Executive summary

My thesis examines the changing nature of ecological and social vulnerabilities of the urban social ecological system represented by lake commons within the rapidly growing south Indian city of Bengaluru (formerly Bangalore). It specifically explores the history and dynamics of access to ecosystem services from urban lake commons in Bangalore within the contexts of equity and sustainability. With an interdisciplinary research approach, this work is built upon the foundation that nature and its components – both social and ecological are complex, interconnected, and remain affected by events, which historically have helped to shape the landscape. Thus, my research has especial focus upon the contextual histories of a landscape and its relation with the range and diversity of ecosystem services and the users of urban commons. In this regard, my focus is further centred on the political nature of conflicts around perceptions surrounding utility of urban commons, and their role in the production of today’s landscape.

My thesis therefore, is theoretically enmeshed within broader literature surrounding common pool resources, specifically within the limited literature informing urban commons in the global south. I further recognize that these are also social-ecological systems, and provide a number of ecosystem services to their dependents. Within this theoretical underpinning, I address two major gaps. The first is the paucity of literature surrounding the role of history in shaping a contemporary urban commons – referred to as the ‘poverty of history of the commons’ (Johnson, 2004). My thesis specifically engages with events of the past that have bearing on the landscape of the present. It recognizes the political nature of those events, while chronicling change and conflict over time. It provides a means with which to recognize diversity and conflict within and among communities accessing and appropriating from an urban common pool resource. This recognition allows for the identification of those user groups most vulnerable to exclusion and eventual alienation from the landscape. This forms the second theoretical gap that I address through my thesis. Conventional research on commons has tended to view communities as homogenous entities with common interests and stakes within the resource. My thesis explores the inherent heterogeneities within this notion of community
and postulates that the diversity and resultant conflict around differing perceptions of the utility of the landscape have played a major role in shaping its contemporary identity.

I therefore employ throughout my thesis a research approach that integrates the social and the ecological. I have made use of historical maps and Geographic Information Systems (GIS) methods to portray landscapes of the past, while at the same time combining them with intense field based observations digitized and visualized using tools such as Google Earth and ArcGIS. I have further combined this landscape level information along with recorded as well as remembered narratives of change. I have thus employed the use of rich archival records from multiple archival sources, secondary historical information (such as records of speeches made by former ministers (Dewans) and old school magazines), oral histories, and semi-structured interviews conducted with resource dependents in and around my study sites.

My study sites comprise of the numerous interconnected, historical, manmade tanks (or lakes as they are now known) dotting the semi-arid city of Bengaluru. Dating back to even the 6th century CE (Rice, 1905), these lakes once formed the primary source of water for a city that lies within the rain shadow of the Deccan Hills, is landlocked, and does not have any major river flowing within or around it (Sudhira et al., 2007). Wholly engineered creations, these impressive structures made use of natural topographic gradients of the city to capture, store, and circulate water to the mostly agrarian communities living around them (Dikshit et al., 1993). They also performed several indispensable ecological functions such as maintaining local biodiversity, microclimate, and recharge. Over time, as the city came to rely more and more on centralized piped water drawn from the river Cauvery, a 100 km upstream of the city, lakes gradually lost their importance and have since declined in their numbers, circumference, and ecological quality (Nagendra, 2010). Many lakes within the city have been built over, or transitioned into elitist spaces of recreation and aesthetics.

Yet, these lakes are dynamic spaces that still support a variety of lives and livelihoods. My research explores these dynamic spaces to examine their existence over time through
recorded and perceived changes in access to ecosystem services. At the same time, it investigates the impact of these changes in shaping and modifying the landscape as well as the ecosystem services it provides in the present day. The specific research objectives that I have worked with are:

a) To explore the dynamic nature of human dependency on urban lakes and its impact on the ecology of the lakes
b) To analyse the social-ecological vulnerability of lakes within a larger urban landscape
c) To analyse the vulnerability of lake dependent communities with varied socio-economic identities, and
d) To derive guidelines that considers varied dependencies on ecosystem services as well heterogeneity within and across the lake system, for lake management policies

Each chapter within this thesis addresses one or more of these objectives and together provides a comprehensive picture of social and ecological changes characterizing this landscape. In Chapter 1, I introduce the subject of my research, its theoretical underpinnings, the specific research questions that I engage with as well as the overall approach towards the research.

In Chapter 2, I employ a combination of information obtained through historical mapping, archival records, and field observations to chronicle changes in the distribution of traditional water sources – lakes and wells – in the area of the city that formerly fell within the colonial boundaries of Bengaluru. I show that there has been a drastic decline in the numbers of these structures and that this decline may be attributed to a loss of dependency placed through the introduction of piped water supply to the city. I also demonstrate that this loss of dependency and resultant alienation has further reduced the perceived importance of these structures among resource dependents, rendering them vulnerable to threats such as conversions, pollution, and encroachments. Colonial state led restrictions on use of lakes and wells especially for livelihood supporting activities such as agriculture, commercial laundering, and the manufacture of bricks too have contributed to their decline over time.
Chapter 3 provides a detailed account of transformation of a lake (an ecological commons) into a built up space. The chapter documents changes in access to provisioning and cultural ecosystem services from this lake (the Sampangi lake) between 1885 and 2014, while paying attention to social conflicts enabling this transformation. It identifies winners and losers in this battle for nature. This lake has today been converted to a sports stadium (Sri Kanteerava Sports Stadium). Using a set of methods that combine both archival and oral histories, along with mapping of change, this chapter investigates politically oriented conflicts that have shaped the landscape of today. It shows how dominant notions of aesthetics and recreational utilities were prioritized in decision-making processes to the exclusion of other uses that were mostly linked to lives and livelihoods. As observed in Chapter 1, these uses included washing clothes, taking a bath, recreational swimming, horticulture, agriculture, fishing, manufacture of bricks, and livestock grazing. As these groups also represent the least powerful of lake dependents, they also become highly vulnerable to exclusion and eventual alienation. In the chapter, I have used the property rights framework (Ostrom and Schlager, 1992) to identify changes in the nature of lake dependents from CE 1885 onwards, and to identify the user groups most vulnerable to eventual alienation from the landscape.

These two chapters provide a historical account of landscape transformations over a period of roughly 129 years, while at the same time engaging both with recorded as well as perceived changes to the social ecological system at large. They provide evidence that the ecosystem services derived from the landscape were shaped by social constructions of the utility of the resource as well those derived from continued use of the water body. I also demonstrate that exclusion and eventual alienation of communities from the resource is a historically contingent process, and therefore has a significant impact on dependencies on lakes in the present day. I have therefore devoted the next chapters to examining in detail the contemporary uses of lakes as well as the barriers to equitable and sustainable access to their provisioning and cultural ecosystem services.

After providing a detailed historical overview of changes in access to ecosystem services from this social ecological system, Chapter 4 examines historical continuities and changes in ecosystem services within the context of twenty extant lakes within the city. It
documents changed perceptions of resource users surrounding the utility of the resource because of changing ecosystem quality and alienation brought about through restrictions in the form of ecosystem enclosures. Results from this chapter show that despite a drastic reduction in the total number of provisioning and cultural ecosystem services from lakes, they remain dynamic spaces that are integral to lives and livelihoods of lake dependent communities. Further, the chapter demonstrates that the decline in ecosystem services (and therefore, the alienation of certain dependent communities) has occurred first due to changing ecological conditions surrounding the water body (pollution, conversion, etc.), and more recently through various forms of ecosystem enclosures (privatization, gating, etc.). In a continued historical pattern, these ecosystem enclosures too reflect priorities of politically dominant groups that have no need for livelihood uses and therefore value their recreational and aesthetic uses. In yet another historical continuity, groups most vulnerable to exclusion are the traditional ecosystem service users such as pastoralists, commercial launderers, and farmers. Further, while this process of exclusion and eventual alienation is slowly being established within the peri-urban regions, exclusionary governance regimes are already operational within the heart of the city.

Chapter 5 examines in detail the impacts of one of these forms of ecosystem enclosures (found in Chapter 4) – the experiment of Public Private Partnerships (PPPs) – on access to provisioning and cultural ecosystem services derived from lakes in Bengaluru. The study compares services derived from privatized and public (state managed) lakes of the city in detail, while also commenting on impacts perceived from other forms of ecosystem enclosures such as restrictions of time and the gating of lakes. The chapter underscores the fact that ecosystem enclosures as a consequence of privatization affect the diversity of provisioning and cultural ecosystem services accessible from lakes. These results have implications for other more recent manifestations of ecosystem enclosures such as gating, home guard patrolling, and restrictions on access. This excludes a vast population of the city and can only be rectified if urban commons are governed to include all citizens in the city.
Chapter 6 of this thesis concludes by bringing together all aspects of this research together to form a coherent narrative that addresses the larger questions within the context of the theoretical frames posed in this introductory chapter.

This thesis represents an effort to understand the historical and current power relations that affects the access to urban commons (lakes) in rapidly growing cities such as Bengaluru. It is also an effort to understand aspects of equity concerning access to ecosystem services from urban commons in Bengaluru, adopting an interdisciplinary approach. While this study focuses on lakes in the city, insights provided by this study are relevant to a broad range of other urban ecosystem resources across the globe. In documenting the complexity of this change and its implications for the present day, this thesis also underscores the importance of understanding the historical changes in the use of and governance of urban commons. There is clear evidence that resource dependents are heterogeneous and have different political bargaining powers, in contrast to the assumption that they are homogenous.

This thesis further demonstrates the changing nature of urban commons within the city of Bengaluru and the diverse threats to continued and equitable distribution of ecosystem services from them. It demonstrates the political nature of both dependencies and perceptions surrounding them, while at the same time challenges contemporary management regimes that exacerbate exclusion, further underscoring the need to factor in this awareness in policy and planning mechanisms governing urban commons. Governance of urban commons has to be inclusive and take into consideration the diverse uses and values among all citizens of the city.

References


