Geospatial Analysis of Urban Landscape Development in Four State’s Capitals in Myanmar

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- Myanmar has composed with 7 states, 7 regions and one union territory area as the large scale administrative regions.

- Mandalay – Myanmar Ancient Capital
- Yangon - Former National Capital, now still as Business Capital
- Naypyitaw - Current National Capital

- Although Yangon and Mandalay are the highest cities in Myanmar, other capitals are stand up region administrative and business centres in each state and region.
• Sustainability is a central ongoing concern for urban governments and community, and the management of the urban landscape is an important part of urban area response to challenges such as population and climate change.

• The knowledge of urban landscape patterns is important for understanding human-environment interactions, provision of urban ecosystem management.

• The main purpose of this study is to examine and compare the urban landscape development of four State’s capitals with gradient comparative approach.

• Loikaw in Kayah State, Taunggyi in Shan State, Pha_An in Kayin State, and Mawlamyine in Mon State
The comparison focuses on three aspects of urban landscape patterns – built-up density
- green space
- surface water
In this study the landsat 8 data (2015, February) has been only used to extract above mentioned three aspects.
The atmospheric correction is used to get the reflectance values from DN number of Landsat 8 data and to eliminate the cloud cover and some atmospheric disturbances.
To extract the built-up areas and vegetation cover, NDBI and NDVI have been applied in this study.
• In order to compare the urban landscape patterns of each capital, a common spatial unit of analysis had to be defined as 3 km around from city centre of each capital.
• The size of buffer zone was influenced by the minimum extents of land cover map, especially Pha_An of Kayin State which has the smallest extent.
• To capture the urban landscape gradient condition, 500 m buffer zones created across the gradient of the distance from the city centre (500 m, 1000m, 1500 m, 2000 m, 2500 m and 3000 m), the six class level metric were derived.
Vegetation

![Graph showing vegetation distribution over different distances and locations: Loikaw, Taunggyi, Pha_An, and Mawlamyine.]
Built_up % with 500 M Buffer

Built_up % within 3000 M Buffer
• As the above analysis, Loikaw, the capital of Kayah State has a good chance to reach the urban sustainability than other cities.

• Overall, the use of the gradient analysis and landscape patterns integrated approach, as applied in this study using a common spatial unit of analysis, has helped capture and at the same time, compare objectively the spatial pattern of four different urban landscapes.

• Using the three aspects in analysing the spatial differentiation of the urban landscape development of four urban units can be some limitation in analysis of urban landscape processing.

• When the urban ecological researches will be done in future studies, more detailed and more accurate aspects should be needed in research consideration.
THANK YOU