **US \$13 million regional initiative** funded by the Bill & Melinda Gates Foundation, strengthening public data systems and managing multi-country partnerships in Bangladesh, Nepal, India, Cambodia, and Indonesia. Earlier, at the **Geoinformatics Center of AIT**, he managed and delivered regional FAO, UNEP, UNDP, ADB, and World Bank projects across 20+ countries, developing open-source geospatial platforms, regional data infrastructures, and climate information systems that integrate Earth Observation, AI, and GIS.

Kavinda is recognized for **building interdisciplinary teams** and **sustainable digital portfolios** that bridge research, policy, and practice, fully aligned with IWMI's mission to harness data, technology, and partnerships for regional knowledge services and climate resilience.

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COUNTRIES OF WORK EXPERIENCE

Bangladesh, Bhutan, Brunei Darussalam, Cambodia, India, Indonesia, Japan, Kyrgyzstan, Lao PDR, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Tajikistan, Thailand, Uzbekistan and Vietnam.

PROFESSIONAL EXPERIENCE (SELECTED)

Food and Agriculture Organization of the United Nations, Sri Lanka

Project Management Specialist – Digital Agriculture (Dec 2024 – Present)

- Lead FAO's digital agriculture portfolio, including AI solutions integration. Under the Gates Foundation-funded IDAT program, building integrated data platforms and national interoperability frameworks across agriculture, irrigation, fisheries, and plantations.
- Coordinate with the Presidential Secretariat and sector ministries to align digital solutions (LIFe, GeoGoviya, AIMS, CROPIX) with national policies and strategies.
- Oversee project implementation, monitoring & evaluation, data governance, API development, and capacity-building to ensure government ownership and long-term sustainability.

Asian Development Bank (ADB), Tokyo, Japan

Lead Facilitator, Digital Public Infrastructure (DPI) Training (Oct 2025)

- Designed and delivered a hands-on DPI training program for ADB agriculture sector leaders, focusing on project concept development, data-sharing agreements, and sustainable budgeting.
- Developed session plans and materials (concept note templates, costing frameworks) integrating foresight analysis and inter-ministerial negotiation exercises.
- Facilitated group exercises on drafting DPI project proposals and data governance models, and produced a final training report for ADB's knowledge repository.

Asian Institute of Technology (AIT) – Regional (Located in Thailand)

Chief Operating Officer, Global Water & Sanitation Center (GWSC) (Sep 2022–Nov 2024)

- Oversaw a US\$13M Gates Foundation initiative to establish city sanitation and technology hubs in Asia. Managed multi-country partnerships (Bangladesh, Nepal, India, Cambodia, Indonesia) to strengthen public sanitation data systems and innovation.
- Directed development of national sanitation data centers and dashboards (SDG 6.2) and Integrated Municipal Information Systems, unifying city-level data across government agencies.
- Oversaw day-to-day operations of all GWSC initiatives and projects, coordinating with stakeholders and country-level implementation partners. Responsibilities included: managing project implementation and continuous program evolution; leading daily administration and contract management; advancing GWSC activities and stakeholder engagement; overseeing project cycle management, tracking, and implementation support; and developing agile, high-performing cross-functional teams (20 senior professionals + 3 admin/finance staff).
- Worked closely with project leads, technical coordinators, and thematic area leads to ensure synchronized execution of all workstreams, driving timely achievement of project milestones across five countries

Associate Director, Geoinformatics Center (Jan 2019–Aug 2022)

- Managed regional projects (FAO, UNEP, UNDP, ADB, GGGI, World Bank) to develop open-source geospatial platforms and climate information systems for 20+ countries. Led teams applying Earth Observation, AI, and GIS to support agriculture, water and disaster resilience.
- Led UNEP's "CounterMEASURE") across four ASEAN countries, deploying AI-based plastic leakage models and hotspot mapping. The project's digital tools were selected to showcase at the UN SDG Digital Day for their innovation in New York.
- Directed FAO agro-climate projects: developed python tools for global agro-ecological zoning (PyAEZ, uses Globally now) and led climate projection/modeling initiatives in Lao PDR, building national capacity and data-sharing systems.

*Senior Program Specialist (Oct 2016–Dec 2018), Senior Research Associate (July 2008–Sep 2013)
Geoinformatics Center*

- Managed regional FAO, UNEP, UNDP, ADB, GGGI, and World Bank projects across 20+ countries, developing open-source geospatial platforms and climate information systems using EO, AI, and GIS for agriculture, water, and disaster resilience.
- Served as Co-Team Leader and Remote Sensing/Geospatial Expert for the ASEAN DRA program under ADRC, Japan—leading case study development, satellite-based flood and hazard modeling, and capacity building for 160+ professionals across 8 ASEAN countries.
- Delivered training for the UNU-ISP Climate Change Downscaling Programme in Japan, designing and conducting hands-on capacity-building modules on flood impacts and climate applications.
- Served as GIS/RS and modeling expert for JAXA's multi-country program on satellite data applications, supporting hazard, environmental, and agricultural analytics.
- Supported Sentinel Asia's disaster response program by producing satellite-based emergency maps for floods, earthquakes, and tsunamis for rapid humanitarian decision-making.

RELEVANT PROJECT EXPERIENCE

- Safely Managed On-site Sanitation: Technological Solutions for City Dwellers and Authority "Dhaka North City Corporation (DNCC)", Bangladesh (Jan-Dec 2023). Unicef | **Deputy Team Lead**

UNICEF Bangladesh has commissioned AIT, partnering with UPM, Germany to perform the consultancy project. The overall objective of this assignment is to have a feasible on-site sanitation technological solution to improve safely managed sanitation at DNCC area by 2023. The main output of this project is to provide technical guidelines for DNCC to guide the citizens to manage on-site sanitation at source/containment and provide a feasibility report on the technological solution for authority to manage fecal sludge generated at household/local business containment facility in DNCC.

- Supporting Development of National Plastic Action Plan, IGES | **Team Leader** | Jun 2022 – Mar 2023 | Cambodia & Myanmar

Support IGES team of Japan-ASEAN Integration Fund project to implement activities under "Strengthening Capacity for Marine Debris Reduction in ASEAN region through formulation of National Action Plans for ASEAN Member States and Integrated Land-to-Sea Policy" Project, considering "Bangkok Declaration on Combating Marine Debris in ASEAN Region and ASEAN Framework of Action on Marine Debris" initiatives. AIT supported in, 1). development of Waste Flow Diagrams in three cities across Myanmar; 2). Conducted hotspot and pathway mapping in three cities each in Cambodia and Myanmar; 3). Led the development of riverine plastic leakage maps in three cities within Myanmar.

- CounterMEASURE Against Marine Plastic Litter in Southeast Asia (Phase II), UNEP | **Team Leader** | Jan 2021 – Mar 2022 | Cambodia, Lao PDR, Thailand & Vietnam
 - Led regional consortium across 4 countries to develop **plastic leakage models, hotspot mapping, and microplastic analysis** in the Lower Mekong Basin.
 - Designed and deployed **AI-based litter detection tools** with Google Sustainability; scaled project into the "**pLitter**" portfolio for municipal use.
 - Achieved global recognition — project solutions **showcased at UN SDG Digital Day (UNGA 2023)** and positioned for replication across Asia.

The digital tools developed for the project have risen above 300 competing applications on a Global scale, and showcase under SDG 14 at the UN SDG Digital Day during the UN General Assembly in New York, Sep 2023.

- Strengthen technical capacity of national officials to use Earth Observation (EO) data to better collect and disseminate agriculture and disaster statistics in Asia and Pacific (Dec 2021 – Nov 2022), FAO | **Team Lead**

Coordination of Key Experts' work programmes and the extended team across partners, contribute technical report development and lead the establishment ground-truth data collection and management open-source ecosystem, considering government stakeholders to takeover and establish for longer terms. Coordinate and lead expert group meeting execution, including regional government stakeholders and international partners.

- Development of capacity and implementation of historic and future climates projections, and climate atlas preparation, Lao PDR under three project phases (2019 – 2021) | FAO under GEF fund | **Team Lead**

This project was executed for Department of Agriculture Land Management and Department of Meteorology and Hydrology, Laos under the FAO's Strengthening Agro-climatic Monitoring and Information System (SAMIS) project, to undertake the task of climate downscaling of past and future climate data for Laos using the 'Weather Research and Forecasting' (WRF) model and other statistical downscaling approaches. Led the coordination of climate scientists & project management. Local stakeholder consultation and execution of climate modelling by local technical staff. Led

institutionalization discussion for sustainability of the developed staff capacity and execution of climate downscaling in future. Implementation of climate computation in cloud resources and attention to country specific data sharing policies. The climate atlas document can be access at <https://www.fao.org/publications/card/en/c/CB9713EN>

- Land Resources Information Management System (LRIMS) Development in Afghanistan (Aug 2019 – Dec 2020), FAO-Afghanistan | **Team Lead**

Strengthening Afghanistan Institutions capacity for monitoring and analysing of agriculture production systems and LRIMS by integrating National Agro-Ecological Zoning (NAEZ) and development of scenarios to support countries agriculture planning.

- Development of Innovative Tools for Agro-Ecological Zoning (AEZ) in Support to Sustainable and Resilient Agriculture (Jan 2021 – Dec 2022), FAO-HQ | **Global Level | Team Lead**

This project enhanced awareness and technical capacities in developing and using agro-ecological zoning, building on the experience from FAO, AIT and IIASA in supporting AEZ and sustainable and resilient agriculture. It builds on the Global AEZ-4 web platform, in the framework of fifth version of GAEZ to enhance capacities in AEZ in collaboration with ESRI Global team. Coordinated detailed desk review of existing national, regional, and global agro-ecological zoning implementations and platforms; Consulted with national, regional and international experts in designing Global Agro-Ecological Zoning platform; Led development of technical specifications and documentation for an interoperable national and global Agro-Ecological Zoning platform; Led PyAEZ training modules upgraded and tested in the context of GAEZ; Under the phase-II, partnership establishment with IIASA, Vienna and engaging their leading scientists to improve the PyAEZ tool, and further expansion of its capabilities and development of AIT team capacity for portfolio expansion. Leading the establishment of expanding user community of AEZ and PyAEZ in the Asian and African countries.

- Innovative Tool development for Agro-Ecological Zone (AEZ) mapping and modelling (Aug 2019 – Dec 2020), FAO Regional Office for Asia and the Pacific | **Team Lead**

The development of Open-source Python package that allow users to conduct AEZ assessment in user friendly manner and contributed to ongoing work by FAO in the region under climate resilience and improvement of natural resource management in agriculture systems in the region and enhance the resilience of agriculture to risks including climate change. Led the development of Python package (PyAEZ) for FAO's AEZ frameworks, which consisted of many mathematical crop-related models to find crop suitability under various scenarios (<https://github.com/gicait/PyAEZ>). Organized and executed Train the Trainer training on the development phase of PyAEZ Model inviting senior scientists of FAO-HQ and regional government. Organized and executed technical trainings on using PyAEZ Model.

- CounterMEASURE Against Marine Plastic Litter in Southeast Asia (P-I, 2019 – 2020), UNEP | **Team Lead**

The project aimed at identifying a region-based model for monitoring and assessment of plastic leakage and pollution reduction targeting land-based plastic leakage entering waterways such as rivers and canals or drainages to the sea. Jointly led the organizing technical workshop and capacity mapping exercise conducted with the Mekong River Commission for Lower Mekong Countries, including Vietnam, to map out capacity assets to support plastic pollution and assessment. Contribute for community capacity assessment report on plastic pollution. Led the AIT technical team to develop methodological approach to predict plastic leakage density and its sources. contributed on Identification the source and pathways with leakage plastic type and amount to promote evidence-based policymaking. Led the development of Geospatial Platform to visualize various input data, activities carried out during and final results of the project; Jointly organized final stakeholder conference with over 1200 participants attendance.

- Risk assessment of six natural hazards at the district level in Tajikistan (Dec 2018 – Mar 2021), UNDP | **Deputy Team Leader and Remote Sensing Specialist**

The main objective of is to assess the vulnerability and risk of communities and infrastructure to natural hazards, determine their degree of exposure to future hazardous events enabling the district authorities to make decisions based on the risk assessment results and integrate them into developmental planning. Led the execution of hazard analysis for 6 natural disasters, execution of vulnerability and exposure assessment and multi-hazard risk assessment (MHRA) for entire country with potential scenarios for investment planning; All the MHRA scenarios were compiled into a web-based interactive Geospatial platform. The content design, backend framework design and led the development of the portal (under restricted access due to the government policy).

- Implementation of an Integrated Geospatial Platform, Database, and Applications for Disaster Risk Management in Uttarakhand, India (Dec 2018 – Dec 2019), World Bank | **Geospatial Expert**

The project implemented a collaborative geospatial platform; integrate real-time and baseline data into the platform; and deploy applications on the platform to support the Emergency Operation Centers (EOC) and decision makers involved in disaster management in the state of Uttarakhand. Engaged in preparation of disaster response Standard Operation Procedures for geospatial platform deployment at Emergency Operation Center; Development of geospatial database for Decision Support System; Explore and connected real-time data sources into the backend database.

- Disaster Risk Assessment of Uttarakhand, India (Oct 2016 – Sep 2018), The World Bank in partnership with DHI | **Remote Sensing (RS) and GIS Expert**

The project was financed by the World Bank and completed for the State Gov't of Uttarakhand under Disaster Recovery Programme initiated after the devastating 2013 flash floods (the Himalayan Tsunami). The objective was to restore housing,

rural connectivity and build resilience of communities in Uttarakhand and increase the technical capacity of the state entities to respond promptly and effectively to an eligible crisis or emergency. Completed comprehensive multi-hazard assessment of risk arising from floods, flash floods, earthquakes, landslides, and industrial hazards. Adopted probabilistic approach to modelling earthquake and flood risk throughout the state and developed a web-based decision-support tool to share information to inform spatial planning and response for DRR. Completed a comprehensive capacity building component involving officers throughout the state, and successfully implemented the CAPRA risk modelling tool in the newly formed Uttarakhand State Disaster Risk Management Authority (USDMA). The project has been highly commended by the World Bank on the technical approach, quality of delivery, and on the project outcome.

- Space Applications for Environment (SAFE, 2010 – 2013) | Japan Aerospace Exploration Agency (JAXA)| GIS/RS expert | Locations: Bangladesh, Sri Lanka and Thailand | **Geospatial Expert**

SAFE was a voluntary based initiative in Asia pacific by JAXA. It aims to encourage the environmental monitoring in long term scale to grasp the environmental change and to mitigate the global warming hazards by using of space applications especially for remote sensing technology. To detect Early changing environmental parameters such as water resources, river water level, land cover, deforestation, agricultural production, ecosystem so on. These environment changes could be identified through the government public services as a part of SAFE prototyping. Led three initiatives in coastal dynamics, estuary dynamics and fishery application in Sri Lanka, Bangladesh and Thailand respectively.

- Satellite Data Utilization for Disaster Risk Reduction and Response (Jan 2009 – Jun 2012), | Asian Disaster Reduction Center (ADRC), Japan | **Co-Team Leader and Geospatial expert**
Locations: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand and Vietnam

This project aimed at capacity building in using geospatial technologies in disaster risk reduction and emergency response in 8 ASEAN member countries. Assisted in developing case studies in each country engaging relevant national agencies. Assisted in developing the case studies through data collection and modelling. Conducted trainings in some of the countries for junior and mid-career professionals in use of satellite data in disaster risk reduction and response using the case studies. Coordinated and organized seminars for the senior officials for creating awareness. Co-organized the regional workshops in Bangkok and Jakarta to enhance the cooperation among the ASEAN member countries, especially in applications of satellite data in disaster risk reduction. Nearly 160 professionals were trained in satellite data using the country specific case studies, 250 senior level officials had participated in the seminars, nearly and 80 professionals from eight participating had joined regional workshops.

- Project-based Multi-Country Capacity Building Programme on utilization satellite data and other geospatial data for various applications (Aug 2008 – Mar 2013), Japan Aerospace Exploration Agency (JAXA), Japan
| **GIS/Remote Sensing Modelling Expert**

Locations: Bangladesh, Bhutan, Cambodia, Indonesia, Kyrgyzstan, Laos, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Tajikistan, Thailand, Uzbekistan and Vietnam (16 countries)

This programme aimed at hazard and risk assessment for drought, earthquake, flood, forest fire, landslide, tropical cyclone, and tsunami in developing countries. Implemented projects in collaborations with national agencies by targeting specific hazards in a country. National disaster management agencies and relevant line-agencies from a country were brought together to implement a project in a country. Recommended appropriate risk management measures to address both physical and social risks, upon accomplishment of a reasonably accurate risk map using relevant hazard models, and remote sensing and GIS data and tools. Built institutional capacities in hazard and risk assessment through the country-specific case studies developed by involving national agencies actively in data analysis, modelling and fieldwork.

PUBLICATIONS

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- **Nature Scientific Reports** - Rinasti, A.N., Ibrahim, I.F., **Gunasekara, K.** et al (2022). Fate identification and management strategies of non-recyclable plastic waste through the integration of material flow analysis and leakage hotspot modeling. Sci Rep 12, 16298. <https://doi.org/10.1038/s41598-022-20594-wv>
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- Rinasti, Aprilia Nidia, **Gunasekara, Kavinda**, et al., (2021). Developing Scenario of Plastic Waste Leakage in Jakarta Hydrology Environment using Seasonal Data Condition and Socio-Economic Aspects. 2nd International Conference on Geography and Geoinformatics (ICGG 2021).
- Tajima, Y. **Gunasekara, K.** and Nguyen, H. (2018). Satellite-based Monitoring of Contrasting Characteristics of Suspended Sediments Discharged from the Red and the Ma River Systems along the Northern Coast of Vietnam. International Journal of Sediment Research (<https://doi.org/10.1016/j.ijsrc.2018.08.004>).
- **Gunasekara, K.**, et al. (2016). Satellite-based Monitoring of Behavior of Fine Sediment Discharged from the Rivers. Journal of Japan Society of Civil Engineers, B2 (Coastal Eng.), vol.72, No.2, L1753-L1758 (https://doi.org/10.2208/kaigan.72.L_1753).
- **Gunasekara, K.**, et al. (2016). Satellite based monitoring of turbidity around Hai Phong Bay, Vietnam. Journal of Japan Society of Civil Engineers, B3 (Ocean Eng.), vol. 72, No. 2, L_772-L_777 (https://doi.org/10.2208/jscejoe.72.L_772).
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REFERENCES

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