Eco-efficient Water Infrastructure Project for Indonesia
- Integrated Rainwater and Wastewater Management in
Bandung -

Seungho Lee*, Seungji Choi**, Jungyoun Lee***

Abstract

The research aims to analyze development and implementation of bio-eco engineering technology for the Cikapundung River, Bandung, Indonesia. The project has been commissioned by UNESCAP from 2011 to 2013 as part of a pilot project for eco-efficient water infrastructure project in Indonesia. The major components of the model conducted by the Bandung Institute of Technology are composed of technology, policy measures, capacity building and stakeholder participation. As part of the project, a demonstration site was constructed on stream restoration through bio-eco engineering technology. The project has introduced community-based eco-hydrology interventions for setting up ecosystem services to help integrate environmental considerations into the wider IWRM plan. An important feature embedded in the project is the introduction of rainwater harvesting technologies for a drinking water supply system for communities.

With regard to implementing strategies, the project highlights water quality monitoring before and after the project and community involvement in operating and monitoring the project. Local community members have been encouraged to increase their capacity of maintaining and managing rainwater and wastewater management facilities. In addition, the project team has provided advice on financing mechanism for sustainable development. The range of community involvement also includes an establishment of targets with NGO, company and research center partners and local communities.

The outcomes from the project are fourfold. First, the project has produced models and guidelines for stream restoration through bio-eco technology. Second, the pilot application of integrated rainwater harvesting and wastewater treatment technology has been undertaken for the local communities. Third, local communities are involved in elaborating eco-hydrology methods, for instance, a design of a bio-filtration techniques to manage waste streams before the wastes join the local stream connected with the Cikapundung River and to enhance ecological links between various water components. Last, the integrated rainwater harvesting guarantees steady drinking water supply for the communities.

Keywords: Eco-efficient Water Infrastructure, Indonesia, eco-hydrology, rainwater harvesting, community involvement