

Probing Environmental Sustainability via Brownfield Remediation: A Framework to Manage Brownfields in Ethiopia Lesson to Africa

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Abstract : In recent years, brownfield redevelopment projects (BRPs) have contributed to the overarching paradigm of the United Nations 2030 agendas. In the present circumstance, most developed nations adopted BRPs, an efficacious urban policy tool. However, in developing and some advanced countries, BRPs are lacking due to limitations of awareness, policy tools, and financial capability for cleaning up brownfield sites. For example, the growth and development of Ethiopian cities were achieved at the cost of poor urban planning, including no community consultations and excessive urbanization for future growth. The demand for land resources is more and more urgent as the result of an intermigration to major cities and towns for socio-economic reasons and population growth. In the past, the development mode of spreading major cities has made horizontal urbanizations stretching outwards. Expansion in search of more land resources, while the outer cities are growing, the inner cities are polluted by environmental pollution. It is noteworthy that the rapid development of cities has not brought about an increase in people's happiness index. Thus, the proposed management framework for managing brownfields in Ethiopia as a lesson to the developing nation facing similar challenges and growth will add immense value in solving the problems and give insights into brownfield land utilization. Under the umbrella of the grey incidence decision-making model and with the consideration of multiple stakeholders and tight environmental and economic constraints, the proposed management framework integrates different criteria from economic, social, environmental, technical, and risk aspects into the grey incidence decision-making model and gives useful guidance to manage brownfields in Ethiopia. Furthermore, it will contribute to the future development of the social economy and the missions of the 2030 UN sustainable development goals.

Keywords : Brownfields, environmental sustainability, Ethiopia, grey-incidence decision-making, sustainable urban development

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