MAPPING SOCIO-ECONOMIC VULNERABILITY KIGALI (RWANDA)

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(Based on the work of Nikuze, A. et al. Towards Equitable Urban Residential Resettlement in Kigali, Rwanda)







- Informal settlements are often located in areas prone all sort of risks
- In this example, a community in Kigali, Rwanda, developed in flood hazard prone areas









- Officials want to have a resettlement strategy for these citizens
- This resettlement, however, must avoid further impoverishment of those being resettled
- The risk of poverty is attenuated by optimizing access to:
 - Amenities (public services, commercial areas, public transport, etc)
 - Existing social networks (original settlement, schools, collectivities, etc)
- Which candidate locations are adequate?

Quality of life



CONTEXT

Which candidate locations are adequate?





- The key word is accessibility to amenities expressed as travel time
- To measure this, a cost surface is produced
- In this surface, the value of each pixel represents how much time it takes to transverse it





• The cost surface is then used to evaluate accessibility according to the following criteria

Subset	Indicator	weight
Site location preferences	Distance to city centre	0.33
	Distance to commercial centres	0.22
	Distance to original settlement	0.11
Social and public services	Distance to markets	0.11
	Distance to Primary Schools	0.045
	Distance to Secondary schools	0.029
	Distance to Universities	0.015
	Distance to health facilities	0.067
	Distance to bus route	0.044
	Distance to bus stop	0.022



Example of an accessibility map





 All the accessibility maps are then combined to obtain a map representing impoverishment vulnerability







- Final result is a map of candidate zones for resetlement where:
 - Impoverishment vulnerability is less than in current situation (green polygons)
 - Impoverishment vulnerability is higher than in current situation (red polygons)





TO KNOW MORE

 Tutorials (open courseware) with step by step instructions to conduct this and other GIS Analysis: <u>www.itc.nl/urbangis</u>

 Original paper (open access) published in GIS in Sustainable Urban Planning and Management: <u>https://library.oapen.org/handle/20.500.12657/27516</u>





