Nitrogen and Carbon Flows through Bellandur Lake – Role of Bellandur lake as a natural wetland treating Bangalore wastewater

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INTRODUCTION

In many cities of India the sewage streams are treated as natural and quasi-natural ecosystems evolved at the location. For example, in Kolkata the tidal lakes, in Chennai two riverine systems and in Bangalore man-made lake systems are responsible to a large extent for the treatment of sewage. Each of these ecosystems displays unique interspecies balance that tends to take up various amelioration functions in the removal of carbon, nitrogen and phosphate. Sewage transport and treatment in Bangalore follow natural water courses along the three directions of Vrishabhavaty, Koramangala-Challaghatta (K&C) and Hebbal-Nagavara valley systems. In the case of Bangalore there have been attempts to provide primary treatment to sewage before it enters a lake or other waterbodies. However, the capacities of the treatment plants have always fallen short of the actual discharge. Thus, Bellandur tank (K&C Valley) has always been required to provide the necessary remediation function for this man-made neglect. While assessing damage it is important to note that urban ecosystems significantly differ from the rural crop ecosystems in typical semi-arid zones such as Bangalore with regard to the C and N cycling. While rural crop ecosystems usually function as C and N deficient systems, there is a far higher deposition of C and N in urban soils, including a high degree of variations. They are limited by the rates of mineralisation and return to the resource pool.