

研究テーマ SDGsの課題に取り組むことで自然環境を保全する

所属 GRASS

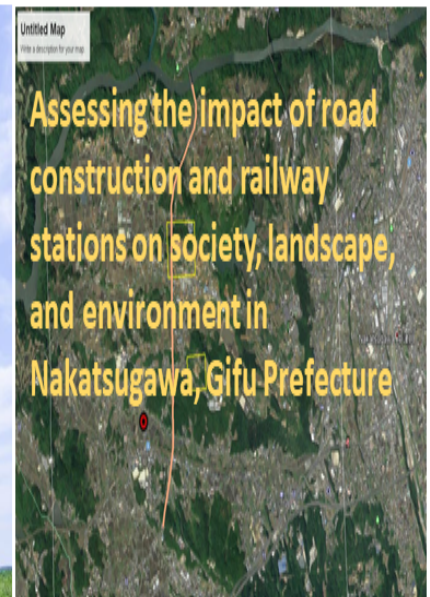
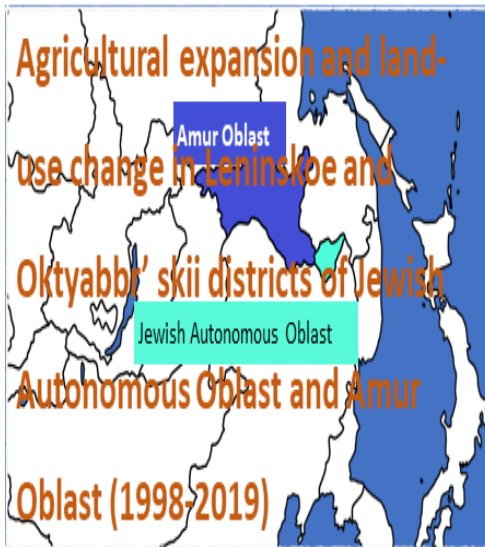
Assistant Professor Shishir Sharmin

<https://u-toyama.elsevierpure.com/en/persons/sharmin-shishir>

研究分野	土地利用、林業、都市成長、気候変動、農業、環境汚染、災害管理におけるSDGsの課題
キーワード	環境学、農業、土地利用、都市成長、森林、気候変動、GIS、リモートセンシング

研究室URL : <https://shishir62.wixsite.com/shishir-sharmin>

Current researches



Past researches

Springer Link

Original Research Article

Predicting the probable impact of climate change on the distribution of threatened *Shorea robusta* forest in Purbachal, Bangladesh

Sharmin Shishir^{1,2}, A. S. M. Rezaul Karim¹, Shima Tasnuva¹, M. N. Hossain¹

710 Accesses | 11 Citations | Metrics

Highlights

- Both edaphic and climatic variables are important for *S. robusta* conservation.
- Precipitation and soil nitrogen are the most significant variables for distribution.
- *S. robusta* distribution is likely to decline via climate change in the 21st century.

Springer Link

Environmental Monitoring and Assessment

Hierarchical classification of land use types using multiple vegetation indices to measure the effects of urbanization

Sharmin Shishir^{1,2}, Shima Tasnuva¹

710 Accesses | 11 Citations | Metrics

Abstract

Detecting fine-scale spatiotemporal land use changes is a prerequisite for understanding and predicting the effects of urbanization and its related human impacts on the ecosystems. Land use changes are frequently examined using vegetation indices (VIs), although the validation of these indices has not been conducted at a high resolution. Therefore, a hierarchical classification was constructed to obtain accurate land use types at a fine scale. The characteristics of four popular VIs were investigated prior to examining the hierarchical classification by using Purbachal New Town, Bangladesh, which exhibits ongoing urbanization. These four VIs are the normalized difference VI (NDVI), green red VI (GRVI),

Carbridge Care

Climate change impact on the distribution of Tesso jute using maximum entropy and educational global climate modelling

Md Arful Haque¹, Sharmin Shishir¹, Anannya Mazumder¹ and Mehedi Hasan¹

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Abstract

Tesso (Carbonifera siliqua L.) is a significant cash crop, cultivated commercially in the lower plain of Bangladesh. The climatic regimes in Bangladesh are changing as well as the world does. However, this species is threatened by climate change. Occurrences of data on threatened and endangered species are frequently sparse which makes it difficult to study the species suitable habitat distribution using various modelling approaches. The current paper used maximum entropy (Maxent) and educational global climate model (EGCM) modelling to predict and conserve the suitable habitat distributions for Tesso species in Bangladesh to the year 2100. Nine environmental variables, 238 occurrence data and two measures

Taylor & Francis

Change detection of Jamuna River and its impact on the local settlements

Md Arful Haque¹, Sharmin Shishir¹, Anannya Mazumder¹ and Mehedi Hasan¹

Department of Geography and Environment, Jahangirnagar University, Savar, Bangladesh's Eastern Studies, University of Toyama, Toyama, Japan

Accepted 13th December 2023

Abstract

Spatio-temporal change detection analysis of Jamuna River using low and medium-resolution satellite data between the years of 1972 and 2013 are dynamic to assess river spatio-temporal changes and their impacts on the local settlements over the specific time. This study employs remote sensing and geographic information system (GIS) techniques to identify the river bank shifting, erosion, and depositional features along with the population displacement. The satellite image of LANDSAT multispectral (MSS), thematic mapper (TM), and operational land imager (OLI) and thermal infrared sensor (TIRS) were used in this study. Supervised and unsupervised classification techniques have been used to identify land cover types and detect the changes using ArcGIS Pro 2.1.2. Supervised classifications performed well by validating 200% overall accuracy. The result shows total erosion was 1356 ha from 1972 to 2013, while the deposition was 1342 ha. Erosion and deposition cause the bank line shifting, river widening, and settlement displacement. Hundreds of displaced people suffered from loss of land, livelihood, increased poverty, food insecurity, lack of sanitation, and drinking water facilities. Thus, this study will be correct in assisting the environmental management and associated planning including necessary measures.

Studying land use land cover change, forest disturbance and conservation, and climate change using Remote Sensing and GIS techniques. Research interests include achieving SDG goals 6, 7, 9, 11, 13, 14, 15 of climate action and protecting life on earth. Future research includes the impacts of volcanic gas on vegetation decline at Tateyama Mountain Japan.