Floodplains: Water stores and regulators for urban resilience

Let's maximize their flood protection services and co-benefits

Riverside cities are faced with the complex issues of balancing land use with flood risk reduction. The natural wealth of the river floodplains are a city's blessing, but can generate disaster risk if landfilled or occupied by settlements. By sustaining and integrating floodplains into the city fabric, river-side cities can take advantage of this critical natural infrastructure to reduce urban flood risk and gain valuable co-benefits.

How do floodplains contribute to urban disaster resilience?

Cities have evolved along rivers and floodplains for centuries, using their fertile soils as important agricultural areas and using the desirable flat land for development. As a result, vast stretches of floodplains are heavily modified and have lost their natural flood storage function during peak river flows. Restoring floodplains, restores their flood water storage capacity, mitigates droughts by their **water supply** and **groundwater recharge services**; they also reduce the impact of heat waves by **cooling** the environment.

During non-flood conditions, floodplains – if incorporated into the urban fabric – can have various benefits that can be of great value including:

- Water purification
- Provision of large green recreation spaces
- Contribution to fisheries production and agriculture
- Biodiversity habitat

How can cities maximize the benefits from floodplains?

Floodplains **should not be preserved and not be replaced** by single-purpose hard infrastructure, which in most cases is not more cost-effective, desirable or even safer. Maximization of the multiple benefits can be done through **restoring dynamic rivers** and **floodplains** e.g. by creating Room for the River, "sponge cities" **or by designing new floodplains** as part of linear parks to cope with river flooding.

Examples of floodplain parks with recreation, health, cultural or eco-tourism facilities and activities include:

- Room for the River Waal in Nijmegen (the Netherlands)
- Trinity Park in Dallas (USA)
- Okhla bird sanctuary in New Delhi (India)
- Bishkek (Kyrgyzstan)

Thane Creek Flamingo Sanctuary, Navi Mumbai in India - by Sugandha Menda

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Disaster Risk Reduction benefits

- Flood risk protection through water storage and river peak flow reduction
- Erosion and sediment control
- Drought buffer through water storage and aquifer recharge
- Reduce heat waves

Co-benefits

- Recreation & Tourism
- Increased property value
- Biodiversity habitat
- Agriculture

Urban floodplains such as Monekulala (Bengaluru, Karnataka) in India enhance landscape aesthetics - by Ravi Shekhar

How can urban planners incorporate mangroves into their decision-making?

- **Include floodplains** and their services as key components in your city's urban development and resilience plans
- When doing Spatial or Land-use Planning, assign a specific **zoning** to for floodplain areas, protecting them from urban development. Establish and enforce a building code that prevents conversion and degradation of key ecosystem zones, including by preventing off-site impacts such as hydrological disturbance and pollution.
- Install **terraced levels** towards its outer borders to allow for gradual overflowing and retreat of flood levels. These can be combined with bicycle and walking paths as part of a linear park with recreational or cultural uses.
- When developing connectivity plans, incorporate the floodplain park's bicycle and walking lanes by connecting them to different areas of the city so people can **access and enjoy** the floodplains without needing a car or bus.
- When developing water infrastructure projects, apply a **comprehensive Cost Benefit Analysis (CBA)** that includes all floodplain benefits. When tendering, governments should demand that proposals **maximize co-benefits** for recreation, climate and biodiversity.
- In case floodplains have been landfilled, **create open water spaces** where possible to compensate for the loss of water storage capacity and apply landscaping with native species only!

Protect your urban wetlands!

Wetlands International invites you to work with us to jointly transform cities into safer and more prosperous living spaces.

In Panama City, city leadership and inclusion of flood-prone communities are key aspects in building climate resilience

More information

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Room for the River
www.ruimtevoorderivier.nl/english

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