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Subjects: Geography | Remote Sensing

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Prof. Manjula Ranagalage is working as a Profesor, Department of Environmental Management, Faculty of Social Science and Humanities,  Rajarata University of Sri Lanka, Mihintale, Sri Lanka.

Prof. Ranagalage obtained his Bachelor of Arts degree with a Geography specialization and a First Class at the University of Colombo in 2006. Furthermore, he earned two master's degrees in Geo-informatics and Geography at the Postgraduate Institute of Agriculture, the University of Peradeniya in 2010, and the University of Sri Jayewardenepura in 2013, respectively. He has completed a **PhD in Science in Geo-Environmental Sciences** in the Graduate School of Life and Environmental Sciences of the University of Tsukuba, Japan, in 2019.

Prof. Ranagalage has published more than 45 journal articles published including some in SCI,  SSCI, ESCI journals and other peer-reviewed journals, more than 50 conference publications, and more than ten books. Some of these SCI, SSCI, ESCI journals are Quintessential: Remote Sensing, Sustainability, PLOS ONE, Land Use Policy, Diversity, Forest, International Journal of Geo-information, Climate, Applied Ecology and Environmental Research, and Modeling Earth Systems and Environment. His research disciplines are included urban geography, urban climate change, urban green volume and built-up volume, urban heat island, application of GIS and remote sensing for water resources management, disaster management, environment management, tsunami vertical evacuation, forest cover changes, land change science, and soil erosions management. It is also noteworthy that the geographical area he has chosen for conducting research covers Sri Lanka and Japan, India, China, Indonesia, Iran, Nigeria, and some countries in the African continent and the Middle-east of the Asian continent.

To advocate and promote further scholarship and disseminate research-based new knowledge, he has provided more than 30 Master of Science (MSc) students with academic advice and guidance for completing their theses. His recent most scholarly engagement involves working as a reviewer for more than twenty international peer-reviewed indexed journals, namely Remote Sensing, Urban Forestry & Urban Greening, International Regional Science Review, Sustainable Cities and Society, Sustainability, and International Journal of Geo-information, Journal of Environmental Management, Sensor, Science of the Total Environment, Remote Sensing of Environment, Remote Sensing Applications: Society and Environment, Groundwater for Sustainable Development, Journal of Urban Management, The Egyptian Journal of Remote Sensing and Space Sciences, Groundwater for Sustainable Development, Climate, Land, to name a few.

Prof. Ranagalage is holding a Guest Editorship in special issues such as " Machine Learning of Remote Sensing Data for Urban Growth Analysis and Modeling," and " Urban Developments and Its Impacts on Disasters in Developing Countries" in **Remote Sensing** journal, and "Geospatial Analysis and Modeling of Urban Greening for Sustainability in Developing Countries," "Urban Heat Island Mitigation and Adaptation for Sustainability in Developing Countries," and "Spatio-Temporal Analysis of Urbanization Using GIS and Remote Sensing in Developing Countries" in **Sustainability** journal. In addition to that, he is working as an **editorial board member** of **Geomatics, Natural Hazards and Risk** journal since 2021.

By considering his research works, he has been awarded several awards such as; **Most Outstanding Young Researcher of Sri Lanka in the field of Humanities**/Aesthetics/Social science conducted by the Committee of Vice-Chancellors and Directors, Sri Lanka in 2018, and **Research Excellency awards (Tsukuba University President Award)**, Graduation Ceremony / Degree Conferring Ceremony for Academic Year 2019.
After the PhD, he was selected as **JSPS Postdoc Fellowship for International Scholars**, Japanese Society for Promoting Sciences (JSPS), University of Tsukuba, Japan, in 2019. He worked as a **JSPS postdoctoral fellow** at the University of Tsukuba from September 2019 to December 2020.

GIS | Remote Sensing | Geography | Sustainability | Geoinformatics | Spatial Analysis

## Recent Research Interest: Application of GIS & Remote Sensing for Sustainable Development in Developing Countries

Rapid urbanization can be seen in the developing regions, especially in Asia and Africa, near the future. This rapid urbanization will negatively impact land degradation, loss of ecosystem service, urban heat island, air population, and flooding, urban poverty, etc. Rapid urbanization has continuously caused to decrease environmental quality of the lowland cities and other mountain cities. These phenomena can be seen in Asian and African cities during the past few decades. Study about urban landscape becoming essential to enhance the knowledge and helps to introduce proper sustainable urban planning.

However, capturing the urbanization pattern and its impacts is becoming a challenging task due to the scarcity of spatial data. Primarily there are few spatial and temporal data available in the Asian and African developing counties. Thus, remote sensing and GIS techniques play a vital role in capturing the spatial-temporal variation of the urbanizations and their related issue. During the past few decades, GIS and Remote sensing have been used by many scholars to capture the urbanization patterns.

We have done several studies in several cities in Asia and Africa by using GIS and Remote sensing during the past few years. The landscape's rapid changes have been studied in several mountain cities and lowland coastal cities such as Nuwara Eliya [1] in Sri Lanka and Lusaka in Zambia [2]. It provides essential vital information to future urban planning to enhance urban sustainability—rapid changes of the urban landscape impacts to increasing urban heat island (UHI) in the world. During the past few decades, most cities had undergone rapid urban developments, affecting to decline of more natural lands. The UHI related studies had been done in several Asian cities such as Colombo [3][4], Kandy [5][6], and Kurunegala [7] in Sri Lanka, Seoul in South Korea [8], Greater Hefei in China [9], and some African cities such as Lagos (Nigeria), Nairobi (Kenya), Addis Ababa (Ethiopia), and Lusaka (Zambia) [10]. Besides, the variation of Land Surface Temperature (LST) of several cities such as Nuwara Eliya in Sri Lanka [11], Addis Ababa (Ethiopia) [12], Lagos (Nigeria) [13] had been investigated to introduce suitable remedial measures to overcome the negative impacts associated with increasing LST in the urban area.

We have done several other studies based on remote sensing data. The urban volume (built and green volume) is becoming popular among urban development due to the capabilities to understand vertical urban development

rather than horizontal development [14][15][16]. On the other hand, other burning issues such as forest cover changes [17], landslide vulnerability assessment [18], social erosion [19], GIS application for water quality assessment [20][21], life quality [22] related studies had been conducted in several study areas in Sri Lanka. We strongly believe that the studies' findings positively influence future planning and policy implementation in the study area. Same time, the adopted methodologies of the studies can use to conduct similar studies in developing counties.

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