



A ROAD OR CANAL???

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Dag Hammarskjöld Drive (in the picture above) has been temporarily transformed into a canal at least once every year since 2009 in the city of Ndola, Zambia. However, is this intentional or circumstantial? The fact that it is one of the most important and busy roads for the city, rules out the intentional perspective. If not intentional, then the subsequent question is: what circumstances could lead to the flooding of the road?

Causes of Flooding

Take a little moment and imagine the flow of blood in your veins! What could happen if one of the veins gets blocked? The study on the storm water drainage system for Ndola Central Business Area identified garbage and silt as the major causes of blockages. Thus, when there is heavy rainfall in a short period, the water has limited or no space to flow in a pipe or channel because of blockages. This causes too much water to flow on the surface and we call it flooding because water is flowing in the wrong place. The study further revealed that one of the pipes

is small and gets full quickly, as a result it cannot accommodate a large amount of water. This pipe lies on the Dag Hammarskjöld Drive.

The above causes were discovered through investigations on-site and by using a computer program called storm water management model.

Solutions to Flooding

Have you ever wondered why we regularly clean our houses? Have you also ever wondered why some people rarely clean their houses but still look clean and neat? The answers to the preceding questions might appear simple and straight forward but it is these little simple things which when neglected transform into disasters. There is need to have garbage bins in strategic places within Ndola Central Business Area so that people can throw garbage in the right place and not into the drainage. The city council needs to find better strategies of implementing and reinforcing some policies on garbage if it is to reduce the frequency on maintenance of the drainage system but still have it functional. This should be coupled with promotion and awareness in order to educate society on the need to coexist with the environment if we are to benefit mutually.

Imagine what could happen if you poured water on a foam/ sponge as compared to when poured on concrete! It is obvious that the foam absorbs much of the water and will only release the water when it is saturated. Concrete on the other hand releases the water immediately and it begins to flow. Now taking this simple principle and applying it to urban areas including Ndola would help reduce the amount of water reaching certain pipes as soon as it starts to rain. This can be achieved by incorporating what has come to be known as sustainable urban drainage systems (SUDS). SUDS imitate the way nature handles issues by combining both engineering and nature in solving problems. Examples of SUDS include ponds, permeable pavements, green roofs, wetlands, swales, etc. All these help delay the flow of water and also help to enhance infiltration of water into the soil such that the amount of water reaching the outlet is smaller than the total rainfall volume received for a particular area.

These seemingly simple solutions go a long way in saving resources used on repairs and maintenance on damages caused by floods every year which could be prevented. Instead, the resources can be used on other developmental projects.