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New tool to compare and prioritise brownfield sites for redevelopment

Researchers have proposed a new indexing scheme to help decision-makers prioritise brownfield sites for redevelopment. The scheme scores potential sites according to socio-economic, smart growth and environmental dimensions. By giving users the flexibility to emphasise some aspects of development as more important than others, it can be adapted for use in different contexts.

The majority of decision support tools (DSSs) for brownfield redevelopment are designed for specific projects and there are few tools to help compare different brownfield sites over a large area with the aim of prioritising sites for redevelopment.

The study proposes an indexing method that screens large areas and identifies sites to be considered for further assessment with the ultimate aim of redevelopment. The tool scores sites with three indices, which each incorporate appropriate indicators:

Socio-economic index: indicators for population density, property values and unemployment are combined in this index to indicate brownfield redevelopment's potential to contribute to economic growth.

Smart growth index: this indicates the 'liveability' of an area, and includes indicators which account for accessibility to utilities and transport, provision of employment opportunities and housing.

Environmental index: indicators including source of potential contamination, soil permeability, proximity to water bodies and parks and presence of wetland and floodplains, are combined in this index.

All indicators rely on publicly available data and information that can be collected in most industrialised countries, such as those in the EU. In the process of combining the indicators into the three indices, there is the option to weight the indicators according to their importance in a specific context. For example, if provision of employment was deemed most important for a particular area, this could be given greater weighting in the social growth index, or if the source of contamination was considered important, then the environmental index would give it greater weighting.

The researchers decided not to combine the three indices into one single index as their nature and spatial scale were incompatible. For example, socio-economic and smart growth indices can be applied on a regional or local level, whereas the environmental index is calculated for each brownfield site.

The framework was applied to the City of New Haven, USA, as a case study and provided three maps for each index. Using the environmental index, it assigned four sites out of 47 to the highest priority category for redevelopment. The case study demonstrated the sensitivity of three indices to the weighting schemes. As such, it is envisaged that participation of stakeholders would help to tailor the weighting according to local needs. Stakeholders would also have to consider other factors, such as availability and time-scale of funding, as well as public opinion.

The tool is not intended to replace evaluation of individual sites and redevelopment projects, but to serve as a preliminary screening tool for when there are a large number of potential sites or one large land area, in order to guide planning through initial choices.