



Urban Pathways

THE TRANSFORMATIVE POTENTIAL OF URBAN RIVER RESTORATION FOR LOW CARBON URBAN DEVELOPMENT



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Urban Pathways

The Urban Pathways project helps delivering on the Paris Agreement and the NDCs in the context of the New Urban Agenda and the Sustainable Development Goals. It has established a facility in close cooperation with other organisations and networks active in this area to support national and local governments to develop action plans and concrete implementation measures to boost low-carbon urban development. This builds on UN-Habitat's role as "a focal point on sustainable urbanisation and human settlements including in the implementation and follow-up and review of the New Urban Agenda". The project develops national action plans and local implementation concepts in key emerging economies with a high mitigation potential. The local implementation concepts are being developed into bankable projects, focusing on the access to urban basic services to create a direct link between climate change mitigation and sustainable development goals.

The project follows a structured approach to boost Low Carbon Plans for urban mobility, energy and waste management services that deliver on the Paris Agreement and the New Urban Agenda. The project works on concrete steps towards a maximum impact with regards to the contribution of urban basic services (mobility, energy and waste management) in cities to global climate change mitigation efforts and sustainable and inclusive urban development. This project makes an active contribution to achieve global climate change targets to a 1.5°C stabilisation pathway by unlocking the global emission reduction potential of urban energy, transport and resource sectors. The project will contribute to a direct emission reduction in the pilot and outreach countries, which will trigger a longer term emission reduction with the aim to replicate this regionally and globally to make a substantial contribution to the overall emission reduction potential.

This project implements integrated urban services solutions as proposed in the New Urban Agenda providing access to jobs and public services in urban areas, contributing to equality and social coherence and deliver on the Paris Agreement and the Sustainable Development Goals. This is the first dedicated implementation action oriented project, led by UN-Habitat to deliver on inclusive, low-carbon urban services. Securing sustainability and multiplier effect, the project aims to leverage domestic and international funding for the implementation projects that will follow from this initiative

Project concept

Project aims



Urban Pathways



Urban Pathways Project and Replication Cities

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BACKGROUND

Rivers are a lifeline to an evergrowing population. They are a source of fresh and clean water, are vibrant ecosystems for diverse and endangered biodiversity species, support vital livelihood activities, and are essential to people's lives¹. According to the World Wildlife Fund, approximately 7.1% of the world's population lives on deltas, while about two billion people rely on rivers for their drinking water². However, rivers are among the most degraded freshwater ecosystems in the world³. Despite the vital role rivers play in supporting the survival of humans and nature, they have been continually damaged and allowed to deteriorate. Pollution is key among the challenges affecting freshwater ecosystems, including rivers. According to the United Nations Environment Programme (UNEP), a third of the rivers in Africa, Asia, and Latin America are severely polluted by pathogens posing a risk to human health, freshwater biodiversity and fishery, and the use of river water for agricultural and industrial activities⁴. Additionally, around 80% of the world's untreated wastewater is dumped back into the environment, polluting rivers, lakes, and oceans⁵.

Climate change, damming, heavy engineering, and overuse of water also affect rivers and freshwater ecosystems. Climate change is poised to exacerbate water challenges and affect river flow as rainfall patterns change, with a predicted increase in droughts and floods affecting water quality and availability. One of the impacts of the increasingly frequent and severe dry period is reduced water levels. The Yangtze, Asia's longest river in China, experiences record low water levels. According to a study, only 37% of the world's longest rivers remain free-flowing⁶. The rapid expansion of dam building and other river infrastructure to meet the growing demand for inland navigation, hydropower and irrigation has left very few rivers in their natural, wild, meandering state. The degradation and deterioration of river ecosystems pose a risk to human health and livelihoods and continually endanger freshwater species. River restoration is vital to re-establishing rivers as healthy and self-sustaining systems providing essential social and ecological services, particularly in urban areas.

1 Why are rivers so important? <https://www.wwf.org.uk/updates/why-are-rivers-so-important-and-how-can-we-protect-them>

2 Free-flowing rivers. <https://www.worldwildlife.org/initiatives/free-flowing-rivers>

3 Rivers and lakes are the most degraded ecosystems in the world. <https://www.nationalgeographic.com/environment/article/rivers-and-lakes-are-most-degraded-ecosystems-in-world-can-we-save-them>

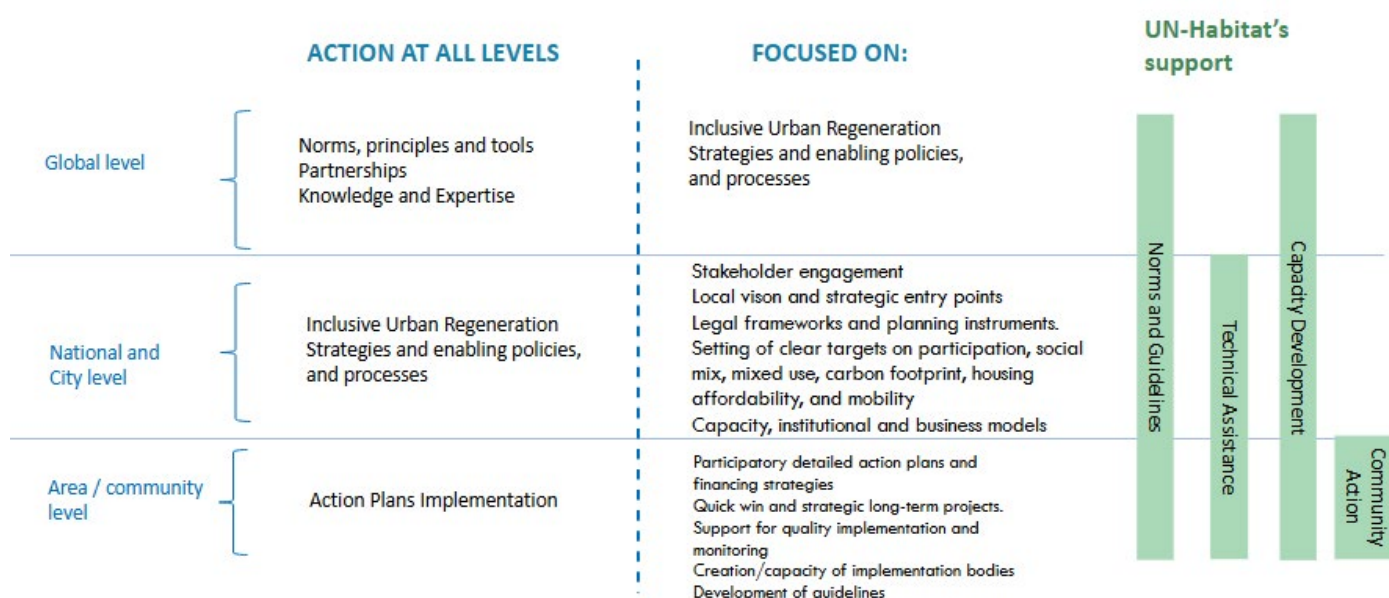
4 Freshwater Strategic Priorities 2022–2025 to implement UNEP's Medium-Term Strategy. https://wedocs.unep.org/bitstream/handle/20.500.11822/39607/Freshwater_Strategic_Priorities.pdf

5 The United Nations world water development report 2017: wastewater: the untapped resource; facts and figures. <https://unesdoc.unesco.org/ark:/48223/pf0000247553.locale=en>

6 Mapping the world's free-flowing rivers. <https://www.nature.com/articles/s41586-019-1111-9>

RIVER RESTORATION AS A TRANSFORMATIVE URBAN NATURE-BASED SOLUTION

River restoration intends to reinstate the characteristic river habitat and biodiversity by re-establishing a river system's natural physical processes, features, and physical habitats, including restoring water quality and removing invasive species, which are equally important for the recovery of river habitat and biodiversity⁷. River restoration actions aim to restore river biodiversity and the key ecosystem services that society depends on, such as the provision of clean drinking water and the natural management of flood risk, by maintaining ecological balance, increasing biodiversity, and improving the river ecosystem, and is important for achieving biodiversity conservation and sustainable development.



Inclusive Regeneration Requirements as identified by UN-Habitat (source: UN-Habitat)

Globally, around 56% of the population lives in urban areas⁸, while approximately 75% of the world's population lives near rivers⁹. Achieving inclusive regeneration requires action on all levels of government, as showcased in UN-Habitat's approach: The relationship between cities and rivers that run through them is increasingly considered fundamental to their urban development because of the profound interactions between humans and nature. Rivers offer urban areas significant opportunities for stormwater management, promoting health and well-being, and potentially revitalising urban centres by creating a vibrant green and open spaces and interaction with biodiversity. Therefore, it is imperative to rethink the nexus between rivers and urban areas and between nature and people.

7 River Restoration and Biodiversity. <https://portals.iucn.org/library/sites/library/files/documents/2016-064.pdf>

8 Urban development. <https://www.worldbank.org/en/topic/urbandevelopment/overview>

9 Rivers in our towns and cities. <https://www.ecrr.org/River-Restoration/Urban-River-Restoration>

Urbanisation occurs to the detriment of rivers. Urban growth and development affect rivers through physical infrastructure that replaces natural riverbanks, increased run-off that degrades water quality, removal of riparian vegetation and loss of natural habitats, altered river widths and depths, and proliferation of invasive species that damage the environment. The human-induced pressures on rivers reduce their resilience to the growing effects of climate change⁹. River restoration can be vital to urban regeneration by delivering diverse social and environmental benefits to create sustainable urban communities. Urban river regeneration initiatives can provide an opportunity to create sustainable jobs, transform informal settlements, and improve safety and security. River ecosystem restoration should target the basis of habitat and ecosystem change, localise restoration actions, align the restoration efforts to the scale of the problem and be clear about expected outcomes¹⁰.

Integrating nature-based solutions into municipal strategies is a prerequisite for effectively restoring rivers. Nature-based solutions are actions to address societal challenges by working with nature to protect, sustainably manage and restore the ecosystem and provide benefits for both human and biodiversity well-being¹¹. Nature-based solutions help protect our environment, create habitat, and offer an alternative or complementary, low-carbon to traditional grey infrastructure. River restoration projects serve as nature-based solutions as they leverage nature to provide environmental, social, and economic benefits that include biodiversity increase and flood management, improved health and well-being, and increased property and land values, among others.

The management of urban rivers previously entailed blue infrastructure interventions, but the focus is shifting towards working with natural processes. In urban areas, river restoration has to be unique to specific conditions to adhere to natural processes as much as possible through innovative approaches, including green infrastructure. Green infrastructure utilises nature systems to offer sensitive and intelligent solutions for stormwater management, community health and well-being, urban revitalisation, and biodiversity protection¹². The

10 Process-based Principles for Restoring River Ecosystems. https://www.researchgate.net/publication/44218886_Process-Based_Principles_for_Restoring_River_Ecosystems#:~:text=We%20outline%20and%20illustrate%20four,should%20be%20at%20a%20scale

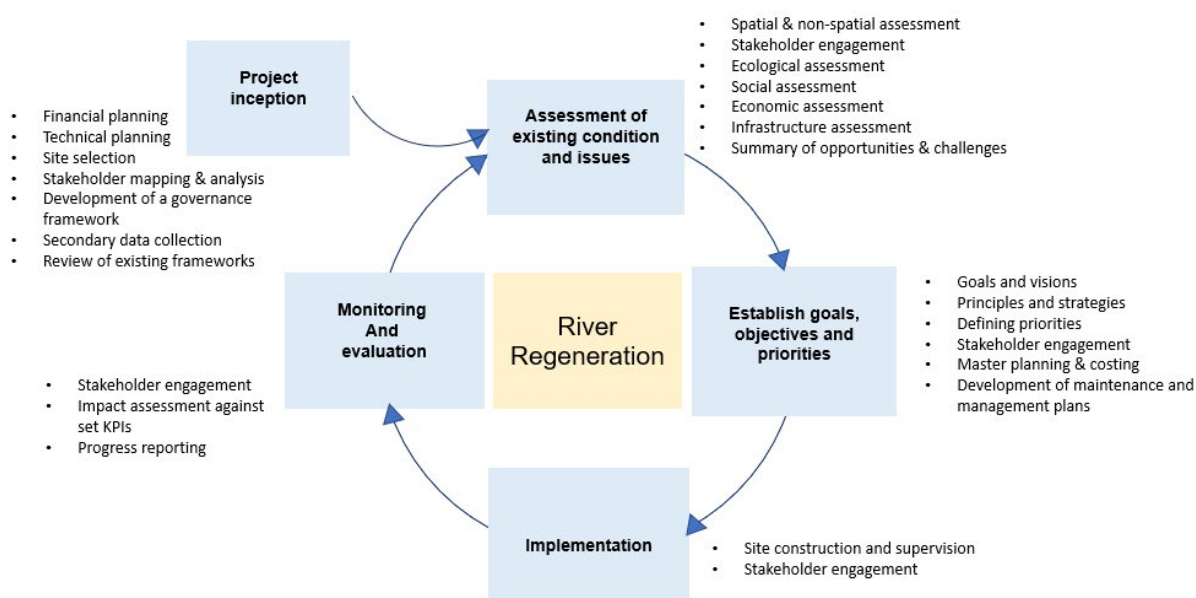
11 Ensuring effective Nature-based solutions. https://www.iucn.org/sites/default/files/2022-02/iucn_issues_brief_-_nbs_standard_eng.pdf

12 Green Infrastructure: Riverside regeneration. <https://www.bdp.com/globalassets/ideas/river-regeneration---bringing-life-to-communities/green-infrastructure.pdf>

green infrastructure allows the regeneration of both river ecosystems and urban areas within them as multifunctional, connected, and integrated zones.

River corridors offer significant opportunities to expand active mobility options by integrating pedestrian and cycling lanes along linear and green open spaces adjacent to the river. River regeneration provides a good platform to leverage on the transformative potential for streets as instruments for urban regeneration. As part the Nairobi River Regeneration Initiative, to catalyse urban regeneration through creative methods that reimagine streets as public spaces. Design proposals have been developed that promote safe and vibrant streetscapes that link the central business district with the river with a focus on pedestrian and cyclist, and revitalisation of the downtown area¹³.

Urban rivers hold great potential to be at the core of creating inclusive, economic development, and promoting sustained environmental restoration and protection. They offer the opportunity to provide efficient infrastructure and build creative and attractive places along the river for people. Restoration efforts require an integrated approach anchored by extensive stakeholder and community engagement and based on a long-term plan that addresses urban, social, environmental, and economic change and innovative financial instruments to guarantee sustainable outcomes. UN-Habitat proposes the following process for River Regeneration:



Process of Urban River Regeneration (source: UN-Habitat)

13 Transformation of Downtown Nairobi. Using creative methods to rethink streets as public spaces and catalysts for urban regeneration

NEED FOR INSTITUTIONALISED RIVER MANAGEMENT

The increasing negative impacts of urbanisation on river corridors has resulted in rising calls for their sustainable management. The governance of urban rivers ought to be anchored on stakeholder participation and partnership working on river and urban regeneration¹⁴. The multisectoral networks of people and organisations supports the integration of environmental and socio-economic knowledge required for their sustainable management.

Cheonggyecheon River Restoration Project in Seoul utilised a triangular institutional and implementation system consisting of the project headquarters, the citizen's committee and Cheonggyecheon Research Group. The project headquarters served to maximise effectiveness and collaboration to ensure efficient communication and project implementation, the research group was under the auspices the Seoul Development Institute and was charged with conducting research projects related to basic data and blueprints for the restoration. The primary role for Cheonggyecheon Citizens' Committee was to set the direction of the restoration, by collecting the opinions and concerns of citizens with regard to the project. The governance framework for the Cheonggyecheon restoration project designed to simultaneously promote, collect public opinion, build public relations and efficient project implementation.

The success of river regeneration governance framework hinges on continuous collaboration between stakeholders. The governance process needs to account for the diversity of actors to guarantee the legitimacy of the process¹⁴. In addition, a unifying institution under a commission or from is recommended for efficiently coordinate the needs, aspirations and actions of various stakeholders. The case of restoration of Incheon can be regarded as good practice in river restoration governance. Incheon Stream Restoration Project in South Korea established the Stream Restoration Propulsion Group to unify and accommodate the views diverse stakeholders¹⁵.

The importance of natural ecosystems has been highlighted in the global agenda for sustainable development. River ecosystems significantly support the social, economic, and environmental sustainability of urban and rural areas. Their restoration, protection, and conservation contribute toward actualising the sustainable development agenda.

14 Holt, A. R., P. Moug. and D. N. Lerner. 2012. The network governance of urban river corridors. *Ecology and Society* 17(4): 25. <http://dx.doi.org/10.5751/ES-05200-170425>

15 Lee, S. and Choi, G.W., 2012. Governance in a river restoration project in South Korea: The case of Incheon. *Water resources management*, 26(5), pp.1165-1182.

ALIGNMENT TO INTERNATIONAL DEVELOPMENT FRAMEWORKS

An outcome of the Paris Climate Change Conference in 2015 was to give precedence to the natural-based solution over artificial or modified solutions, involving community participation and adhering to environmental and social safeguards. The sustainable development goals (SDG) establish several targets for protecting, restoring, and sustainable use of natural ecosystems. SDG target 6.6 and 11.6 set out the intention to restore water-related ecosystems and reduce the adverse environmental impacts of cities, respectively¹⁶.

The New Urban Agenda (NUA) warns of the unprecedented threats due to biodiversity loss and draws attention to conserving and protecting biodiversity and urban systems, especially environmentally sensitive areas that include urban deltas and coastal areas of which rivers are an integral part. NUA also prescribes the development of cities that conserve, protect, restore, and promote their ecosystems, water, biodiversity, and natural habitats.

River restoration can be an instrument for smart resource management and integration with land use planning and policy to promote environmental sustainability and deliver better health outcomes, quality of life, and social cohesion. Biodiversity and ecosystem conservation are among the principles of climate adaptation. Therefore, river restoration also provides opportunities for adaptation to fortify cities for the impacts of climate change. The following graph shows the alignment of the Nairobi River Regeneration Project to international frameworks and global sustainability goals.



Global Alignment of Nairobi River Regeneration Initiative
(source: UN-Habitat)

16 <https://sdgs.un.org/goals>

CASE STUDIES

Case Study 1 - Vaigai River Restoration Project, India



Vaigai River in Madurai, India (Source: INDIEGOGO)

Overview

The Vaigai river restoration project was a community-based effort to rehabilitate the ecosystem of the Vaigai River situated in Madurai, South India. The Vaigai River was heavily polluted from untreated industrial effluents resulting in toxic damage to the natural environment and risk to human health. The project aimed to mitigate river pollution and contamination by raising environmental awareness of industries, promoting sustainable agricultural irrigation solutions, and maintaining water quality.

Approach and benefits

The project aimed at raising awareness for water quality restoration and better waste management practices by communities along the Vaigai River and highlighting and initiating a vision for the river's future. The restoration project also wanted to cultivate partnerships with stakeholders, including environmental organisations, city authorities, schools, and farmers, to mobilise and contribute to developing solutions to restore the river. The objectives were

achieved through community engagement through creative ecological pageants held on the banks of the river that ran over three months between January and April 2015. Place-based educational workshops were also held over the same period.

The restoration project successfully highlighted the issues of pollution, water quality, and climate change, emphasised the need, and mobilised efforts to restore the Vaigai River. The project focuses on community and stakeholder participation. It establishes partnerships with multiple stakeholders to create solutions for river rehabilitation and better inform the community. The education rendered to the community better informed their behaviour in interaction with the river and institutionalised good waste management practices. As a result of Phase one of the project, the Mayor and the city of Madurai established a panel for the river restoration. A Vaigai River restoration trust was created, and in 2018 the Smart City Council of India allocated national funds for Vaigai River restoration.

Main challenges and Lessons learned

The main challenge initially was securing fund therefore the project was limited to community engagement and education, without physical restoration of the river.

However, the project focus on community participation was essential to promote community and stakeholder responsibility and ownership towards the river. It provided a basis for future awareness campaigns and educational programmes. The success achieved by the ecological and educational art to build awareness, engage local community and mobilises direct action highlighted Vaigai River restoration to city and national level actors securing support and funding to sustain the future restoration efforts. The project demonstrates benefits of community participation in building community ownership and support, mobilising action and funding and better project outcomes.

Case Study 2: Restoring Urban Rivers From Their Source to the Sea, South Africa^{17 18}



uMzimvubu Catchment (Source: <https://umzimvubu.org/>)

Overview

The Source to Sea network is a collective of communities, businesses, civil service and other stakeholders that seeks to ensure the sustainable utilisation of river corridors for sustained universal benefits, and also aims to water quality and quantity to support the abundant biodiversity in Cape Town. An important focus area for the network is the Zandvlei Catchment, which supports critically endangered vegetation only found in the lower tip of Africa. Source to Sea seeks to demonstrate the benefits of collaborative action and promotes the idea that protecting ecologically sensitive areas is a collective responsibility of government authorities and communities especially those that use land around urban rivers.

¹⁷Source to Sea River Corridor Project. <https://www.capetown.gov.za/departments-city-initiatives/environmental-resource-management/source-to-sea-river-corridor-project>

¹⁸Sustainable River-based Urban Planning for Sub-Saharan Africa: Case Studies. https://africa.iclei.org/wp-content/uploads/2020/02/2018_Case-Study_UNA_Case-Studies.pdf

The network was created to rehabilitate the Zandvlei Catchment, most biodiversity catchment within the Cape Town area, restore healthy ecosystems, create jobs, build climate resilience and provide recreational and mobility benefits.

Approach and benefits

The network aims to increase space for natural urban recreation, restore degraded natural and open space corridors to conserve biodiversity, use trails to link river corridors and catchments, improve water quality, and enhance ecological heritage. An additional objective is to create employment opportunities for the local communities by creating tourism and educational opportunities. The initiative adopted a participatory approach to ensure all stakeholders were engaged.

The urban rivers restoration initiative has diverse social, environmental and economic benefits. The project successfully united diverse stakeholders and incorporated their principles into practice ensuring their ownership and commitment to the restoration of Zandvlei Catchment. The project has also been instrumental in protecting the natural environment through removal of invasive species, animal conservation and water quality monitoring. The establishment of recreational opportunities and infrastructure maintenance has proven essential for public health and created diverse employment opportunities. The project's community awareness and environmental education approach also promotes the sustainability of restoration and ecological management efforts.

Main challenges and lessons learned

The main challenge Source to Sea faces is a lack of funds to implement the management plan fully, the need for greater coordination of actions along the catchment impeded by limited resources, and safety concerns for users along the river.

The project highlights the importance of a coordinated integrated approach, and leveraging on strategic advantages by optimising opportunities for job creation. An integrated approach is essential to ensure coherence between the diverse groups of stakeholders. The success of an integrated approach is strengthened by coordination to ensure that various actors work in harmony to achieve objectives efficiently.

Case Study 3: Cheonggyecheon River Restoration Project, Seoul, South Korea¹⁹



cheonggyecheon stream restoration(Source: <https://www.landscapeperformance.org/>)

Overview

The Cheonggyecheon restoration project was initiated in 2002, and the Cheonggyecheon Restoration Headquarters, the Cheonggyecheon Citizens' Committee and the Cheonggyecheon Research Group were established. The project aimed to spur economic growth of the Seoul Central Business District by preserving the natural environment and historic resources and reconnecting two parts of the city separated by road, and improving air and water quality and the quality of life for Seoul residents. The project was anchored on restoring the cheonggyecheon stream by demolishing the elevated highway. The decline of the downtown Seoul area was a persistent problem highlighted by reducing population, shrinkage of the built environment and low education levels. The city fund urban environment regeneration along a 5.8-kilometre corridor revitalised central Seoul through economic growth and development, attracted pedestrian population through low traffic and pedestrian friendly road networks and demonstrated the potential for green public spaces.

¹⁹ Seoul. <https://urban-regeneration.worldbank.org/Seoul>

Approach and benefits

The Seoul Metropolitan Government dismantled the existing 10-lane roadway and 4-lane elevated highway transforming the street to encourage transit use over private car use, and sustainable public spaces and pedestrian mobility options. The restoration included daylighting the previously covered stream and creating 3.6 miles of continuous green corridors along the stream, including pedestrian infrastructure, recreation amenities and conservation zones. 22 new bridges were also constructed to reconnect the urban fabric. The restoration project also gave economic support to business and entered into agreements with vendors who had to relocate.

The cheonggyecheon river restoration project created direct and indirect impacts from the stream's regeneration. Based on evaluation pedestrian activity increased by 76%, vehicle volumes reduce by 45%, there was a 10.3% reduction in air pollution and 4.5% reduction in the urban heat island effect²⁰. Bus and subway ridership also increased.

The river restoration provides environmental, social and economic benefits. The restoration provides flood protection and can sustain 118mm/hr flow rates, it increased biodiversity by 639% between 2003 and 2008, reduced urban heat island effects and air pollution attributed to increased vegetation, cooling effect of the stream , reduced paved surface and vehicle trips. Socially, the Cheonggyecheon river corridor attracts an average of 64,000 daily visitors with foreign tourist contributing around 1.9 billion dollars to the Seoul economy¹⁷. The corridor attracted economic activity which saw a 3.5% increase in the number of business¹⁷, and property values along the corridor increased at double the rate compared with other Seoul areas⁸.

Lessons learned

The key lesson learned from the Cheonggyecheon river restoration experience were that to ensure success short-term action plans need to accompany the long-term plan, political leadership is essential, urban regeneration efforts should be led by a flagship project, public opinion and building public relations is crucial, commitment and technical capability is required of all parties, and that an implementation organisation should be clearly defined. In addition, the needs of all user groups should be considered throughout the planning and

20 Case Study: Cheonggyecheon; Seoul, Korea. <https://globaldesigningcities.org/publication/global-street-design-guide/streets/special-conditions/elevated-structure-removal/case-study-cheonggyecheon-seoul-korea/>

design phase. The cheonggyecheon restoration design solutions overlooked the needs of visual impairments and mobility challenges causing complaints and protests leading to installation of elevators and provision of wheelchairs. However, this design retrofit was costly and did not fully integrate accessibility solutions.

Case Study 4: Nairobi River Regeneration Initiative, Nairobi, Kenya

Overview

The Nairobi River Regeneration is an initiative whose purpose is to support the Government of Kenya and its line ministries, departments and agencies in optimising the Nairobi river system. The initiative aims to embrace and reclaim the three main rivers in the city as shared public goods for a better urban and environmental performance, and prioritization of riverfront development and public space as levers for urban regeneration and economic transformation. The regeneration initiative focus is on the Nairobi River, the main river of the Nairobi River Basin, to demonstrate the potential of inclusive urban regeneration as a catalyst toward urban prosperity and increasing the quality of life. The project also seeks to showcase the indispensable value of inclusive stakeholder engagement and community participation, and an integrated approach for urban, economic and environmental transformation.



Nairobi River (source: UN-Habitat)

Approach and benefits

The project is guided by a broad-based approach keen on utilising the river corridor as an engine for urban transformation, people-centred collaboration, high quality public realm, good governance, socio-economic transformation and leveraging best practices and peer support from expert cities and local governments. The approach to regenerate the Nairobi river seeks to strengthen the interaction between land uses, mobility, recreation and work to re-establish the river corridor as a strong open public space that promotes social interaction, inclusion and attracts investment, improving the economic performance and quality of life for Nairobi and its residents. The Nairobi river regeneration initiative identifies good governance as vital for sustainable management of river resources. It is necessary that the management river regeneration be transparent, accountable and effective to establish sustainable transformation pathways and guarantee achievement of outcomes.

Challenges



Opportunities

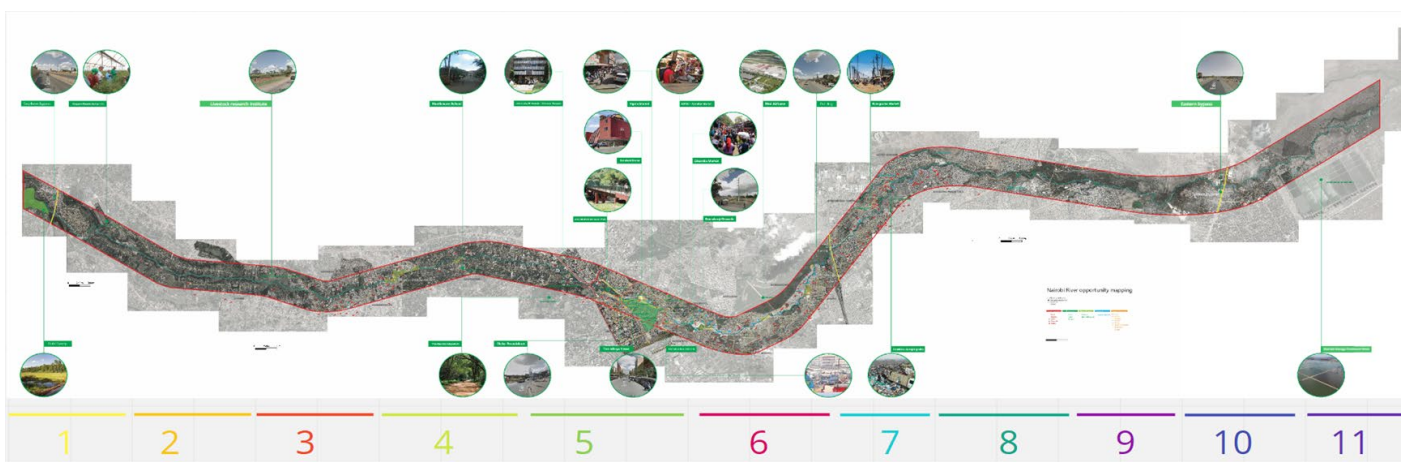


Challenges and opportunities on the Nairobi River Regeneration project (source: UN-Habitat)

The project aims to create an integrated and continuous network of safe walking and cycling lanes, and green open spaces that form a connective matrix, stimulate socio-economic regeneration by creating jobs in the green and creative economy, and promoting inclusivity anchored on socially diverse and affordable mixed-use neighbourhoods and informal settlement improvements.

The Nairobi River regeneration initiative has successfully convened a diverse group of stakeholders and community participants toward the restoration of the Nairobi River corridor. Previous rehabilitation efforts have occurred in silos leading a lack of coordination. The planned achievement is anchored on extensive and objective stakeholder engagement mapping to identify actors across public, private, and civil society. The initial stakeholder mapping efforts encompassed actors with previous or ongoing work related to the Nairobi River, those likely to be affected by proposed interventions, parties with likely influence on particular aspects of the project, and those that expressed interest in the initiative.

The river regeneration initiative has also established a draft spatial profile that provides a detailed analysis of the environmental and social economic state of the river. The profile provides succinct insights on the relation between the Nairobi River, the residents, and the urban and human settlement development along the corridor. The spatial profile clearly identifies and elaborates the general and strategic challenges facing the river corridor, opportunities presented for river restoration and urban regeneration, and strategic areas of intervention.

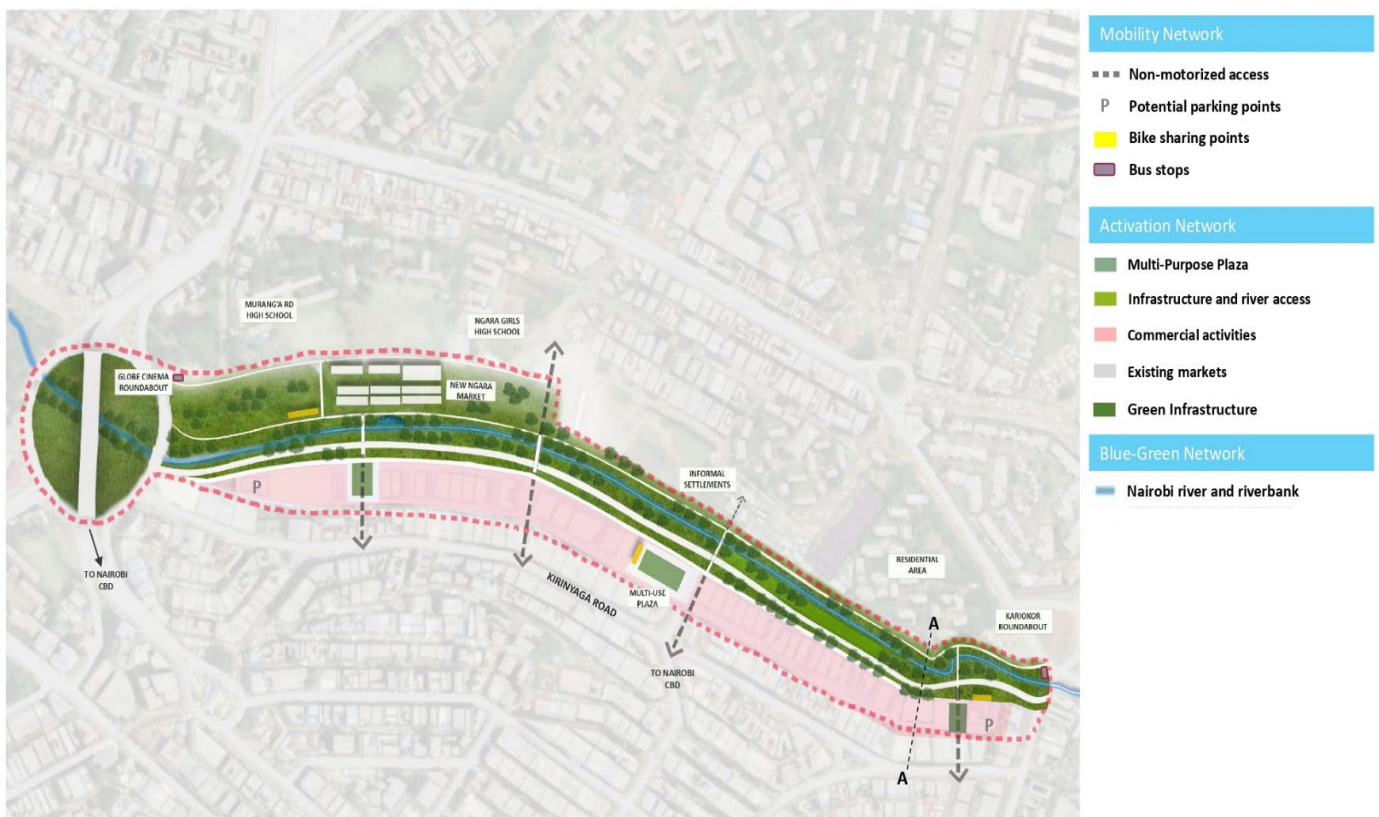


Spatial analysis of Nairobi River (source: UN-Habitat)

Lessons learned

A people-centred approach to river regeneration is essential across or aspect of the regeneration process. Stakeholder engagement and public participation is key for capacity building and behavioural change about the use and relationship of the people and the river. There is also a need for coordinated efforts in river regeneration amongst all stakeholders, especially amongst people and organisations with similar initiatives, to consolidate efforts and harmonise actions to prevent fragmentation and secure continuity.

An integrated and cross-sectoral approach, that looks at the entire river corridor from source, and bringing all relevant agencies and stakeholders onboard is vital to the holistic improvement of the entire river system. The approach should entail the analysis of spatial and socio-economic aspects including land use, transport and housing, and their relationship and effect on the river ecosystem. The regeneration efforts should also reference all existing and proposed projects and plans, development plans and policies, to leverage on linkages and ensure synergy with existing or future development strategies.



Mapping of existing services along the river (source: UN-Habitat)



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WWW.URBAN-PATHWAYS.ORG