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## Spatial and sensible planning of a chaotic metropolitan city through GIS and remote sensing

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**Background:** Karachi is one of the biggest metropolitan cities of the world but lacks in basic urban infrastructure like mobility and recreational activities, etc. The author has tried to analyze the challenges and their coping strategies within constraints of its complications through ESRI ArcGIS by data available on the internet and open source platforms. The aim is to allocate and manage resources according to its urban districts. The criteria were urbanism, population, and recreational spaces.

**Methodology:** The methods adopted to improve these urban complexities are Geo Design (Steinitz). GeoDesign applies system thinking to large problems of planning. Another approach was Spatial Planning through Remote Sensing: As the population is on a verge, so it requires a planning which helps the municipality to investigate and create an assessment out of it. For developing those spatial planning a platform of ESRI ArcGIS is widely used in a modern world. The city of Karachi has not yet adopted the same techniques yet. In this thesis form that particular platform shapefiles of each district will be created, by spotting out the best location which fulfills the practical engineering requirement specifically, topography of the region will determine the development and by just implementing a few changes in stereotype construction of the streets which is mainly its profile, the same area would act as reservoir during pluvial flooding. Which is a by-product of urbanization, drainage in terms of sewerage and stormwater will be compensated for this particular spatial planning.

**Conclusion:** Cities are complex social engine where various ethnicities merge for gain economical and livable gains. The hypothesis of this research was: the developing cities could learn from developed ones and implement modern techniques in their developing phase. For Karachi in my thesis, I suggested strategies which could solve the various problem related to Urban infrastructure. Allocating the services in a district according to the demand which could perform multiple tasks simultaneously. Interestingly while working professionally I found many of my results are standard planning practice in Munich. In a nutshell, these planning strategies could make Karachi a more livable city than before.

### Biography

Waqas Wajid is currently working in Landscape Architect firm L+P GmbH situated in Munich, he completed his masters from Anhalt university of applied sciences in landscape architect and done civil engineering from SSUET Karachi in 2010, he has ample work experience in construction industry. Also, he published an article and won a poster competition in DLA 2018

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