

Water Resources Management in South Korea

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Abstract. From 2009 to 2012, the Korean government completed the Four Major River Restoration Project. Before the project, Korean rivers suffered from severe droughts and floods due to the hydrological characteristics of Northeast Asia. The rapid industrialization, river basin development and crop cultivation within levees resulted in significant inflows of pollutants that resulted in the deterioration of the river water quality. The Korean government undertook the project in order to improve flood control, restore the river ecosystems and provide drought relief. With a total budget of approximately 18 billion US dollars. The project has been completed in 2013, and showed successful results of decreasing the damage by floods and droughts. The project included the construction of the sixteen movable weirs (Length 184~953m, Height 3.5~11.8m) with hydropower plants. Large scale dredging operations aimed at reducing the flood stages and restoring floodplains for agriculture in the major rivers of Korea – Han River, Nakdong River, Geum River and Yeongsan River. The deteriorated levees were reinforced and approximately 450million m³ in the riverbed was dredged material in order to increase the flood control capacity for a 200-year flood. As a result, lowered riverbeds have increased the capacity to flow section in the river, resulting in reducing the flood damage to adjacent farming land and residential areas near the rivers. Also, the project included plans to extend the water surface width and improve the river ecosystems through the establishment of amenities including bike trails (1,757 km), wetlands and fishways (23units), riverside sport facilities (454units). In addition, an improvement in baseflow discharge has been supplied from three dams constructed in the upstream of the Nakdong river basin. The project successfully lowered the river water level by 4.9 m during three typhoons in 2012. The benefits of the project include reduced flood damage compared to the damage previously caused by similar typhoons. In addition, river stages at low flow were raised by up to 2.1m during an extreme 104-year drought. The project also resulted in an improvement of water level intakes on the four major rivers.