ADAPTIVE RESILIENCE

THE ADDED VALUE TO A CHANGING WORLD

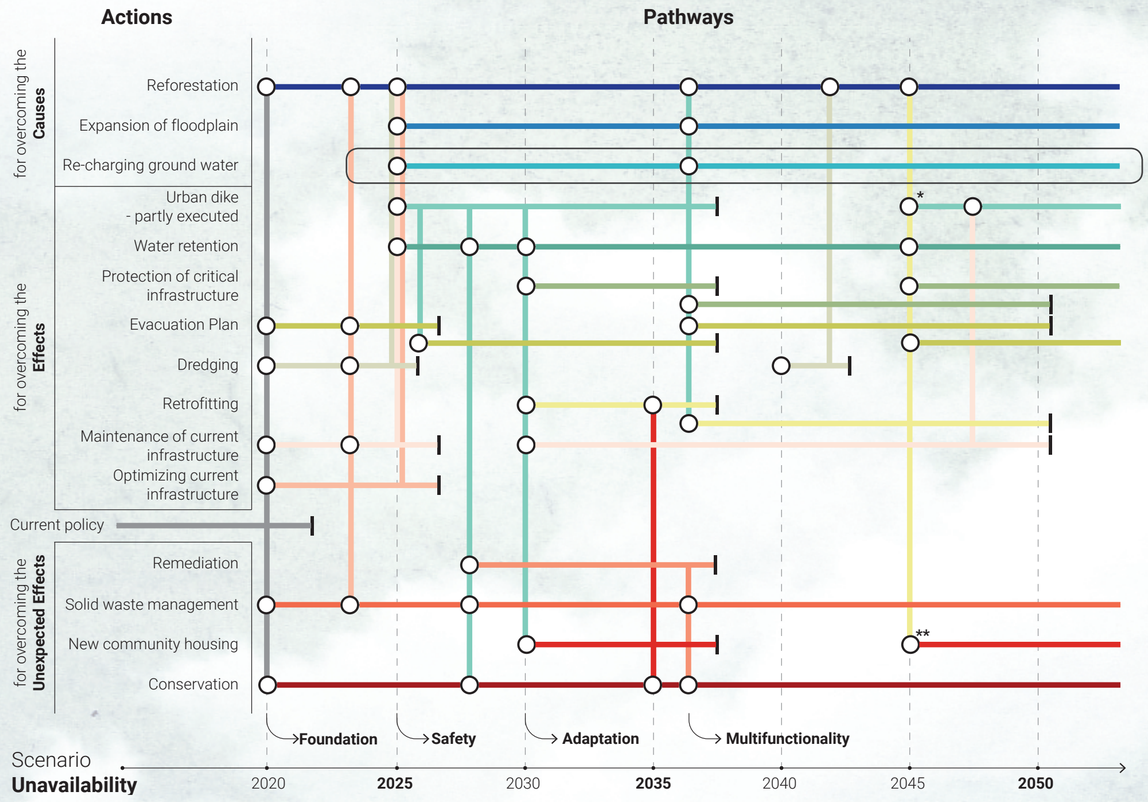
How can the flood risk adaptation strategies overcome both the physical and social vulnerabilities while sustaining healthy and just urban environments in Bandung, Indonesia?

Presently, the urban and natural systems in the world are trying to balance between coping with the extreme climate conditions and the expanding development. The urgency of accommodating these changes calls for flexible and adaptive response, which can sustain the risks and enhance the performance of the systems. This graduation thesis studies the possibilities of creating urban environments which can withstand and absorb shocks, ultimately increasing their resilience towards climate change. The focus of the research is the Bandung Region in Indonesia, a densely populated metropolitan area, highly exposed to flood risk due to its vulnerable socio-spatial context. The future predictions indicate that by 2035 the population in this area will increase double to the current situation (Djalante, Garschagen, Thomalla, & Shaw, 2017), leading to rise of the social inequalities and escalating vulnerabilities. By further exploring the existing practices for reduction of those risks, the research finds measures improving the safety conditions, but failing to address the issues of well-being and quality of life of the society. This leads to the understanding that overcoming the issues of vulnerability, within the framework of the uncertain future, requires more than just aiming at flood protection. Thus, this graduation thesis explores the added value of flood risk adaptation strategies through the lens of creating safe, healthy and inclusive urban setting.

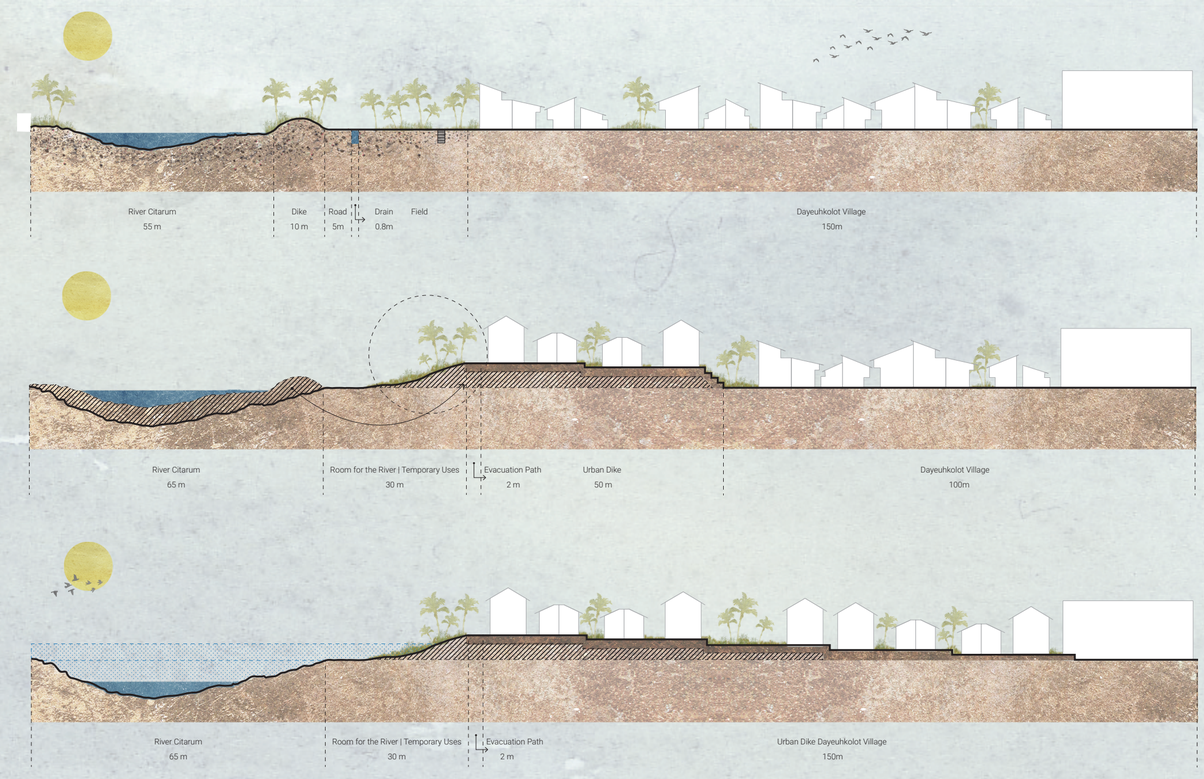
Key Words:

Climate change adaptation, Flood risk, Design with uncertainty, Stakeholder Involvement, Healthy and just urban environments

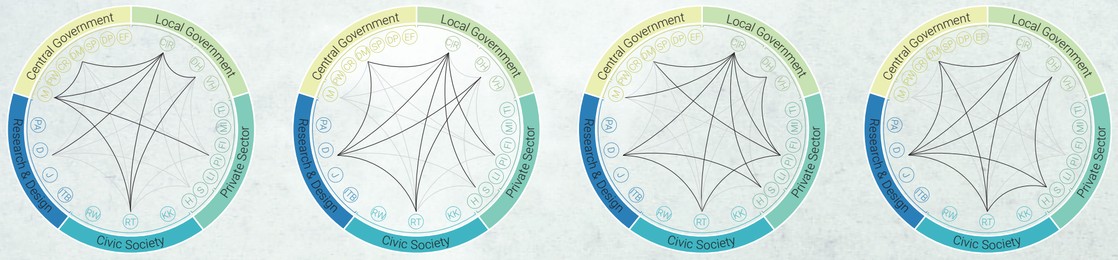
Dynamic Adaptive Policy Pathways



Detailed illustration of the Urban Dike action



Strategic Framework (Spatial perspectives and Stakeholder Involvement)



Foundation

The stage "Foundation" focuses on the preservation actions in the DAPP method. It has the ambition of restoration of the natural balance by re-naturing areas with high potential of containing storm water or restricts further pollution. In this stage the plan also develops the idea of optimising the already existing infrastructures with possibilities for upgrading.

Safety

The second stage "Safety" deals with more infrastructural solutions for flood mitigation. It preserves most populous areas and builds upon coping strategies for managing evacuation or retreat. Although this stage seems extremely monofunctional, it establishes the base for the next stage with mixture of activities and uses.

Adaptation

The third stage "Adaptation" comes within the scenario Unavailability where the possible future creates a need for adjusting to living with the extreme weather conditions. It presents the activation of measures which allow seasonal water overflow (living with water) and proposes new spatial configurations which can accommodate change.

Multifunctionality

The fourth stage "Multifunctionality" overcomes the limitation of the land by creating possibilities for experimentation with multiple uses. It is the one that triggers the most additional value of the plan. It provides a lot of benefits for the local communities, which are not usually present in a conventional flood mitigation strategy.

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