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Mangrove rehabilitation along urban coastlines: A Singapore case study

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1 Mangrove rehabilitation along urban coastlines: a Singapore
2 case study

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8 **Abstract**

9 Rehabilitation is a key strategy to offset continuing mangrove deforestation across the tropics. Most
10 thinking and research on mangrove rehabilitation is focused on rural coastlines, though urban areas also
11 urgently need rehabilitation to offset previous mangrove losses due to coastal development. This is
12 especially the case as urbanization continues in the coastal zone across much of the tropics. However,
13 the drivers of urban mangrove rehabilitation may differ from rural locations, related to replacing
14 habitats lost due to development, or utilizing the wave attenuation function of mangroves to improve
15 the coastal defence of urban assets. Urban mangrove rehabilitation also faces several unique challenges
16 that may not apply to rural rehabilitation projects, particularly related to space constraints and the need
17 to utilize novel spaces and habitats that may be less suitable for mangrove establishment. The tropical
18 nation of Singapore is used as a case study to investigate the various drivers of urban mangrove
19 rehabilitation and the current and future status of rehabilitation projects across the nation. Singapore is
20 also used to highlight the potential for novel mangrove rehabilitation solutions along urban coastlines,
21 particularly the role of novel habitats and ecological engineering, and rehabilitation funding through
22 Corporate Social Responsibility. As coastal development and urbanization continues apace across the
23 tropics, lessons learnt from Singapore can inform rehabilitation practices along other increasingly
24 urbanized shorelines in the future.

25

26 **Keywords:** ecological engineering; land reclamation; mangrove forest; planting; restoration; surface
27 elevation

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