

Model for River Bank Conservation and Proper Land Use Planning

Soyza M.B¹ Ranagalage M.^{2*} and Manawadu L.³

¹Land Use Policy Planning Department

²Department of Social Sciences, Rajarata University of Sri Lanka, Mihinhale, Sri Lanka

³Department of Geography, University of Colombo, Colombo 03, Sri Lanka

*manjularanagalage@gmail.com

Abstract

This study describes a case study involving the use of bioengineering and rock structures to restore an eroded bank of the Deduru Oya, and restoration of ecological amenities that existed prior to disturbances by man and a major flood event, sustainable plot level land improvement by agro forestry farming techniques. In addition, this study exposed that improper land use activities and illegal activities done by the people directly influence to the natural process of Daduru Oya river basin. Thus, the study emphasized that banning river sand mining in the Deduru Oya until improvements of the sand deposits again at the river bed there is no balance between the deposition and transportation, and until the river has adequate completion of sand in the banks and the river bed. If not that will be creates lots of environmental problems in the area.

Therefore, considering the river bank conservation by bio engineering best practice of land use in the Deduru Oya lower basin were helpful to protect river bank erosion, groundwater conservation, riparian buffer zone redevelopment and water and land management. Both living and nonliving plants can be used. Nonliving plants are used as construction materials, similar to engineered materials. Planted vegetation controls erosion and serves as good wildlife and fisheries habitat in riparian systems. Guidelines are generally lacking for use of bioengineering treatment on stream banks, which often explains why bioengineering is not used more often. The management strategy which is used (Bio engineering technology for conserve the river banks) are help to control soil erosion by runoff water of the river buffer, reduce silting in river bed by eroded soil and other materials, Increase the water quality purifying water by the roots of plants, increase green canopies and green belt beside of the river, control the flood damage, bio-diversity conservation. This is socially acceptable, economically and environmentally sustainable technology. If this technology can be applied for the other river banks development, that will help to protect rivers and associated environment. It is not applicable this technology for the entire river banks in Sri Lanka but should have to identify the suitable place and do the implementation. This is low cost, eco-friendly end sustainable technology. Introducing endemic species (Mee -*Madhuca longifolia*, Midella - *Barringtonia acemosa*, Kumbuk - *Peminalia arguna*, Rambuk -*Erianthus arundinaceus*, Bamboo Three Types) to the river bank is extensively helpful to conserve biological diversity and have medicinal and cultural values. Moreover, agroforestry farming gain much help to maintain keep healthy of the soil fertility sustainably.

Keywords: River bank conservation, Proper land use planning