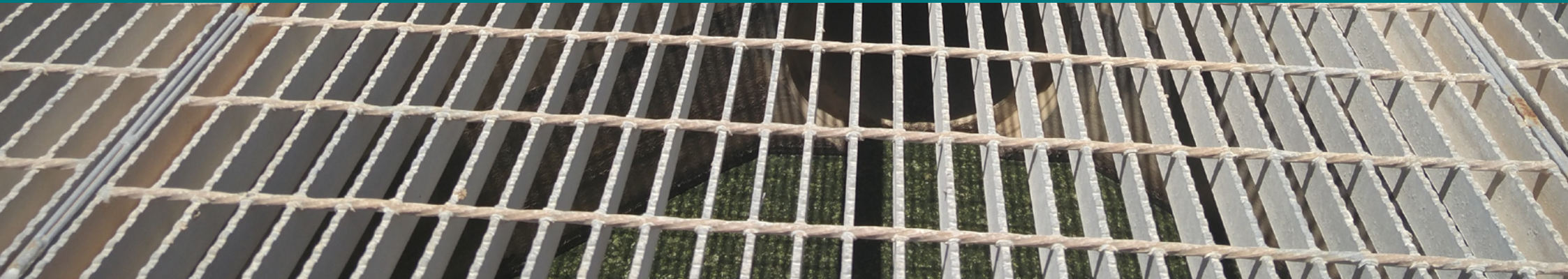


URBAN STORM WATER MANAGEMENT IN GREATER IRBID MUNICIPALITY (GIM)

concept note

storm water management



Due to heavy rainfall during the November to March period, streets are frequently flooded in the Greater Irbid Municipality, Jordan's second largest urban center. The existing storm water system in the city is not capable of handling the water, which instead flows uncontrolled through the streets causing significant property damage to private property, infrastructure and public safety risks.

In November 2015, a single rainfall in Amman flooded the downtown core claiming four lives and causing millions in property damage, including an estimated 5 million Jordanian dinar (JD) to merchants according to the Garment Traders Association. The same 45 minutes of rainfall caused additional damage to Amman's sister city of Zarqa - home to over a million people. Similar flooding in Irbid wiped out the crops of 180 families prompting emergency payouts to affected families.

PARTNERS: DANISH REFUGEE COUNCIL / VIBORG MUNICIPALITY



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DEVELOP THE EXISTING STORM WATER SYSTEM TO HANDLE, RETAIN, HARVEST AND UTILIZE SEASONAL PRECIPITATION IN GIM.

Widespread public outcry around flooding has led to threats of lawsuits against Municipalities and pushed Cabinet to set forward plans for a disaster and emergency compensation fund which may prove costly for already stretched public finances.

While annual precipitation in Jordan is relatively modest by international standards, the combination of concentrated and heavy rainfalls with weak infrastructure and planning poses a challenge for Jordan. Storm water is habitually viewed as a nuisance and risk in the major urban centers, rather than a resource to be captured, stored and deployed for other purposes, including agriculture, irrigation and non-technical water uses.

The Ministry of Water and Irrigation's National Water Strategy 2016 – 2025 highlights that Jordanians must use and reuse water more effectively, efficiently and responsibly. Thus, there is national focus on the harvesting and reuse of storm water.

MOTIVATION

In a country with limited annual and concentrated precipitation, it is important to utilize water efficiently to cover needs over the year as well as reduce the burden on public water services.

The cyclical nature of the problem, increasing severity of rainfall and visible increase in trash and litter around the city frustrates citizens. Many Syrian refugees have moved to cities in Jordan and are frequently the subject of a burden narrative in which they overwhelm existing service delivery and contribute to infrastructural degradation. The Greater Irbid Municipality estimates that some 240,000 Syrians currently live within its boundaries – nearly one in four of the total population.

At the moment, no real storm water harvesting is carried out in Irbid. Problems with flooded streets and neighbourhoods are dealt with in an ad hoc manner and treated as isolated problems rather than addressing the overall scale of the problem across the city; incorporating the handling and harvesting of storm water in the zoning and planning decisions at the GIM.

Storm water is seen as a problem rather than as a resource. However, by retaining and harvesting the storm water, it should be possible to increase crop output, including in urban gardens, and reduce the demand for groundwater for irrigation – thereby reducing costs. Costs relating to infrastructural damage caused by floods will be reduced and the heavy traffic in Irbid will be less affected during heavy rainfalls.

DETAILS

The scope of this case will be to select a smaller area within GIM that is affected during heavy rainfall in order to implement and test different solutions to the handling and reuse of urban storm water. High density neighbourhoods in the city center – host to the largest numbers of impoverished Jordanians, migrants and Syrian refugees – are at the greatest risk to floods and have the lowest access to water resources.

The selected area will serve as a pilot project and the experiences can then be transferred to other areas of the city and/or the whole city depending on the results. Best practice is likely to vary from area to area depending on elevation, natural drainage conditions, permeability, infrastructure, etc.

Some roads have grids but the water drained from streets does not appear to be led to the major outlets at the outskirts of the city where storm water potentially could be harvested or used for recreational purposes.

Potential solutions could for example be the establishment of retention basins, local ponds by major outlets and extension of the existing storm water pipe system. A climate action plan should also be drawn up to ensure that the most severe problems are dealt with first.

The spectrum of potential solutions all hold important employment generating potential in the Municipalities.

The Government of Jordan has opened work opportunities and offered permits to employers hiring Syrian refugees and this includes for Municipal works.

Developing high profile examples of refugee-host community cooperation around common service delivery challenges as well as finding ways to inject additional resources into impoverished segments of the Irbid economy will have significant effects on the perception of refugees in Irbid.

WHAT IS ALREADY BEING DONE

Although a number of the main roads in Irbid City have grids to drain the storm water from the surface to the pipe system, pipes near the outlets seem to be blocked by sediments, solid waste, etc.

Thus, the discharge seems to be limited, obstructing the self-cleaning of pipes and major outlets and causing blockages in the pipe network.

It might be possible to get inspiration from Irbid Fire Brigade as there is a water reservoir at each of the 20 fire stations in GIM. The water in these reservoirs is used for fire extinguishing and as technical water at the stations.

A new recreational park, King Abdullah Park, opened in 2016. In the park is a water feature (a kind of terraced stream). The water in this stream was supposed to be water harvested from the roads, etc. in the surrounding neighbourhoods. However, the system does not appear to be working and groundwater is used instead.

WHO COULD USE THIS

Flooding during the rainiest months is a significant challenge for most of the urban environments in Jordan - including the three largest cities; Amman, Zarqa and Irbid which together are home to over 60 percent of Jordanians and refugees.

The GIM budget for handling flooding over the past years has been overstretched and while its revenue base is comparatively strong in Jordan, these costs divert attention from other municipal services and budgets.

Refugee agencies, donors and other humanitarian and development organisations continue to seek employment-generating investments in Jordan to provide a response to the visible strain on public services and infrastructure, while also injecting funds into a stagnating economy.

Clear demonstrations of win-win projects that include refugees and host community are in very strong demand as these funders seek innovative solutions to support.

VIBORG MUNICIPALITY AND DANISH REFUGEE COUNCIL CAPACITY, CONTRIBUTION AND STRATEGIC FOCUS

Danish Refugee Council – Jordan:

- office in Irbid with experienced community mobilization teams and strong partner networks;
- community mobilization, awareness and outreach campaigns;
- capacity to coordinate, mobilize and monitor employment intensive campaigns involving vulnerable refugees and host community members.

Viborg municipality:

- over the last 5 years Viborg municipality has build up an extensive network in Greater Irbid Municipality in particular and in Jordan in general;
- extensive experience with international capacity building projects (*not works projects*) within the water sector;
- own experiences from running a successful utilities company in Denmark
- own experience with reducing non-revenue water to an absolute minimum in Denmark.

EXPECTATIONS TO PARTNERS

Partners must

- have the capacity, resources, experience, knowledge and commitment to implement the project. Partners should complement each other in order to deliver a complete and sustainable solution to the challenge;
- be able to offer ideas on how existing or new solutions may be adapted or tailored to manage, harvest and utilize storm water in GIM.
- have an understanding of and openness towards other cultures and traditions.

KNÆK KODEN TIL NØDHJÆLPSMARKEDET deciphering the relief aid market



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A recent report from Global Humanitarian Assistance shows that the global humanitarian aid market has reached a yearly turnover of 24.5 billion USD. But the humanitarian aid organisations are increasingly challenged in providing the needed solutions. Closer collaboration with the private sector and researchers is needed in order to meet the challenges ahead.

In partnership between the Danish Industry Foundation and access2innovation the project "Knæk Koden til Nødhjælpsmarkedet" (Deciphering the Relief Aid Market) sets out to establish a Danish innovation platform enabling humanitarian organisations, private sector and academia to efficiently develop and commercialise needed solutions.

This will be accomplished by supporting Danish Red Cross, DanChurchAid and the Danish Refugee Council to map out concrete business opportunities within renewable energy, agri-business, water management and ICT as the basis to team up with private sector companies as well as the universities in Aalborg and Copenhagen in order to develop sustainable solutions for the humanitarian aid.

With financial support from the Danish Industry Foundation the project is facilitated by the access2innovation association