

Urban Hydrology for Periurban areas in a Mega city

SUMITA GUPTA GANGOPADHYAY

Associate Planner, Kolkata Metropolitan Development Authority

Kolkata (formerly Calcutta) was the first Asian Megacity where in 1966 World Health Organisation prepared a master plan for water supply, sewage and Drainage. Despite best efforts water supply could not be provided to all areas, especially where unplanned growth occurred. Water supply scheme was adopted for periurban areas but these areas were under rapid land use changes due to population growth and urban sprawl which destroyed agricultural land and water-bodies. People with farming or fishing experiences settled in these areas. Vegetable growing and fishing have been practiced for a long time. With the decline in employment in the urban manufacturing sector, there has been an increase in the activities of urban agri-aquaculture in periurban areas. Urban hydrology in these areas include water conservation in wetlands, recycling of waste water, fresh water supply to the settlements and rain water harvesting, where possible.

Recycling of waste water, as an important component of urban hydrology, has not been taken seriously so far. The example of Kolkata, in the reuse of waste water, stands out among the instances of this in several Asian cities. Its use in irrigation is well known. In many cities, including Kolkata, municipal waste water is drained into many water bodies for fish production. Kolkata has the largest recycling district with cost effective methods and indigenous technology and through growth of phytoplankton and photosynthesis process, through a series of ponds. The productivity of fish is due to the rich nutrient element in waste water. The sludge is used in the nearby vegetable growing fields. Kolkata city produces 750 million litres of waste water. The huge reuse and income generating potential that this waste has should be kept alive by not disturbing the ecological balance of the area through alternative land use.

In the Vision Plan for Kolkata 2025, emphasis has been put in the supply of water to the periurban areas. Also, urban agri-aquaculture has been recognized as a component of urban landuse. The periurban areas constitute a major part of the metropolitan area and it provides an ecological balance and acts as a buffer between the urban and rural areas. Detailed zoning plans are being prepared.

East Kolkata wetlands have now been listed under Ramsar Convention Bureau's list of protected wetlands. The State Government has issued regulations against filling up of water bodies. Due to multiple jurisdictions of urban municipalities, village councils etc., there is a lack of coordination. A proper hydrology plan is required which should be holistic and integrated with land use plan.