The changing nature of ecological and social vulnerabilities within the context of an urban lake social-ecological system in Bangalore

Abstract

The South Indian City of Bangalore, known as the Garden City of India as well as its Silicon Valley is famous for its ancient and interconnected system of artificial tanks or lakes as they are known. Highly important both culturally and as water reservoirs for a city prone to aridity, the surface water provided by these lakes once accounted for over 50% of the total water supply of the city. In recent decades, widespread changes in the governance regimes of these lakes have transpired, with their management currently being principally dependent upon the city municipality, barring a small number of privatized and community managed lakes. Each of these governance approaches has impacts on the social ecological system, further influencing their ability to provide ecosystem services for the benefit of humankind.

The variety in ecosystem services accessed by communities, their dependence on the lake systems, and their relation to lake condition constitute the overarching focus of my research. My study addresses the urgent need to understand lakes in the city as networked, interconnected, spatio-temporally heterogeneous and dynamic social ecological systems. The main purpose of my research has been to explore and establish the range and heterogeneity of ecosystem services that communities avail of; assess the extent of their dependence on lake systems and understand the relationship of these social and ecological aspects of variation to lake condition. To this end, I use an inter-disciplinary mixed methods approach wherein I combine archival data, oral histories, field observations, GIS, and ethnographic interviews to obtain my results.

My thesis first explores in general, the historical dependencies on the lake and open wells system that characterized the city and the factors driving alienation of traditional communities from the resource. This part of my research also drives home the linkages between sustained provisioning ecosystem services, longevity, and resilience of the system. From there, I study in detail the transformation of one specific lake (the Sampangi lake, now the Kanteerava stadium) through a combination of data from various historical sources including maps and oral histories. Here, I show how managerial decisions brought about through simply considering politically dominant perceptions of the utility of the resource can influence alienation of traditional communities, and eventually drive its transformation into a
built up space. I next look into ecosystem services derived from twenty extant lakes of the city, and perceived changes therein. My results show that there are significant differences between ecosystem services derived from different lake zones and that enclosure of these former commons influences perceptions and therefore the range of traditional provisioning and cultural ecosystem services derived from them. Drawing upon this aspect of my study, the next part of my research looks at one form of enclosure – privatization. Through a comparison between private and public lakes within the same network, I bring out differences in ecosystem services – especially traditional provisioning and cultural services provided by them.

My study highlights the importance of considering the range and heterogeneity of ecosystem services derived from lakes in order to craft inclusive policy mechanisms that can help sustain community stewardship of urban commons.