

Written by HKV

The Greater Accra region, stretching along the coast of Ghana from Cape Coast in the West to Ada in the East, is affected by floods every year. The economy in the region is growing, triggering rapid urbanisation. The associated paving and expansion of the drainage system leads to more and higher floods following heavy rainfall. The design capacity of the main drains, especially downstream, is not sufficient to safely discharge excess water to the sea. Moreover, the actual capacity of the drains has decreased, due to siltation, solid waste piling up and lack of maintenance. The increase of the value of assets due to economic growth in itself causes an autonomous increase of the flood damages, and with that an increase of the flood risk. As the available space is limited and expensive, (informal) settlements arise in areas vulnerable to floods, further increasing the flood risk. Climate change causes additional risks.

This calls for a comprehensive risk mitigation strategy. The strategy outlined here was developed in 2017-2018 by a consortium of HKV (lead partner), Ecorys, Bosch-Slabbers and Accra based Associated Consultants (ACON), commissioned by the World Bank, and in close co-operation with the government of Ghana. It consists of two components:



1. A long-term vision on the water inclusive urban development of Greater Accra.
2. A concrete flood risk mitigation strategy, consisting of both structural and non-structural measures described below:

1. Maintain

Concrete measures:

- Regular dredging.
- Building sand traps to reduce the sediment load and dredging interval.
- Rehabilitation, regular cleaning or removal of the Interceptor weir in Korle lagoon.
- Repair of broken drain sections.

2. Retain

Concrete measures:

- A new design of the tertiary drains alongside the roads, in

which excess rainwater is partially stored in the berms, still preventing the roads from inundation but at the same time preventing excess runoff to vulnerable areas downstream.

- Retention in the available micro space in the city. This kind of infiltration can be realised by preventing people from paving their building plots and gardens and retention in (public) low-lying areas on micro scale in the neighbourhoods.

3. Store

Retention ponds are basins where floodwaters are stored temporarily. Given the rapid urbanisation of Accra, it is important to secure the existing space for retention ponds.

4. Drain

Concrete measures:

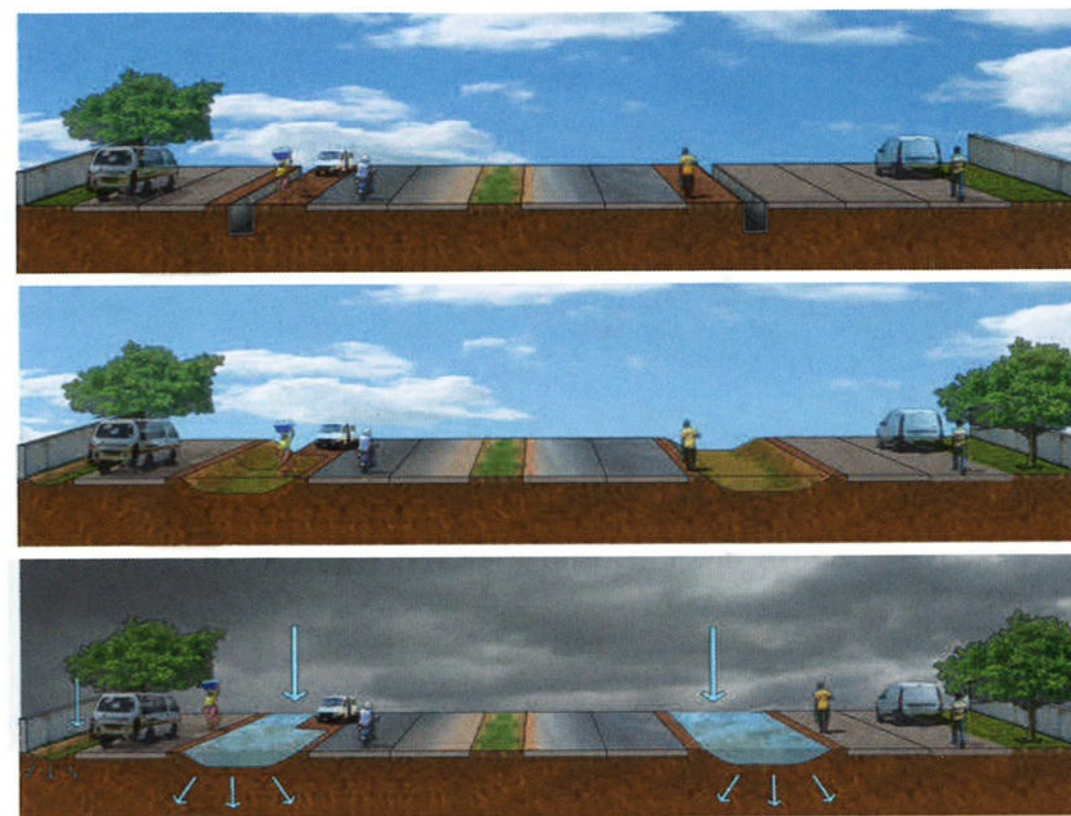


Figure: Current situation (top), where the tertiary drains are designed to discharge excess water as fast as possible and the proposed new design (middle and bottom) where tertiary drains both retain and discharge excess water.

- Widening the riverbed and extending or rebuilding of bridges.
- Flood plain lowering.
- Flood walls.
- Widening of the outlet of drains/ rivers to the sea.

Early warning

A timely warning is critical and also challenging, given the rapid response of runoff to heavy rainfall (flash floods).

Flood zoning

Keeping flood prone areas free of buildings, is an effective way

to maintain the natural capacity of the riverbed and slowing down the runoff. Enforcement of the ban on building in the flood zones is a key issue.

Solid waste management

Solid waste blocks the drains, causing numerous small-scale inundations at the tertiary drain level and, when piling up, also in secondary and primary drains. Management is, thus, critical.

Flood risk mitigation investments

The investments build on the

developed flood risk mitigation strategy and focus on the realisation of design safety levels, corresponding to flood return periods of 10, 25 and 50 years in the current situation. The Government of Ghana together with the World Bank is now preparing the implementation of the flood risk mitigation strategy and an investment programme.

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