



" Rainwater Harvesting for Industries; Experiences of the Apparel Industry in Bangladesh and Sri Lanka"

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Globally textile & apparel industries use around 93 billion cubic meters of water per year, which is 4% of all freshwaters extracted globally. In addition, water is required for drinking and sanitation purposes of the employees. Rainwater harvesting and storm water diversion have been adopted to reduce the Water Footprint by apparel industries in Sri Lanka and Bangladesh. These experiences are evidence that rainwater harvesting can contribute to reducing the water footprint and help businesses to grow.

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Across South Asia and in many other parts of the world industries are lavish consumers of water. Some examples for high water-consuming industries are Textiles & Apparels, Power generation and beverage. The apparel industry is one of the key water dominant industries and has a lot of insights to offer in terms of water consumption and conservation. The 07th webinar of the SARNET bi-monthly webinar series concluded on the 30th of November last week featured some best practices from the apparel industry in Bangladesh and Sri Lanka.



The webinar on the topic of " Rainwater Harvesting for Industries; Experiences of the Apparel Industry in Bangladesh and Sri Lanka" was attended by many development practitioners, academics and other enthusiasts from South Asia and other parts of the world. Mr Zahid Hossain, a consultant to the UNICEF having long years of experience in the development sector from Bangladesh and Mr. Harsha Deraniyagala, General Manager, MAS Holdings a chartered engineer and a consultant to the Board of Investors in Sri Lanka presented the best practices on water use in the apparel industry. This webinar was moderated by Professor Polanki Sivaram from National Institute for Rural Development (NIRD), Hyderabad, India.

Globally textile & apparel industries use around 93 billion cubic meters of water per year, which is 4% of all freshwaters extracted globally. In addition, water is required for drinking and sanitation purposes of the employees explained Prof Sivaram introducing the topic of the webinar.

The average rainfall is 1500mm in Bangladesh and the country's rainfall varies between 1500mm to 4000mm According to the records (2016) of Participatory Clean Textile (PACT) and initiative led by the International Finance Corporation of the World Bank the water requirement for washing and dyeing in the apparel sector is 250L to 300L. This is equivalent to the daily water use of two people. In Bangladesh, there are 6850 factories including 4850 textile average catchment area is 8000Sqft. According to a study done by the government of the Netherlands and Bangladesh, the RMG and the textile sector in Bangladesh are consuming 1500 liters annually.

Rainwater has no hardness, and it is less than 5Mg per litre whereas groundwater has some hardness. Therefore, groundwater must undergo a treating process to be used for dyeing purposes. Rainwater can be stored as rainfall easily -happens with gravity flow whereas energy and technology are needed for groundwater extraction. Waterlogging has been happening at the industrial level due to incessant rainfall due to climate change. The application of rainwater harvesting by the garment factories has helped to mitigate water logging in the premises too. Return on investment for rainwater harvesting is high reducing dependency on groundwater. Eventually contributing to environmental sustainability and controlling waterlogging due to climate change.

With the support of Water Aid, 4 RMG and textile factories in Narayanganj District in Bangladesh constructed rainwater harvesting in the factory premises. The factory of Next Accessories Ltd is among the apparel companies that constructed rainwater harvesting tanks under this initiative. This factory collects rainwater and after the

filtration process the water is supplied for sanitation and gardening purposes and surplus water is recharged through the recharge pit into the underground aquifer. Fakir Fashion Ltd uses it for production purposes for washing and dyeing. Metro Knitting and dyeing mills Ltd also use rainwater harvesting in the same manner for dyeing and washing purposes. Epic garments manufacturing company limited is situated in the Adamjee Export Processing Zone. In this zone, all the factories have to purchase water. This factory also collects rainwater and once processed in the underground filter the water is supplied for washing and dyeing purposes.

Mr. Zahid Hossain provided insights on the benefits of rainwater over groundwater for the apparel industry. Mr Hossain on explaining the Bangladesh country context stated that the rainfall and catchment area of Apparel industries can bring an annual saving of 360 Crore Takas/ US\$40 million to the country annually. Every factory should have the LEED certificate the factories should get the 120 mark and rainwater harvesting has support to get the LEED certificate.

Mr. Harsha Deraniyagala presented the water conservation experiences of the MAS fabric park which is part of MAS Holdings. The area of the MAS fabric park has a 165-acre green zone. This zone has initiated many sustainability initiatives including the development of inland surface ponds for rainwater harvesting and stormwater diversion. Mr. Deraniyagala stated that the apparel industry being a water dominant industry the harvesting potential of rainwater and the diversion of stormwater is of paramount

importance for water generation for the industry demands.

The inland surface ponds for rainwater harvesting and stormwater diversion at the MAS fabric park was constructed with the zone development by diverting water into green fields and non-industrial areas to store water for the application. These initiatives provide a storage volume of 20,000 cubic metres of water. The ponds were constructed compacted in soil with geotextile membranes to protect the water that was harvested from getting lost due to ground progression.

LEED (Leadership in Energy and Environmental Design) is the most widely used green building rating system in the world. LEED certification is a globally recognized symbol of sustainability achievement and leadership. A total of 13 best green building factories of Bangladesh were honoured with the "LEED Green Factory Award" to recognize their efforts in sustainability by achieving LEED Platinum certification.

The main source of water for the inland ponds is the river and from roof water harvesting and Greenfields connected. Portions of river water and rainwater are diverted into the plant. Diverting more and more

rainwater contributes to reducing the need for energy and chemicals required for treating the water. More than 100,000 Sqft of water and 20 to 30 acres of land are connected with the first flow manhole. These ponds enhance inland water systems, ecosystems, groundwater quality and reduce the heat impact as well. Mr. Deraniyagala explaining the benefits of the system stated that 10 to 15% of industrial water needs are addressed because of these applications. He also explained the organizational goal towards reducing the water footprint is to reduce water use by 65% calculating from the base year of 2010. Mr. Deraniyagala stated that already there is a reduction of 40 to 42% of the water use.

The discussion that followed the presentations highlighted the need for organisations to

communicate the progress related to water conservation efforts and the importance of having a water management policy for industries. A recommendation was to draft the policy in consultation with a group of experts and for the respective country-level governments to take a lead role in the implementation of regulatory processes.

In South Asia, only some countries have regulations and policies that support rainwater harvesting. In Sri Lanka, there is a policy since 2005 which gives directions and makes it mandatory for new buildings to have rainwater harvesting systems.

The discussion also revealed that pressure from the United States and Europe demanding the application of sustainable practices have contributed towards changing the practices and applications of the apparel industry in a positive nature. A key recommendation for the civil society and governments was to have a mechanism to recognize the good practices related to water conservation applied by the apparel industries and to create a conducive environment for scaling up such practices.