

TITLE: IMPROVED ROAD SIDE DRAINS FOR DEVELOPING COUNTRIES

DESIGN CHALLENGE

the problem

In the recent years, the frequency and gravity of small and large-scale flooding have increased globally, resulting in huge economic losses, destruction of property, and even casualties in the event of (large scale) flood disasters. In developing countries the floods have most dramatic impact because the poorest urban residents usually live in the most flood prone areas.

As Asian /African city planners are aware of the drainage requirements, stormwater drains are indeed being realised, the road-side drains usually along both sides of major paved roads. Typically these rectangular shaped drains are made out of concrete, and covered in many cases with concrete slabs. The gradual siltation of these drains with sand/sludge on the longer term can hardly be avoided, however, choking of drains is typically the result of the shape of the drain and the cover slabs being broken, moved out of position, or completely missing. In this situation these (partly open) drains quickly become a dumping place for plastic and other solid waste, rapidly minimising their drainage capacity as illustrated in the below pictures.



improved drain design

As such there appear to be challenges in the design of road-side urban drains. In order to create an improved drain design, methodologies originating from industrial design should be applied. These methodologies ensure that the complete lifecycle of the product is considered and that the product will meet the requirements of all stakeholders. The design methodology encourages creativity while giving user requirements as well as cost considerations a central position. In order to realize an optimal product the following steps will be taken (i) Problem identification; (ii) Identification of stakeholders; (iii) Identification of requirements; (iv) Concept creation and (v) Prototype creation.

Practical arrangement and offer

- A project leader from W+B Deventer will be assigned to the project, with whom you will communicate throughout the assignment.
- In Accra you will cooperate with one of our W+B Ghanaian water experts who will support you during your work and stay in Accra. Our Ghana office we will also help you in arranging practical issues (housing, transport etc.).
- W+B offers a monthly allowance of EUR 375.

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