Land, Water and Local People:

A Case Study of Bangalore Mysore Infrastructure Corridor

Submitted by

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DECLARATION

I, Atul Vikas Kulkarni, hereby declare that this dissertation entitled 'Land, Water and Local People: A case study of Bangalore Mysore Infrastructure Corridor' is the outcome of my own study undertaken under the guidance of Dr. Lalitha Kamath , Assistant Professor, School of Habitat Studies, Tata Institute of Social Sciences, Mumbai. It has not previously formed the basis for the award of any degree, diploma, or certificate of this Institute or of any other institute or university. I have duly acknowledged all the sources used by me in the preparation of this dissertation.

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14th March, 2012 Atul Vikas Kulkarni

CERTIFICATE

This is to certify that the dissertation entitled 'Land, Water and Local People: A case study of Bangalore Mysore Infrastructure Corridor' is the record of the original work done by Atul Vikas Kulkarni under my guidance and supervision. The results of the research presented in this dissertation have not previously formed the basis for the award of any degree, diploma, or certificate of this Institute or any other institute or university.

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ABSTRACT

‘Bangalore’, in the process of becoming ‘World Class city’ has initiated several infrastructure projects such as the mega-Bangalore Mysore Infrastructure Corridor. This involves land use change from agricultural rural and peri-urban areas to predominantly urban land uses under centralised ‘State’ level agency. In this process, landscape surrounding the lake in the village appears to have transformed from a wetland-lake ecosystem, which acted as a village commons, to private property owned by private entity or fenced system disconnected from ecosystem. Thus, this has resulted in changing perceptions of the traditional local community usage of the lakes as they are increasingly looked as ‘land property’ for profit-making. There is also a differential impact on the local village community as those marginalised section of local village community who don’t have legal ‘land tenure rights’ are denied legal ‘water rights’. This marks a paradigm shift of viewing lakes as ‘common property’ to ‘private property’ or ‘social use’ to ‘economic good’.

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Contents

List of Abbreviations

AIR	All India Reporter
BDA	Bangalore Development Authority
BBMP	Bruhat Bangalore Mahanagara Palike
BMIC	Bangalore Mysore Infrastructure Corridor
BMICAPA	Bangalore Mysore Infrastructure Corridor Area Planning Authority
BMICP	Bangalore Mysore Infrastructure Corridor Project
BMRDA	Bangalore Metropolitan Region Development Authority
BPL	Below Poverty Line
BWSSB	Bangalore Water Supply and Sewerage Board
FAO	Food and Agriculture Organisation
GoI	Government of India
GoK	Government of Karnataka
GP	Gram Panchayat
KEB	Karnataka Electricity Board
KIADB	Karnataka Industrial Areas Development Board
LDA	Lake Development Authority
MoEF	Ministry of Environment and Forests
NLCP	National Lake Conservation Plan
NICEL	Nandi Infrastructure Corridor Enterprises Limited
ODP	Outline Development Plan
PWD	Public Works Department
PIL	Public Interest Litigation
PRI	Panchayat Raj institution
SMVL	Sir M. Visvesvaraya Layout
SC	Supreme Court of India
ULB	Urban Local Bodies

Legal terms, doctrines, and principles

Case law Court decisions the body of reported judicial opinions, especially in countries with a common-law system.

Dominium Full ownership

Jurisdiction Right or power to administer justice and apply laws and to exercise authority and administrative power and also refers to the geographical extent of such rights.

Rule of law A doctrinal principle according to which everyone is to obey the law, including governments. It prescribes constitutional governance, limited by laws and by fundamental principles of legality and established procedure. The power of the state is limited according to the constitutional powers vested in it, in order to protect citizens from arbitrary exercise of authority

Writ Petition The Indian legal system allows writs (directions, orders) to be issued by the courts on petition by an aggrieved party. The writ is addressed to an authority or to persons, natural or jural, who is to do or refrain from doing something and functions to enforce a legal right conferred by the Constitution or otherwise, barring mere contractual rights. It can include remedies against the arbitrary or illegal actions of the authority or person.

Key concepts, definitions of administrative and technical terms

Caste- Four varnas are mentioned in the ancient Hindu scriptures: Brahmins, Kshatriyas, Vaishyas, and Shudras. The group of former 'untouchables' (now: Dalits) are either considered as the lower section of Shudras or as outside the caste system altogether. The modern Indian caste system is more often talked of in terms of communities and sub-communities (Jātis).

Centre- The central, federal Government of India.

Dalits- Member of Scheduled Castes, formerly known as Untouchables

Gram Panchayat -Village council or assembly

Gram Sabhā Meeting- at village level provided for as part of the Panchayat Raj institution.

Hobli - A tax revenue term for a cluster of villages.

Institution –Here it is used in the generic sense of the word, thus synonymous with organisation or authority.

Kannada -The main language spoken in the state of Karnataka

Kere- A natural freshwater lake or tank

Pukka - Genuine, good of its kind, high quality, first class

Riparian right - A right of the adjacent landowner to use of flowing water

'State' - short for nation state; refers also to the government authority.

State- (Semi-) autonomous part of a federation of a sovereign nation state.

Taluk- Administrative level in some States of India

Tank, lake- water-work, reservoir or lake of small size used for storing freshwater.

Tubewell -Drilled well, from which water is drawn via mechanical pump.

Sump- Underground water storage facility; a cistern tank

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Chapter 1: Introduction

1.1 Introduction

Bangalore has existed as a settlement for well over a thousand years in the villages. Kempe Gowda ruled over the vast agricultural tracts and laid the foundation of Bangalore in 1537. The Bangalore plateau is in the rain shadow of the Deccan hills and its undulating landscape and man-made structures caused water to accumulate in tanks and lakes in pre-British times. An intricate system linked the tanks contained by the same sub-catchment area and allowed for additional water to flow over to the next tank in the chain (Agarwal 1997). Janaki Nair, in her book on the urbanisation processes of Bangalore has said that "the earliest settlement was probably a hamlet of no particular commercial or demographic importance to warrant the name of an urban setting, functioning instead as a node that drew the surpluses of the agricultural countryside, and was dominated by rural notables" (Nair 2005). Some claim that Bengaluru was referred to as 'Kalyananagara', a city of kalyanis or tanks or lakes.

In 1791 when Lord Cornwallis sent a deputation of British East India Company soldiers from Fort St. George, Madras, to the Mysore State to find an alternate route to Srirangapatna for fighting Tippu Sultan, the Captain who headed the team came to Bangalore town. He was amazed by the climate and environment of Bangalore and described it as "Land of a Thousand Lakes"1. Bangalore was also referred to as "Pensioner' Paradise" and "Garden City".

Since the liberalization of India's economy in 1991, Bangalore has been experiencing rapid economic growth. Bangalore has substantially been affected by globalisation and rapid urbanisation over the last decade and Bangalore has positioned itself as a major exporter of software services to the world and Information Technology (IT) has become synonymous with Bangalore's economic growth. Hence the term "Silicon valley of India" is coined to describe Bangalore.

Several national and multinational companies have located their offices and Research & Development (R&D) centers in strategic urban locations around Bangalore and to take advantage of on the IT revolution and the availability of ample engineering professionals. A burgeoning middle class has emerged, including thousands of young IT professionals working in the high-tech spaces of urban India (Mukherjee, 2008).

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[1] Karnataka High Court Committee Report appointed under the Chairmanship of Justice Mr. N. K. Patil

In the race to become world class city, Bangalore has taken up several mega projects to emphasize their infrastructure or to develop entirely new infrastructure. Bangalore today has the aspiration of turning into Singapore. The Bangalore city has initiated a number of large infrastructure projects that are claiming to promote its image as that of becoming 'world class' city. One such mega infrastructure project is "Bangalore Mysore Infrastructure Corridor Project" (BMICP). This infrastructure project along with several other projects such as Bangalore International Airport project, planned ring roads and several satellite townships has lead to greater urbanisation and this is no longer restricted to Bangalore Metropolitan Area(BMA) which covers 1240.69 sq kms, but is expected to stretch even to Bangalore Metropolitan Region (BMR) which comprises 8005.00 sq.kms.[2]

During my internship in May 2011 at Center for Urban and Rural Planning Enterprises (CURIP) which was on "Revision of Master plan of Bangalore Mysore Infrastructure Corridor", I came to know in much detail, the context of the BMIC project and various components of the project. I was pondering on the reason for the delay in implementation of the much hyped BMIC project. I started understanding various issues from commencement of this project to the implementation of the project. Even though there are several mega infrastructure projects in Bangalore, Bangalore–Mysore Infrastructure Corridor (BMIC) project is special since this is second largest infrastructure corridor project in India in terms of land involved[3]. The project cuts across four districts in Karnataka and involves management of natural resources such as water and land. Since my primary interests lie in understanding the dynamics of regional development and water resource management such as lake, I thought this would be a very appropriate case to investigate in more detail.

1.2 Introduction to Bangalore Mysore Infrastructure Corridor

BMIC project envisions redirecting development away from Bangalore in order to ease urban density in the heart of the city by including five new townships and 193 village clusters. The total area it comprises is 701.01 Sq.kms where it covers 65.31 sq km within BMA and 338.74 sq km within BMR. It comprises of expressway, peripheral road, link road, five townships and village clusters. The project's advertised primary goals is to cut the driving time between the two cities- Bangalore & Mysore from three and a half hours to just 90 minutes, thereby bring in greater mobility.

Some of the immediate questions that rise in my mind are; How will this mega infrastructure project, helps Bangalore to portray as 'World Class' city? Which are the various Government Agencies governing the BMIC project? How is land, which is an essential component of this

[2] http://www.bmrda.kar.nic.in/bmrstate.htm

[3] 1st being 'Delhi Mumbai Industrial Corridor'

project, going to be acquired? How is the project going to focus on balanced regional development particularly the water resources such as lakes? What are Socio-economic impacts on villagers due to this corridor development? How are the basic services such as drinking water, sanitation, solid waste management provided for residents in this corridor?

My study is a culmination of some of these questions that I have raised above. Questions of this nature had aroused in my mind while I was pursing my concentration course on Planning of city. For my self-study, I looked as a broad topic of looking at balanced regional development at a very macro level. Having read various types of literature on this subject, I wanted to study various dynamics involved in planning process of this mega infrastructure project.

I attended the three-day conference on "Water Hackaton 2011" organized by World Bank, IIHS and India Water Portal. Some of the speakers at this conference were Mr Sam Pitroda, Mr Arun Goel, Joint Secretary of Ministry of Urban Development, Mr Juan Costain of World Bank and many more. Sam Pitroda said "Water is a precious commodity, undervalued, overused and hardly understood". This conference helped to gain insights in the debates in water sector and how water forms an essential component of development process.

In February 2012, I also attended the two-day "International conference on Indian Urban Infrastructure Review Policies and Regulation 2012" organized by Indian Urban Infrastructure Review at Hiton Mumbai International Airport. The agenda of the conference was to discuss all aspects of policy changes and new laws that will affect Infrastructure developers and real estate business in India. Through the discussion, I got a sense that the real estate and developers in large infrastructure players were seeking better laws such as "Land Titling Bill", "Land Acquisition Bill" so that these laws help facilitate these private players to acquire large amounts of land so as to smoothly implement their projects and put Indian city's image on par with 'world class' cities. Ex-Municipal Commissioner of Brihanmumbai Municipal Corporation (BMC) Mr Nalinaksham said that "Laws, Polices related to land are outdated and policy makers have to create a better environment for private players to construct large infrastructure projects. Laws should be made easy, more transparent and thus opens up the market to several private players". Amol Shimpi, Vice President, HCC said that "In Nagpur, we had to deal with a land acquisition of 20 acres which involved 633 owners to this land alone. It became almost next to impossible to acquire the land, since we didn't have any mechanism to settle the ownership of land rights and then paying compensation to concerned owner of the land. Therefore, we need Land Titling Act, so that Government defines clear cut land titles of all lands in India and this helps us to acquire land and know whom to give compensation". This conference, opened up my eyes to the views of large infrastructure developers and how real estate players are seeking better laws to gain access to land for development to promote large infrastructure projects so as to make Indian Cities as 'World Class cities'.

Also some of the views of IT & BT biggies in Bangalore on BMIC project were quite relevant to evolve my study. Some of the quotes are, Mohandas Pai, director-HR, Infosys, which has offices in both Bangalore and Mysore said that "I think its (BMIC) the single most important project for Bangalore. It will not only provide more employment but also improve the quality of life of the people of Bangalore" (emphasis added). Also Kiran Mazumdar Shaw, CMD, Biocon says that "If you want private players to develop roads, the government has to address these land issues very seriously"[4].

Also as recent as Jan 19th 2012 in a newspaper article, said that Lake areas are leased out. The quote from newspaper article areas as follows "During discussions in the Council, JD(S) corporator Muniswamyappa revealed that two portions of the Hemmigepura Lake and other lakes in the City were leased out for a concessional period"[5](emphasis added). This actually reveals that even lake beds are leased out to private player to implement the BMIC project.

These facts are some of the beginnings to my research project and thereafter, several rounds of discussion with my faculty, I was able to define specific research objectives, which have been listed below

- Understand the evolution of BMIC project- through this study researcher has tried to draw a time line of the events in the evolution of project to understand the role of various Government Agencies involved; to explore the links between 'world class city' status and creation of mega projects with land being an crucial factor of such projects; and to understand the impact on regional sustainability issues, particularly of lakes as a resource. This study illustrates that the drive to profit from land- based urbanization and development has resulted in it changing its alignment so that BMIC authority gains control over the many lakes in the area. Lakes here are seen in two ways, as valuable property to be developed and also as a means to enhance property values of near-by properties. The study explores the role of State Agencies such as BMICAPA, KIADB and PWD who have facilitated the leasing of lake beds to private entity.

- Explore the lake management practices in village before and after project implementation- through this study exploring the changing traditional lake management practices. Therefore, what can be seen as a result of changing ownership from community to private is that, there is a gradual shift in the usage of lake and

[4] http://www.indiantollways.com/2008/02/16/south-india%EF%BF%BDs-road-to-future-may-soon-be-completed/ last accessed on 7th March 2010

[5] http://www.deccanherald.com/content/220674/bbmp-seeks-rs-119-cr.html last accessed on 7th March 2010

perceptions of rights to lake water of local community. Also the study explores the claims and counter claims of villagers over the lake.

- Explore the differential impact on the village community- While this shift differentially impacts segments of local communities, what is overwhelmingly apparent is the erosion of the 'commons' of the lake and the fact that acquiring land also means gaining control over water bodies that are sustained by the land. Also explore the Socio-economic impacts on various lake users due to this shift.

- Establish land-water relationship- Most literature view land and water as separate. What is emerging from this study is that land and water are intertwined and strong connection exists between the land tenure rights of the villagers and their water rights to lake.

1.3 Structure of the report

As seen this chapter gives a brief introduction to BMIC project and the above research objectives have paved way for further exploration. Chapter 2 is on literature review and looks at several academic works on urbanisation process in the world that are relevant to this study and also look at literature on water rights especially focusing on lakes. Chapter 3 is on Methodology and rationale for data collection and this chapter gives details of the procedure through which the research was conducted. It also explains the tools and methods that were used to achieve the research objectives. In Chapter 4, introduces to the BMIC project and the evolution of the project. I discuss major events using a timeline of the project to help understand the roles of various Government Agencies involved in the project. Also I analyse the reasons for changing the alignment of the BMIC corridor. This chapter also gives a brief analysis of the shift in the role of Gram Panchayat with respect to the lakes and the reasons of leasing out lakes to private entity and thus by-passing of State machinery. In Chapter 5, I discuss the case of three villages located in the BMIC, BMR region. I discuss the lake management practice in the village and using a timeline of village, I analyse the shifts in lake management practices. This chapter also discusses as to how lakes are viewed as property and claims and counter claims of local communities. Chapter 6 gives an analysis of above findings. The final chapter 7 sums up the whole study and give few policy recommendations.

Chapter 2: Literature Review

2.1 Introduction

This chapter positions my research within existing literature on cities under circumstances of globalization, the development of city-regions, city-centric growth strategies, splintering urbanism and recently the corridor development. I provide a background of relevant literature before underlining the theoretical underpinnings of my empirical research. In this chapter I look at the different theoretical frameworks that talk of the urbanisation processes in the world. This section also provides a broad over view of the existing literature and also gives a critical review of literature. The first set of literature is regarding the theoretical understandings of contemporary urban development under processes of globalization. Here I summarize approaches that numerous scholars have taken on issues such as economic globalization and the emergence of corridor development. Second, I examine how several scholars have critically evaluated the developments around city-centric growth and unbalanced regional development strategies keeping in mind the main objective of this research work. Thus I examine how these situation, help comprehend the corridor development that I am looking at. Third, I examine the literature on role of State in water governance and how this has a bearing on the land and water rights of people.

The literature review is organized into different themes but overlapping themes, keeping in mind the main objectives of my research.

Section 2.2 gives an over view of the regional development strategies in India between 1950-1981

Section 2.3 gives an over view of the changing regional development strategies in India from 1980's onwards and thus discusses on importance of cities. Also gives a brief of global shifts in the approach for regional development in India.

Section 2.4 then gives the theoretical underpinning of the modern urban development under processes of globalization where cities aspire for 'world class' status. Thus this section gives an overview of the emergence of processes of urbanism where cities are looked upon as engines of growth and how urban scholars have looked upon theoretical underpinnings of city- centric growth.

Section 2.5 gives an overview of the emergence of corridor way of development that is adopted across the various parts of the globe. I shall go on to talk about the need for the urban mega projects such as corridors in the creation global cities. Then I go on to trace the origins of

corridor development across the world and drivers for creation of corridors. This section also gives a analysis of the corridor type of urbanization.

Section 2.6 gives an overview of stress on water resources due to rapid urbanisation and unbalanced regional development. Section 2.7 talks about Major Shifts in Role of 'State' in Water Sector and Section 2.8 talks about land tenure rights and Water Rights.

2.2 Regional Development Strategies – 1950- 1981

With the launch of First Five Year Plan in April 1951 started the process of planned development and it contains one of the clearest early formulations of need for planning and State's role in it. Therefore a great deal of planning focused on need for rapid economic growth and raising standard of living. At Independence, India was predominantly an Agricultural economy with more than 70% of the population employed in Agriculture and 50% of GDP was from this sector. However, the Nehruvian view endorsed the need for rapid development led by state economic activity and planning.

The development strategy of the States was that, First, basic constraint on development was due to acute deficiency of material capital and lack of productive technology. Second, limitations of speed on capital accumulation were due to low saving rate. Third, Industrialization would allow for surplus labour currently under employed in Agriculture and thus by redirecting this labour force to industries would create increasing returns to scale. Fourth, unequal distribution of income was viewed with negatively and therefore there was a great degree of intolerance for income inequality so that it is not excessive and also State could achieve higher growth rate than otherwise. Therefore State with a stable Government played a major role in planning in 1950's-60's and imparted a sense of vision, direction and integrated overall perspective on the direction of growth (Kapila, Uma: 2008)

2.3 Regional Development Strategies – 1981 onwards

With much research done on the India's Political Economy between 1950-1980 shows that , Indian's economic growth was sluggish due to mismatch between limited capacities of Indian State and State led model of development.

Therefore, after 1981, favourable initial conditions such as a robust indigenous industrial sector and a low foreign debt economy resulted in superior economic performance as compared to earlier period. State's changing role since 1980, especially the ease of left-leaning, anti capitalist discourse and policies, prioritizing economic growth, and a slow but steady embrace of Indian capital as the main ruling ally and thus State started to embrace pro-business

measures. Therefore, there was more redistribution of political, business and policy orientation. (Kholi: 2003)

Global Shifts in Approach of Regional Development in India

In 1991, India was forced to bring about Economic Reforms since there was balance of payment crisis. This, Economic Reforms brought about liberalization of Indian economy and this resulted in the rapid economic growth with more than 6% growth in GDP. Thus Indian economy moved towards liberalization through their New Economic Policy. The World Bank and IMF initiated several city-centric projects to develop the infrastructure of Delhi, Mumbai, Chennai, Kolkata, Bangalore and Hyderabad. The rationale behind the development of world-class infrastructure for these cities is to make them attractive to foreign direct investment and make cities as engines of growth. (Sassen).

Therefore in 1990's , State liberal policies to support pro-business especially those big market players who are already established and this is fundamentally different from pro-market wherein new entrants are encouraged in competition unlike pro-business strategy which mainly supports established players. Pro-Market is expected to create more open, efficient, competitive economy that is, for the same amount of investment, a more efficient economy would lead to higher rates of economic growth; pursuing comparative advantage would create labour intensive industrialization and rapid employment growth (Kohli, 2007). Therefore better distribution of benefits leads to benefitting the rural poor with more inclusive regional development and therefore mitigating inequalities among the regions since capital moves to capital scarce areas in search of higher returns, regional inequalities would reduce over time (Kohli, 2007). But the real world experiences show that pro-business strategies have been adopted and State is intervening in this process. Therefore this pro-business strategy was also accompanied by growing inequality and inadequate distribution of benefits of this growth among States and also across all sections of society. State pro active intervention to promote business groups as main political ally and Pro-business has lead to more uneven geographical development (Kohli, 2007).

2.4 Emergence of 'World Class' cities in India

Cities were looked as "Engines of Growth", Sassen (1991, 1996) has argued that both a globalizing economy and the growing importance of the services sector strongly influences the role of cities and shape the making of global cities today. While there have always been big cities In India, Sassen argued that this situation after 1991 is quite different from earlier scenario since global economic interconnectivity was leading to a qualitatively different urban

system Several Indian cities such as Mumbai, Delhi, Bangalore, Chennai and Hyderabad were aspiring to become ‘world class cities’.

Many metropolitan cities in India such as Bangalore which aspired for ‘World Class’ status, started concentration of major service sectors, with advanced IT and telecommunication infrastructures, massive highways, metro rail and airport network . Thus the development of such large physical infrastructures these cities have begun to expand their economic activity to surrounding regions by incorporating rural and peri-urban land and thus leading to the emergence of global city-regions (Castells, 1996)

Parr defines city-region as *“as a large city or group of cities with very close, interdependent relationships and a strong economic ‘footprint' with presence of a core city linked by functional ties to a hinterland”* (Parr, 2005). Therefore now cities are come in being to represent the entire region.

Then Neo-liberalism further fueled the uneven regional development and rise of 'entrepreneurial cities'. Neoliberalism brought about a shift from a situation in which national governments sought to spread development more evenly across their national territory to one where specific city or spaces and thus there was a restructuring of both economic and political spaces (Harvey, D, 1989)

Then the new kind of mega-infrastructure development such as of infrastructure corridor is the new trend to achieve ‘world class’ status for cities. The massive investments in corridor development such as BMIC project, for promoting ‘world class’ infrastructure has been viewed as part of making cities more competitive and entrepreneurial. With the rising middle class, with their aspiration of having world class infrastructure has also fueled this kind of urbanization (Graham, 2000).

Since the corridor development requires huge capital invested, The State has paved way for more private sector involvement. Therefore, due to shifts towards entrepreneurialism, there is increasing privatization of infrastructural services and with the increasing influence of neoliberalism, the state has backed off from public investments to clear the road for more private participants in newly privatized infrastructure markets (Graham, 2001). Therefore, this kind of corridor development is leading to “splintering urbanism”.

All these show that a clear evidence of shift from balanced regional development to a city-centric growth strategy by abandoning earlier regional development policies and focusing primarily on the few pockets of urban centres. Thus in the process to achieve ‘world class’ status, Bangalore is promoting several mega-infrastructure project such as BMIC project.

2.5 Corridor Development

In corridor projects such as BMIC project massive investments are being made in infrastructures and knowledge based urban development has increasingly become a model for the development of cities and their knowledge clusters (Graham and Marvin, 2000). The role of major cities in India has been increasing in national economies as they are offered as the magnet for foreign direct investments and for establishing networked service industries (Sassen 2001). Development of BMIC corridor involves heavy investment in modern and world class infrastructures such as townships, knowledge centers, roads and expressway and so on and thus need for massive investments from private sector is very essential(Graham and Marvin, 2001). Such corridor development are often targeted, long-term and often extremely comprehensive initiatives, driven by private capital, designed to facilitate global competitiveness, access to global capital and investment, infrastructural development. Thus this mega infrastructure project of BMIC helps Bangalore to portray as 'World Class city'. This is fundamentally different from, the regional development. Corridor Development envisions creating new urban centers with greater density rather than spreading the urbanization

Comparison of four corridor development projects across the World

Table 2.1 comparison of four corridors with different parameters

Parameters	**The Maputo Development Corridor - Africa**	**Delhi-Mumbai Industrial Corridor-DMIC**	**Nampo-Pyongyang corridor -North Korea**	**Bangalore- Mysore Infrastructure Corridor**
Vision	Connecting landlocked areas with ports so that bankable package is developed with consideration to resource development in surrounding areas and industrial policy.	Is to create strong economic base with globally competitive environment and state-of-the-art infrastructure to activate local commerce, enhance foreign investments and attain sustainable development	Recognizes the importance of transport as key factor in economic growth. Build better economic relation with European Union	To have an efficient infrastructure corridor between two cities, Bangalore , Mysore and as well as to have planned and organized disposal of population through growth centres, which will acts as counter-magnets to the cities growth
Strategy Adopted	In line with the 1995 Spatial Development Initiatives of the South African Government	An MOU relating to the DMIC has been signed between the Ministry of Economy, Trade and Industry (METI) of Japan and the Ministry of Commerce and Industry (MoCI) of India	A strategic area for European investment for producing and exporting their goods and services.	Consortium consisting of Kalyani Group, SAB Engineering & Vanasse Hangen Brustlin (VHB) as SPV called Nandi Infrastructure Corridor Enterprises Ltd -NICE

Funding Sources	Private sector, under BOT conditions ,Cost: R3 Billion (1 R=13 €) projects to build, finance, operate, maintain	World Bank, ADB, budgetary provisions of GOI, Japan Bank for International Cooperation (JBIC), IIFCL, Nippon export & investment insurance	PPP, on BOOT basis and investment from European companies	Build-Own-Operate-Transfer (BOOT)
Place	South Africa and Maputo (the capital of Mozambique) was initiated in 1996	Six states Uttar Pradesh, NCR of Delhi, Haryana, Rajasthan, Gujarat and Maharashtra	Nampo-Pyongyang	Bangalore, Mysore
Project Components	The N4 Maputo Toll Road – developed as a PPP; The upgrade of the Port of Maputo; The development of the Pande/Temane gas field in Mozambique and the construction of a pipeline to SA	Double employment potential in five years (14.87% CAGR) Triple industrial output in five years (24.57% CAGR) Quadruple exports from the region in five years (31.95% CAGR)	Increase employment, Six lines road of 46 km follows the river Daedong and a large ten line highway of 44 km	Four lane Express way of 111 km length Four lane (expandable to six lanes) southern section of peripheral road of 41 km length Four lane link road of 9.1 km Five new townships proposed along the BMIC
Institutional Framework	Maputo Development Corridor Provincial Technical Committee (PTC). is chaired by the Chief Director of Economic Affairs in Mpumalanga; Mpumalanga Investment Initiative (MII) is a key driver in contributing to investment implementation	Four-tier 1. Apex Authority, headed by Finance Minister & other Central Ministers & CMs 2. Dedicated Corporate entity, DMICDC (Delhi Mumbai Industrial Corridor Development Corporation) 3. A State-level Coordination Entity/ Nodal Agency 4. Project Specific Entities- SPVs	Nampo-Pyongyang Corridor Authority	"BMIC Area Planning Authority" headed by Chairman- Addl. Chief Secretary & Development Commissioner,and other members of State Government

These corridor projects are chosen from different geographical areas such as Africa, Asia so as to bring relevant comparison to BMIC project. If we look at all these projects, the main aim is to link main cities (such as coastal cities) with interior markets, increase investment though better infrastructures, greater factor mobility with good transportation, create industries in corridor linking them with exports. Also increase role of Global finances- IFI, MFI will lead to more economic benefits and raise employment opportunities and to promote inter-related infrastructure and large-scale economic sectoral investments. 'Densification' of the corridors through the establishment of ancillary and feeder infrastructure to enlarge the corridor's

catchments area and beneficiaries and thus ‘Deepening’ of resource industries via resource linkages in industrial clusters.

2.6 Stress on the water due to corridor development

The mega-infrastructure projects have lead to great stress on water resources in region. Since, water security being is an important element of food, economic, ecological, social, national, and even human survival security. This, it is important to study the stress on water resources. Rapid urbanization has lead to number of problems such as population blasts, resources scarcity, and environmental deterioration and has caused severe water scarcities and drastic conflicts between water demand and supply. Water has become a key restricting factor of the urbanization process, as well as the socio-economic development. (Chao Bao et al: 2006). Rapid urban sprawl of the city, many of the water bodies have been totally lost. Many have been shrunk in size while the waters of several lakes got polluted with the discharge of untreated domestic and industrial effluents. The adverse consequences of the loss of water bodies are felt in the steep decline in water table and the resultant water crisis in several areas in a region.

Competition for water exists at all levels and water management due to urbanization has caused great stress on waster and as a result there is deficiency in performance, efficiency and equity. (WDDR: François Molle) Many of the research have shown that when the population, economic scales exceed the water resources carrying capacity, or the consumption of water resources approaches or exceeds the threshold of natural water resources, then the water resources system drastically slows down the development of socio-economic systems, including the urbanization process. (Chao Bao et al: 2006) To diminish the loss of industrial output because of a deficiency of urban water utilization, considerable water resources previously utilized for agriculture are transferred to urban systems and this has a negative impact on agriculture and grain production. Then, agricultural systems and rural areas have to reassign water from ecosystems in order to diminish their economic loss. As a result, the environment gradually deteriorates due to water scarcity. (Chao Bao et al: 2006)

2.7 Major Shifts in Role of 'State' in Water Sector

Garrett Hardin, in his much-quoted essay, “Tragedy of Commons”, has argued that commons must be controlled by an all-powerful state, or enclosed and privatised to save it from the “tragedy” of depletion (Hardin 1968) . The debate on commons has been subjugated by insights from empirical studies on common property resources like water, forests etc and lake are of interest in this study. ‘State’ had an absolute control over the common property resources such

as lakes in India. Initially, water was treated as natural resource with 'public good' character by ‘State’. But now, water is increasingly seen as an 'economic good' with water being looked as a ‘commodity’. This implies a shift in terms of the rights of control over and access to water with the change from public good to the possibility to trade water entitlements. (Cullet 2007)

Another major shift is decentralisation and participation, so that beneficiaries and other stakeholders to be involved from the project planning stage and the rationale for is that the State's inability to deliver appropriate benefits and thus change its role has changed from that of a service provider to that of a regulator. This has allowed for more private players in the operation, maintenance, management and collection of water charges and State is withdrawing from these provision (Cullet 2007). Also due to departure from balanced regional development has a impact on water resources as described in previous section. This changing role of ‘State’ has several implications on the ‘water rights’ and the next section gives few details of water right and its linkages to land rights.

2.8 Land and Water Rights

In the discourses and several other literature, land right and water rights are seen as distinct. Accordingly water rights are a feature of water law and policy. In the same way land tenure rights remain a feature of land law and policy a sector. Each of these rights has its own agenda and a quite different set of professionals are working on the same and thus the literature on land tenure rights tends to pay no attention to literature on water rights and vice versa. This study tries to explore the linkages, if any, between land tenure rights and water rights and thus definition of water rights are discussed below.

What are rights? Let me try to give some theoretical definitions of rights. Also give the concept of law with reference to Indian laws.

There is no single definition of what is ‘rights’. It is generally prefixed with ‘legal’ to mean ‘legal rights’ and in a different case to mean a ‘moral’ right. Donnelly J gives a distinguishing factor between the moral and political senses of the right (Donnelly 2003)

- morality, in the meaning of righteousness; the right thing to do; or something being right (or wrong); and
- Entitlements and claims, in the implication that someone having a right.

"Land tenure rights" proposed by FAO “is the relationship, whether legally or customarily defined between people, as individuals or groups, with respect to land” (FAO 2002). From the definition we can say that, land tenure rights are "legal rights". However it then goes furthers to include customary rights. This study will restrict itself to formal land tenure rights.

Water rights - Indian legal system is a mix of English common law, ancient or indigenous notions and Customs, international treaties, constitutional rights and statutory law. (Cullet 2007). Water rights are created by operation of law, on the basis of a legal instrument issued by the state agency. In general, a water right is an entitlement to take out a quantity of water from a water body and to retain the benefits of its use. The FAO has made the following definition:

"Water rights are concerned with the removal and subsequent use of water from the natural environment or its use in that environment. Fundamentally a water right is a legal right

- to abstract or direct and use a specific amount of water from a lake, tanks, rivers
- to store a specified quantity of water in a natural source such as lakes, tanks behind a dam or any other hydraulic structure
- Or to use water in a natural source, to undertake fishing and aquaculture activities; for navigation
- A 'natural source' includes a stream, river or lake, a reservoir created by the damming of a river, a swamp or pond as well as groundwater from a natural spring or a well". (emphasis added) (FAO 2004).

This study focuses on the water rights definition to analyse the rights with respect to lake. The main uses of water from lake are agriculture purposes - for irrigation and livestock watering and urban use including use for domestic drinking water, household and commercial uses purposes.

The concept of right to water includes a variety of dimensions such as access to water, affordability, ownership, delivery, and participation in decision-making processes, while the Water rights refers particularly to the specific subset of these dimensions that are applicable from the point of view of the right-holder. (Sangameswaran 2007).

For illustration, when one looks at the ownership dimension of right to water, there are a number of dimensions that comprise ownership. But of these, the most appropriate dimension for the right holder are rights of usage and decision-making rights particularly about the functioning of institutions governing the management of water (Boelens 2002). In contrast, ownership of the water resource such as rivers, lakes and their distribution, are the dimensions that are more significant for the State, as they play a key role in influencing the nature of water rights of particular individual person or groups (Sangameswaran 2007).

Water rights have three dimensions – socio-legal, technical and organizational. (Boelens 2002). The socio-legal dimension relates to the particular right is accepted as legitimate by law or tradition. To quote Vos, H et al *"In general, local water rights are based on a combination of historical rights, claims emerging from labour (or capital) input in (re)constructing irrigation or drinking water systems, territorial rights or individual rights linked to land ownership.*

Often, these complex combinations do not correspond to what is defined as 'water rights' in official legislation" (Vos 2006). Second, the technical dimension relates to infrastructure, technology, and technical skills to obtain water from a source and divert it to fields. Third, the organizational dimension refers to State and its machinery for functioning of the infrastructure, distribution of water, formulation and enforcement of rules and decision-making around these issues (Sangameswaran 2007).

Water Rights is also refers to whether all users have different or equal rights. It is thus important in case of riparian water users verses downstream water users. Since the basic rule was that the riparian owners had a right to use the water of a stream flowing across their land equally with other riparian owners and therefore they had access full access to water (Boelens 2002). However, the debates on riparian right theory have challenged this basic concept and the debates on equity have argued that water be shared based on equity principle (Cullet 2007). Then, common law rights says that water is a public trust and needs to be treated as public good and therefore the type of rights and privileges that can be claimed over surface water is varying (Cullet 2007). This study would be important to explore the water rights and it linkages with land tenure rights.

Chapter 3: METHODOLOGY

3.1 Introduction

Methodology is an important part of any research. This chapter gives the foundations and leading principles of the methodology undertaken to understand the dynamics of planning in my research project on Bangalore Mysore Infrastructure Corridor (BMIC). In this chapter I have discussed in detail the various tools and methods that I have adopted in order to carry out the research. I begin this chapter to give a brief introduction of the villages chosen for the study. Then, I go back to revisit to objectives that were raised in Chapter 1 and gives details of methods used to met these objectives. This research is exploratory in nature. Also Chapter 2 has provided me with lens to enter the field with an open mind with the focus on my objectives to achieve. It also gives detail of methods employed for data collection and procedure followed to collect data and justification and rationale for each of the methods used in the research. I have described each method in a particular flow since I used the same flow or logic to conduct my field visits. I have also mentioned some of the challenges faced and some ethical consideration during my field visits.

3.2 The focus of the Study

The focus of the study is threefold. First, I try to explore the evolution of BMIC project. What were some of the drivers for creation of the project? How different Government Agencies were involved in implementation of the project? What was the role of Gram Panchayat in this BMIC region? To explore these and some of other questions, the study tried to focus more at macro level so as to get a good picture of the evolution of BMIC region. I also try to understand as to how and why the lakes eventually came under the BMIC project as initially none of the lakes were in BMIC region.

Second, I dive into the villages in the study and explore some of the dynamics around lakes management due to development of this mega BMIC project. This would entail an in depth study of the experiences and changing perceptions of the local village community around the lake management. This also involves studying the socio-economic impact of the lake users in the village.

Third, I try to explore the differential impact on the local village community and try to find out as to which section of society are the one who are the most affected due to changing lake management in the villages.

3.3 Selection of villages

The BMIC project covers 193 villages with 141 full villages and 52 part villages. There are about 30 villages in BMR Region. As the study focuses on BMR region, I sought to narrow down on three villages in BMR region so that these villages represent the heterogeneity and would help to bring out different dimensions in the study. As the research project focuses to study the lakes in the BMIC region, the selection of the villages with lakes was quite important.

As soon as I arrived in Bangalore for my pilot project in winter vacation, I started to develop local contacts in few village so as to shortlist few village initially and I talked to local villagers, building rapport and thus creating conducive atmosphere for interacting with them. Also I made a point to walk along the village and observe the physical characteristics of the village, lakes in village etc. I began strategizing how to familiarize myself with its people, their social habits, social values and their opinions regarding the development of corridor. In my pilot visit in winter vacation in October, I made few visit to village as I was in the process of short listing the villages and thus this helped me to frame my research questions and objectives.

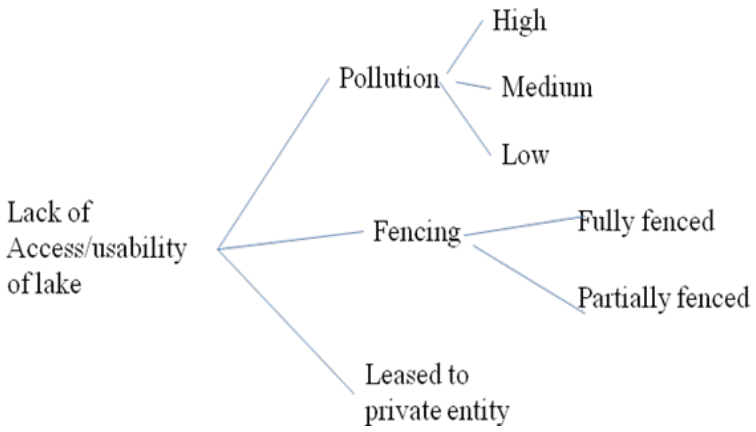
I also visited the state Department of Economics and Statistics and *Census department* to collect data on the state's economic performance, socio-economic tables, population and other demographic information of the villages in Bangalore rural. Then using the village directory in the BMIC ODP gave me the list of all the villages and their socio-economic statistics. This helped me to get an overview of the demographic profile of several villages in BMR region in BMIC corridor.

Also I collected maps from State Government departments to find the spatial view of the corridor development and identify villages that come under BMIC. Initially, it was very difficult for me to get appointments with Government Officials, since in case they don't trust you, they will not give out any appointments for meeting higher officials. Then, I came to realize that meeting academicians, activists, journalists, and farmer's groups etc in Bangalore who were working on BMIC was quite important. Thus, I began to explore the contact through my guide and thus I came in contact with several people in Bangalore. I used the strategy that 'let them know me first' so that they know about my research and thus they helped me to get vast information in a very short time. Thus access to data and information largely depends on the impression of the researcher. As Mike Crang and Ian Cook (2007) said, it is important to make appropriate connections, by 'casting the net' widely.

After analyzing several data obtained from Government Department and secondary data, I used these parameters for selecting the village. The parameters are presence of water bodies such as lakes, funds allocated for restoration of lakes in villages, whether the lakes in the village are

leased out, the pollution levels of lakes, access of local villager community to lake and proximity to layouts formed by BMIC, NICE and BDA. Based on these parameters, I again visited several villages in BMIC BMR region and finally shortlisted three villages- Kommaghatta, Ramasandra and Valegerihalli/Kengeri for my research project.

Figure 3.1 Parameters to define lack of access/usability of lake



Source: Self

This figure shows the primary parameter 'lack of access/ usability of the lake' which is defined as easy access to the lake by the local village community for using the water in the lake for several purposes such as agriculture purposes, household purposes- drinking, cooking, washing clothes, livelihood purposes such as fishing, dhobi and cattle owners . The access to lake for local community depends on the three criteria

- Pollution levels
- Fencing of lake
- Leasing of the lake beds

As seen from the figure above, the pollution levels of the lake can vary from low, medium and high. The pollution level depends on several parameters such as maintenance & timely cleaning of the lake, entry of raw sewage into lake and this indicates the proximity of layout of the lake and several other factors. The fencing of the lake can be full, partial or no fencing. When the Government Agencies take a lake for restoration then they fence the lake and hence the entry into lake is restricted only for recreational purpose. The lake bed can be leased out to private entity. In all three cases, the lake becomes inaccessible to local village community and has several socio-economic effects on them and hence his criterion is used in this research.

The following table gives details of parameters of three villages.

Table 3.1 Details of parameters of three villages

Lake name	Access to lake	Status of Pollution	Status of Fencing	Leasing of lake bed
Bandematta Hosakere	No	Highly Polluted	Not yet since the lake is not taken for restoration	No
Kommaghatta	No	Less pollution	Full fenced as BDA restored it in 2010	No
Ramasandra	Partially No	Medium pollution	Partially fenced as BDA is in process of restoration	Yes, leased out to private entity

Source: Self

Bandematta Hosa Kere Lake is highly polluted as the untreated sewage enters the lakes and thus the local community has no access to the lake. This lake is not fenced and is not leased out, but is highly polluted and thus there is lack of access to lake. The proximity to layout is very near which indicates greater urbanization.

Kommaghatta Lake, the BDA restored the lake in 2010 and fully fenced the lake. Thus there is restriction of entry into lake. The lake was getting polluted since 2006, but after BDA took up restoration work the pollution levels have decreased and lake bed is not leased out. The proximity to layout is very near which indicates greater urbanization. Even in this case, the local villagers don't have access to lake.

Ramasandra Lake bed is leased out to NICE and thus the entry was restricted. The pollution levels are medium. It is partially fenced as the lake restoration by BDA is in process. The proximity to layout is very far.

Therefore, choosing these villages which are in different time zones of lake status and thus these villages represent heterogeneity and would facilitate to understand different dimensions of study.

Demographic Profile of villages

Table 3.2 Demographic profile of three villages

Village Name	Total Population- Census 2001	Number of Houses
Kommaghatta	1363	272.6

Kengeri/Valagerahalli	618	123.6
Ramasandra	2248	449.6

Source: BMIC, Outline Development Plan 2004

This table gives the total population of each of the villages and number of houses in it. As seen table, there are quite big settlements and thus I had to plan strategically to conduct by qualitative data collection. Also as the population of all three villages adds up to more than 4000, I focused only on these three villages.

3.4 Research objectives

Research Objectives	**Specific Research question**	**Research tools for data collection**	**Respondents/ Sources**
Understand the evolution of BMIC project	Which are the Government Institutions involved in BMIC region and what are their roles?	Interviews of officials	BMICAPA, GP, BWSSB, LDA & BDA
		Secondary data	Government documents, reports, Government Orders , Maps
	How is the role of Gram Panchayat changing in management of lakes in BMIC?	Interview with Government Officials	BMICAPA, GP, LDA
Explore the lake management practices in village before and after project implementation	How are the traditional lake management practices changing?	Interview with GP officials Participatory approach of mapping the resources, social maps, participatory group exercise to find historical events, FGD, In depth interviews	GP Local village community from different sections of society
	What are the Socio-economic impacts on local people due to planned corridor development	FGD, In depth interviews	Local village community from different sections of society
	What are the claims and counter claims of the local village community?	Participatory group exercise, FGD, In depth interviews	Local village community from different sections of society

	What are some the ecological damages done to lakes(if any)	Direct Observation, FDG, Interviews	Local village community from different sections of society
Explore the differential impact on the village community and explore the linkages between land rights and water rights	What are the changing water rights of different section of village community?	FGD, In Depth Interview's	Local village community from different sections of society
	How do land tenure rights of the village community affect their water rights?	FGD, In Depth Interview's	Local village community from different sections of society

3.5 Rationale for qualitative methodology

In trying to understand the dynamics of the decisions made in the realm of Governance and planning in Bangalore Mysore Infrastructure Corridor, BMR Region, I have employed qualitative methodology for data collection. Also a keen observation of writings on corridor type of urbanization indicates methods such as analysis of primary/secondary data. By investigating a particular setting in some detail, I sought to obtain an objective reality against which to analyse abstract issues such as the role of planning in BMIC corridor development and thus qualitative methodology was found to be best suited for this study. Researchers applying this method try to immerse themselves in the research setting as it is necessary to observe in detail the everyday practices of people in the village.

I developed and tailored the research questions of this study as the work progressed: as they should and with better understanding from pilot field visits made me reflect and revise the research questions constantly. The formulation of the questions was thus a process inspired by the explorative research approach. The information and data used have often been triangulated to test their validity, e.g., statements expressed during an interview might have been compared with another source such as an interview with someone else and/or with governmental documents, and vice versa. Research of this nature use the inductive processes while the analysis of data, to draw themes and categories.

3.6 Qualitative Research Methods

A qualitative research attempts to understand and capture individual definitions, descriptions and meanings of certain events. The data collected through this research, the researcher has

tried to reflect upon the respondents' reflection and thereby valuing individual subjectivity. The primary tools used in this study are

a. Interview with Government Officials and Experts
b. Maps
c. Participatory group exercise
d. Focused Group Discussion (FGD)
e. Direct Observation
f. Participant Observation
g. Cluster sampling method for interviewing
h. In depth interviewing
i. Photography method
j. Analyzing document and other secondary sources

A. Interview with Government Officials and Experts

This methodology of data collection includes the personal interviews of experts on various areas. I put the interview broadly in two categories; Government Official interviews and few experts' interviews. For instance, the list of Government interviews includes Mr. Sadananda Archarya, Assistant Director, Town Planning Department, BMICAPA. Mrs. Vidya Rani, Deputy Director, Town Planning Department, BMICAPA. Mr. Narahari, Executive Chief Engineer, BWSSB. Mr. Sannapaih, Deputy Director, BDA, South division. Mr. Uday Shankar, Deputy Director, BDA, West division. Mr. Nagaraj, Assistant Executive Engineer, LDA and Mr. Manjunath, Assistant Executive Engineer, LDA.

The list of expert interviews include Mr. Leo Saldhana, Environment Support Group, Mr. Narashimha Murthy, Technical Director, CURIP, Mr. Shankar, Retd, Additional Chief Engineer, BWSSB, Mr. Raghuram, Professor, IIM Bangalore and Mr. Ramachandra Naidu, Retd, Joint Director, Town Planning Department.

B. Maps- Furthermore, my own understanding of BMIC project as well as of institutional decision-making of various Government Agencies could only be deepened through collecting maps of administrative limits & jurisdictions, village boundary, system of lakes, and other relevant spatial information. The information on catchment-area of lake helps to better visualise such data and give them a kind of meaning. With several maps of BMIC region I was able to get a visual picture of the location of village setting. Maps also helped to identify the jurisdiction of various Government Agencies and water drainage pattern in my study area.

C. Participatory group exercise -A participatory approach of mapping the resources of the village is used. PRA tool is used so that villagers will draw the village boundary and map the resources. Also used PRA tool to generate a social map of village to understand the socio-economic segregation of the village and thus situate different caste groups, number of households within them, location, and size of holding on map. PRA is also used in my study to find historical events in village and generate four different timelines. Timelines of

- Major events that happened in each village.
- History of lake and major events that changed/affected it over time around the lake.
- The protests.

Finally, superimpose the time line of these events and making concrete analysis on traditional management of natural resource such as lakes and how this has changed over the period of time and factors that are affecting this shift.

D. Focused Group Discussion (FGD)- to find the key issues regarding the lakes, water and socio-economic impact of corridor development. To understand the heterogeneity of the community I am using the FGD method. I am choosing focus group discussion because it is a rapid assessment, semi structured data gathering method and since there are more than 1000 people in Kommaghatta and its difficult to conduct many interviews and therefore FGD is a effective research methodology with a purposively selected villagers to discuss a specific topic. It is an effective technique for getting views and opinions of group of villagers in a very less time and to learn group dynamics, varying perceptions of my research topic. The FGD also helped me to find the key issues, problems that are bothering the community at large and thus help me to get a overall picture of dynamics of the community in a very short time.

E. Direct Observation- is used to examine the physical features/characteristics of the lake. This will help to find encroachments, buffer zone and distance of the layout from the lake, any violations in the set back rule from the lake shore line etc.

F. Participant Observation- Participant observation is a widely used qualitative method in social science. The researcher immerses into the social setting under study and therefore gets to know more about the location and actors under study and their role in the natural setting. The aim is to experience events in the manner in which the subjects under study also experience these events and understand actor's perception, understanding and interpretation of that social world. Participant observation is quite helpful for my research question since I was able to find the daily practices of various water users of water management in village. I observed the daily practices of villagers of collecting water and storing them, the participant observation helped to note the minute details of everyday experience of villagers in water management.

For Wogan (2004), participant observation is about ‘deep hanging out’. Crang and Cook describes the method as a three stage process, which applies to my fieldwork in Kommaghatta, Veligerihalli and Ramasandra villages: first, getting access to the community/village and get better understanding of the community; second, living and/or working among the people so as to be able to grasp their world views through observation; and third, writing notes about those observations.

Therefore, after my initial visits to villages, people got familiar with me and thus I was able to hand out with them, even went to their agriculture lands, found their current water sources of irrigation and other water management practices and thus was able to get ample information on their daily experiences. After few days of my constant interaction with villagers, they became pretty close and allowed to stay in their home and thus that gave me great opportunity to learn the way of life especially the youth, listen to their grievances against the State and private player NICE. Also got to know the village better, the hang out places of villagers and observed that most of the villagers gather under a big 'bayanan' tree early in the morning and chat for several hours daily. Thus gave me opportunity to take down notes of their struggles daily practices- such as fights to gain access to water from the public tap and socio-economic problems in general.

One of the challenges was that, initially I was assisted by Mr Siddaraju who helped to get familiar with people in the village. I was consciously aware not to always go with his perceptions of village and thus later on I moved around the village independently and was able to make friendship with youngster and thus got a lot of informality in my research as they asked about my life, living in Mumbai etc.

G. Cluster sampling method – after drawing the resource and social maps, I got the sense of community segregation. Thus used this method for interviewing based on the social map generated from participatory approach to figure out the exclusions resulting from the development of corridor. Interviewing is a well established qualitative research method in social science research to understand the wider socio-economic issues in a community. I used a semi-structured method of interview.

Thus interviewing people in these clusters and documenting their everyday life could provide insight into negotiation and socio-economic issues of villagers. I first identified the key variables in village which will represent segregation. Some of the variable used are – One, Spatial criteria - such as geographic location of residence with proximity to lake such as those who live closest to lake, and those who are close to sewage inlets/dumps and those who live a bit far off from the lake. Two, Income/ class- large, medium and small size of holdings. Three,

Caste composition in village- dominant caste group vs others. Four, need based- such as those owning cattle, agriculture land that need greater percentage of water. All of these categories will have gender dimension. Therefore, some % of household will cover women.

H. In depth interview method- is used to get in depth interview of villagers who are most affected by BMIC project. This will help me give a detailed view of the socio-economic impact of BMIC project on the lives of people.

I. Photography method- Use innovative methods such ground-level photography to document the water management practices in village.

J. Analyzing document and other secondary sources- included analysis of the documents obtained from the Government offices, Governance website. Documentary research in public archives, reports, newspaper articles, farmers associations was also done. Maps were obtained from various Government Department related to village boundary, lake catchment area, drainage system of the water, jurisdiction of various Government agencies, land use and land cover maps were used in analysis. Public interest litigations, Government Order and other documents obtained from Right to Information Act‘s applications (RTI‘s) filed by various community groups such as farmer association and several other groups were also analyzed. Data was also gathered using the Internet and on line journals.

3.7 Ethical issues related to doing this research

In every piece of research, there are ethical issues involved. In my research there were a few key ethical issues. NICE corridor is one of the most controversial project in Bangalore over the dynamics of land. One has to be very careful while doing such research since there are many stakeholders who want to take advantage of this project. Therefore, it was a challenge for me, to not align to interests of one particular group and thus ethical concerns tend to be very crucial here.

Also , while doing my filed visits in the villages, I had to first tell the community of my purpose of my visit and then build a rapport with the community. Since the village community is a vulnerable lot with respect to project implementation, initially I had to be extra careful while interacting with them. Therefore, the relationship between the respondent and researcher was very vital and it took some time for me to convince that this was an academic work.

During the course of my fieldwork, I made it a point that ‘let the local community know me first’ and thus later on when they were sure of motives of this research work, then the community themselves started giving a lot of information. Another important point is that,

while I was involved in interviewing and focus group discussions, I obtained prior approval of participants and I agreed to use anonymous names when the interviewees did not want their identities to be revealed. The concerns of some of the respondents were to keep the information confidential. I tried to follow all the rules and regulations of the villages and used to seek permission where needed. Main point is that, I have tried to write the most important concerns of the village community rather than using my bias or preset mindset.

While the people in the village had some positive hopes from me such as 'villagers in Bandematta Hosa Kere lake once asked me whether I can clean up with entire lake for them and they promised that at least 400-500 people would join as laborers and help clean up the lake'. At this juncture, I had to be extra careful of not giving people false hopes and also not depart from that place after collecting data. Therefore, I again carefully reiterated my research project and I being a student could help them in giving them finding from the research project.

Also while conducting expert interview; I informed them that I could share one copy of my research finding via e-mail so that I ethically give them something back for their valuable time they spared for me.

3.8 Challenges

Initially, I was not able to get any maps related to BMIC project and found it very difficult to locate and identify the villages in the corridor. Also without maps, it is very hard to locate the boundary of BMIC and jurisdiction of several other Government Agencies. Therefore, getting maps was of great importance and these maps are available only with BMICAPA and thus it took a lot of time for me to get hold of the maps.

Also, while interviewing the Government Official, I found very high levels of bureaucracy and red-tape-ism and create daunting challenges for researchers. Again, it is not easy to get connected with or to make appointments to meet officials in the state/local departments and ministries especially if researcher doesn't have contact in Government departments.

Initially it became very difficult to talk and get appointments with any officials in the state departments. After several failed visits to get appointments to talk to officials, I realized that it is not easy for me to break through this 'fortress'. Then after producing the official letter obtained from the college I was then able to get their appointments for interviews.

Also while conducting field visits, villages usually sit under a 'Banayan tree' very early in the morning and after that they all go to work and you won't find any people in the afternoon. Therefore, I had to visit these villages very early in the morning like 6 AM.

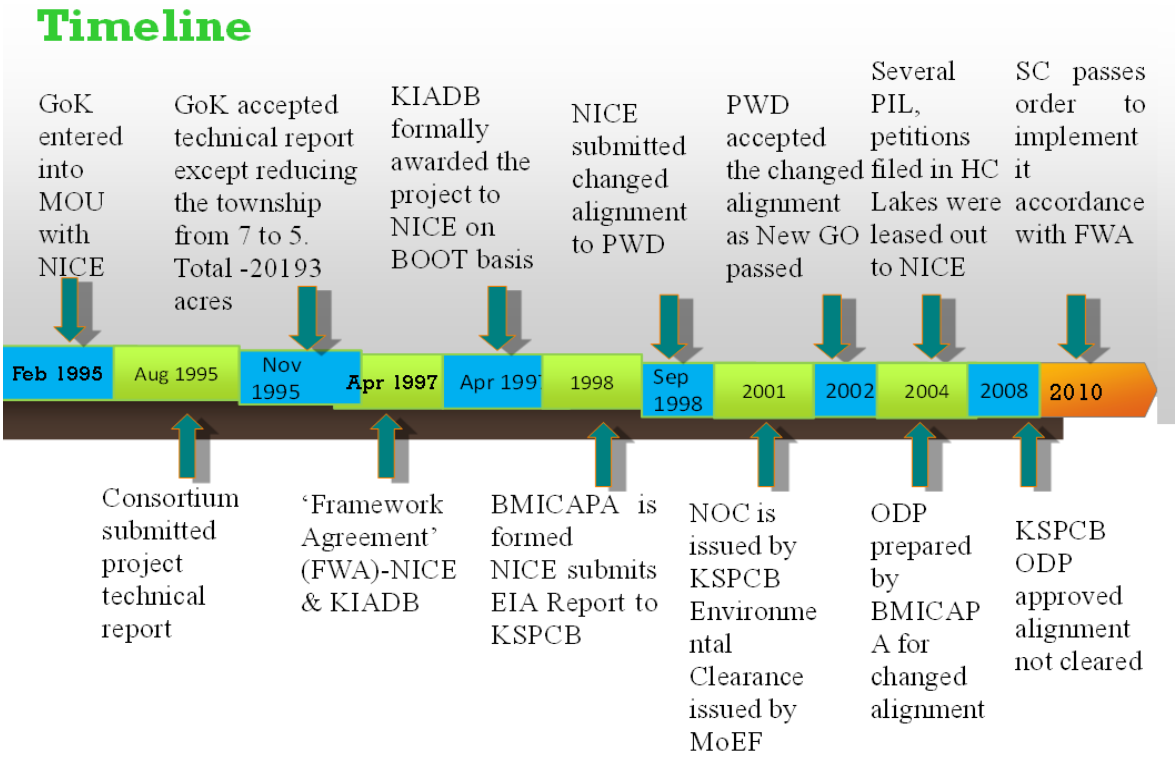
There was a time limitation for data collection.

Chapter 4: Bangalore Mysore Infrastructure Corridor: Governance and Management

This chapter will give an overview of the evolution of implementation of Bangalore Mysore Infrastructure Corridor (BMIC) project. I explore the various State Government agencies that are involved in this project and how they came to be associated with this project. Also I explore the some of the reasons for changing the alignment of BMIC project and various implications of the same. I then argue that due to changed alignment, the lakes which were originally not conceived in the BMIC project are thus included in the BMIC region. I also explore some of the judicial pronouncements of the changed alignment. I then analyse the shift in the role of State Government with respect to Governance and management of lakes in BMIC region and how lakes came to being leased to private entity. I also give an analysis of the shift in the role of Gram Panchayat in lake management.

4.2 The story of BMIC

Figure 4.1- Gives the Timeline of BMIC project



Source: Self

Bangalore Mysore Infrastructure Corridor project was conceived in early 1988. In 1995, 20th February, the Governor of Commonwealth of Massachusetts, USA Mr. William F. Weld met Mr

H.D Deve Gowda, Chief Minister of Karnataka and discusses various measures to strengthen the mutual understanding and cooperation between the two States. It was then agreed that better understanding and closer cooperation could be brought about through implementation of exchange programs in the area of industry, foreign trade and environment concern. A tender was issued by the Government of Karnataka (GoK) and single consortium consisting of Pune based Kalyani Group, Pennsylvania (USA) based SAB Engineering, and Boston (USA) based Vanasse Hangen Brustlin (VHB) submitted the bid. Thus the visit of the Governor of Massachusetts was to speed up the process of this project and also to promote this consortium.

Memorandum of Understanding (MoU) was made between the consortium and GoK in 1995 for developing an integrated infrastructure project situated between Bangalore and Mysore (Sundaram 2009).The consortium registered a special purpose vehicle (SPV) for the project called Nandi Infrastructure Corridor Enterprises Ltd (NICEL), on January 16, 1996. The consortium submitted an Infrastructure Corridor Project technical Report and Government of Karnataka accepted it and thus passed a Government order on 20-11-1995 for implementing the Corridor Project.

The concept of the project was to develop an efficient infrastructure corridor between two cities, Bangalore, Mysore (two rapidly growing cities in Karnataka) so as to promote industrial, commercial and economic growth in State of Karnataka generally and especially in Bangalore and Mysore and Infrastructure corridor would create new job opportunities for the residents in and around the corridor, promote tourism, decongest traffic in Bangalore and Mysore, ensure smooth and safer traffic between Bangalore and Mysore and provide a world-class expressway between the two cities. The project also envisioned to have planned and organized disposal of population through growth centres such as townships, which will acts as counter-magnets to the cities. The townships would also provide good living such as clean environment, water, electricity, clean air, efficient transport system, open space and thus developing the corridor road would be necessary and thus people living in the newly developed small towns in corridor would be getting benefits of big city life without its disadvantages.

A high level committee (HLC) was constituted under the chairmanship of the Minister of Public Works Department (PWD) to review the technical report submitted by NICE. Finally Government accepted it except reducing the number of townships from 7 to 5. Then it passed Government order (GO)[6] on November 20, 1995 for authorizing the development of Infrastructure corridor.

Then NICE placed before the Government a 'Draft Framework Agreement' and Government constituted a Core Committee to look into the draft framework agreement. Finally in April

[6] Government order (GO) numbered PWD 32 CSR 95

1997, the 'Framework Agreement' (FWA) was signed between NICE and Karnataka Industrial Areas Development Board (KIADB). Thus KIADB, under KIADB Act had to acquire 20,193 acres of land.

Table 4.1- Land breakup of components of BMIC project

Component	Total Land(Acres)		Total (Acres)
	Government(acres)	Private(acres)	
Toll Road	1,499	5,500	6,999
Township 1	328	2,477	2,775
Township 2	614	1,222	1,836
Township 4	684	931	1,615
Township 5	2,592	90	2,682
Township 7	1,239	3,047	4,286
Total	6,956	13,237	20,193

Source: Framework Agreement dated 3rd April 1997 of BMIC project

This table gives the breakup of the land. The land required are of two types, One, Government/public land and two, private land where the land is acquired for public purpose . Government of Karnataka had agreed to provide minimum extent of land for the project partly out of land owned by Government and by acquiring the balance. There is no mention on lake lands or lease of lakes to NICE from Government.

On October 14, 1998, the KIADB officially awarded the project to NICE on BOOT basis for a period of 30 years.

The project area and its components pass through the jurisdiction of several Authorities such as BBMP, BDA, BMRDA, Maddur district, Mandya district and Mysore district making it cumbersome and awkward to implement the corridor development in a comprehensive manner. In order to have a single window agency and facilitate a planned development of the corridor, "Bangalore-Mysore Infrastructure Corridor Area Planning Authority" (BMICAPA) was created in 1999[7]. All the areas falling under different authorities in the corridor were taken under BMICAPA jurisdiction. Thus the jurisdiction of the BMICAPA covers the area on either side of proposed Expressways/Peripheral/Link Road alignments and all the villages as delineated in the plan between Bangalore and Mysore cities. Several villages lie in the peri-urban area in Bangalore Development Authority (BDA) region come under BMICAPA.

The Additional Chief Secretary was named as the Chairman and Development Commissioner

[7] BMICAPA was under section 4 (A) (3) of the Karnataka Town & County Planning Act, 1961 (KTCP Act) comprises of a total area of 701 sq km which includes 125 revenue villages, 50 part villages vide GO No. UDD 377 MIB 98 dated 13-7-1999

was made co-chairman, also several other secretaries and commissioners to the State Government were made as members. Subsequently, The Minister for Urban Development has been appointed as the Chairman. This shows that, there is only one elected representative in this Authority and representatives from the Gram Panchayat or rural development department was not included.

The different components of the BMIC project are given below

Box 1

The BMICP Planning area comprises of BMIC Project Area and its environs. The total area is 701.01 Sq.kms and it comprises of the following

a. Four lane Express way of one hundred and eleven(111) kilometers of Expressway between Bangalore & Mysore with a Provision for extending the same to six lanes in the future [90m wide right of way]

b. Four lane (expandable to six lanes) southern section of peripheral road of 41 km length connecting Bangalore-Pune (NH-4) to Bangalore-Hosur (NH-7) [75m wide right of way]

c. Four lane link road of 9.1 km connecting "0" point of Express way to the junction of Chord Road (60m wide right of way)and Mysore road

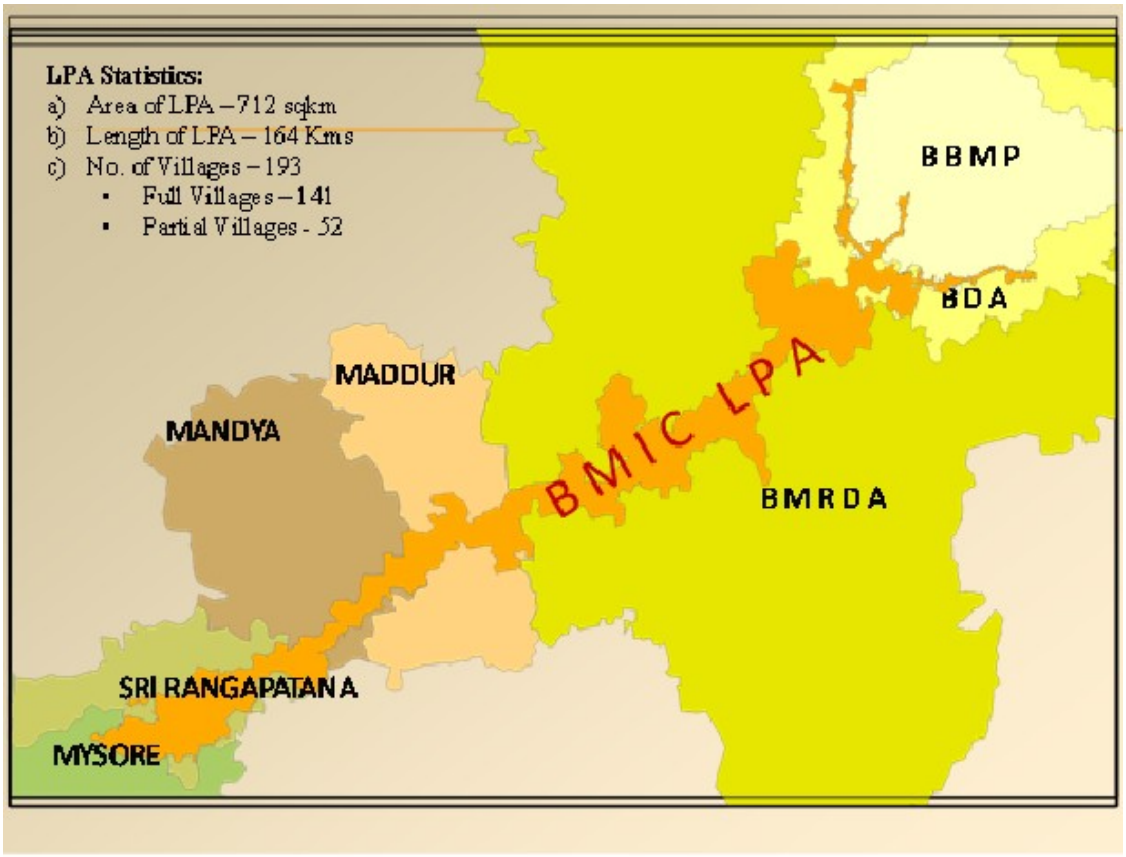
d. Elevated road of 3.1 km length connecting the link road to the city center

e. The Expressway will have 8 interchanges at the junction of main, arterial and major roads, the peripheral road will have 7 interchanges at the junctions with the various highways leading into the city and the link road will have interchange

f. 125 revenue villages, 50 part villages as identified in the plan where layouts, commercial centers, industrial areas etc will be created.

g. Five self sustainable new Townships viz., Corporate Township, Commercial Township, Industrial Township, Heritage Township & Eco-Tourism Township.

Figure 4.2 - Map showing the BMIC region and jurisdiction of various Government Agencies- BDA, BBMP, BMRDA, Maddur district, Mandya district and Mysore district.



Source: Re-Master Plan of BMICAPA

In 2002, the BMICAPA had issued a notification under section 10 of the K T&CP Act declaring its intention to prepare an Outline Development Plan (ODP) for the new planning area. Thus in this regard, in 2004, the ODP for the whole of area coming under the project had been prepared and had approved by the State Government. The land required for the project for road, township and layouts carried out both land and aerial survey; prepared the alignment of the expressway, peripheral road, link road, service road, interchanges and ramps.

Bangalore Mysore Infrastructure Corridor Area Planning Authority (BMICAPA) is required to provide for a planned development of the corridor. In order to promote public health, safety and the general moral and social welfare of the community, the BMICAPA finds it is necessary to formulate development control regulations controlling the use of land and buildings. These Regulations are formulated and adopted for the local planning area to promote the health, safety and general welfare of the Community. Some of the regulations mentioned in the ODP- Outline Development Plan

- Protecting the established character, the social and economic well-being of both private and public property, and creation of a convenient, attractive and harmonious neighbourhood.
- Promoting, in the public interest, the wise utilization of land and preventing the overcrowding on land and avoiding undue concentration of Population

- Providing adequate housing choice in a suitable environment within the economic reach of all citizens. Providing for the preservation of desirable open space
- Preventing or lessening congestion of the public roads and many more such regulations.

There are several more regulations, but what is to be noted here is that, there are no regulations related to lakes in the BMIC region. Even though ownership of the natural resources such as lakes, forests etc are under BMICAPA Authority. But there is gross negligence of the BMICAPA, as there are no regulations mentioned in ODP to regulate the lakes in BMIC region.

BMIC being a Highway project requires environmental clearance by the Central Government and public hearing has to be conducted by NICE. Therefore, on 5th Oct 1999 NICE submitted application with Environment Impact Assessment (EIA) report to KSPCB w.r.t. alignment of peripheral ring road and as mentioned in technical Project report 1995. On 5th July 2000 public hearing is done w.r.t. to alignment of project technical report 1995 and alignment submitted with EIA Report. But as per the Writ petition[8], only few documents were made available to the people and only executive summary of EIA report in English and Kannada was made available. None of the other documents pertaining to project were made available to affected and interested people in Kannada. The Deputy Commissioner for the District of Bangalore who presided over the Public Hearing Panel in Bangalore opined that all information regarding the project had not been made available. NICE also said that documents were 'confidential' and thus couldn't be made available to public at large. However, while hearing the petition, The High Court of Karnataka said that “the minutes of meeting of public hearing were handed over to the petitioners on demand, but the same is not a true recording of the proceedings. Also as per the process of public hearing, NICE should make available all concerned documents to public”. It concluded that “Other documents which were confidential and not required for environment clearance need not be disclosed by SPCB, but the Board should have made available all the concerned documents to public”.

Inspite of this, on 11th Aug 2000 ‘No Objection Certificate’ is issued by KSPCB for alignment in project technical report and EIA report, to the project contingent(NICE) on several conditions. On 8th August 2001 Environmental Clearance was issued by Ministry of Environment and Forests (MoEF), GOI for alignment in EIA Report and project technical report.

Then, a major twist took place in the project. On 18th Sep 1998 NICE submitted changed alignment to PWD which shows different villages and Survey Nos. GoK issues two new G.O No .PWD/155/CAM/95 and on 7.10.1999 and G.O. No. PWD/155/CRM/95 on 27.8.2003 . Thus new G.O approves the changed alignment and therefore new Survey Nos and new villages were added.

[8] Writ Petition No.22063/2000 dated 10th July 2000 in the High Court of Karnataka

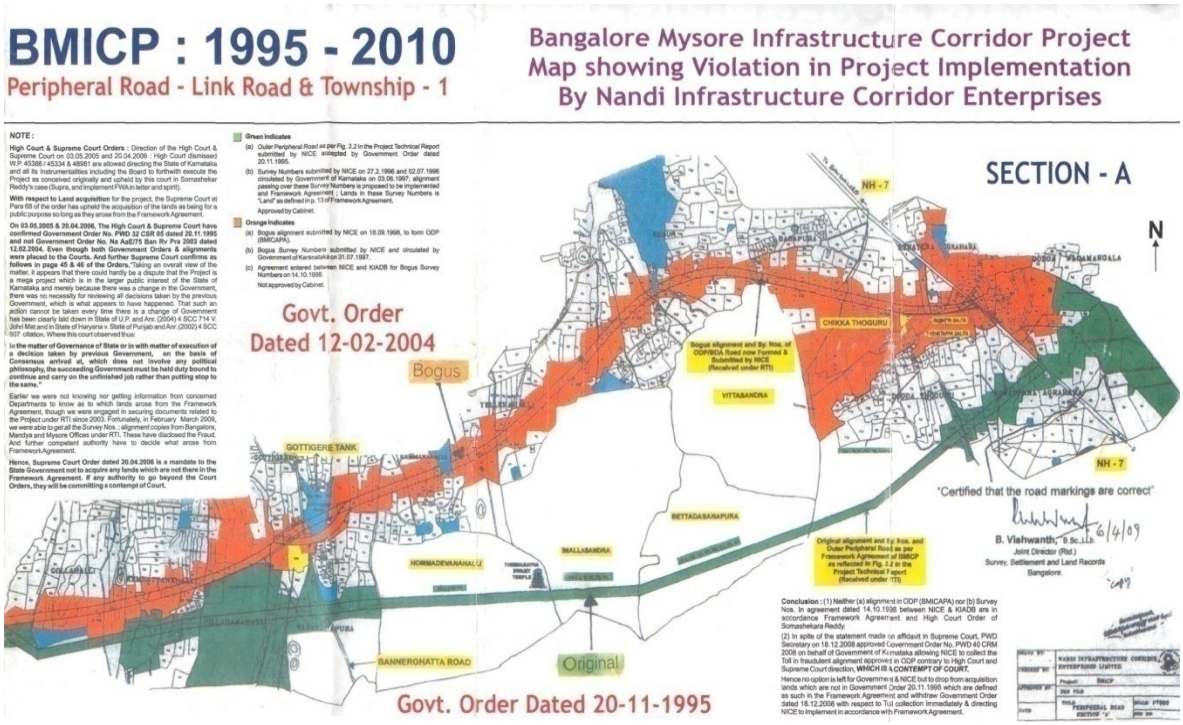
This new alignment had several lakes which were originally not a part of Framework Agreement. On 20.7.2002 PWD CE approved changed alignment submitted by NICE. On 12.02.2004 new Government Order issued G.O No. AaE/75/BaN-RUpRa-2003 is issued to prepare Outline Development Plan (ODP) for the changed alignment. Then the BMIC authority prepared an Outline Development Plan (ODP) which gave a complete legal sanction to the changed alignment.

Then KIADB gives notification to all District Commissioners of land acquisition and further District commissioner forwards the notification order to all Gram Panchayat(GP) in BMIC region. Then GP identifies all the land in respective villages using the survey numbers and thus farmers are intimated of the land acquisition.

As shown below in the figure 4.3, this changed alignment as per G.O 12.02.2004 passes through several lakes which were originally not in FWA and deviations in the alignment near Gottigere Lake was very prominent as it affected and blocked the inflow of water into the lake. Thus, I argue that, with the changed alignment several lakes which were originally not conceived in the Framework Agreement are now included in the BMIC region. This new alignment doesn't have the approval of KSPCB and there are several environmental violations with respect to lakes.

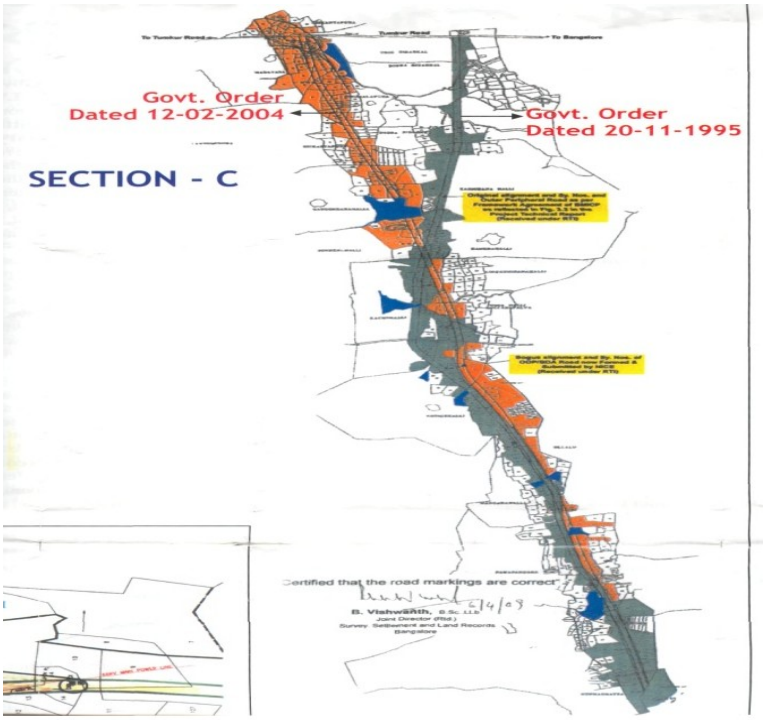
The figure 4.4 shows another section of the BMIC corridor where the lakes in my study are involved. The original alignment as per the FWA didn't have the lakes and villages which are chosen in my study. Whereas the changed alignment mentions several new villages and lakebeds and the BMICAPA has the complete authority over these resources.

Figure 4.3- Map showing the changed alignment to include lakes in BMIC region



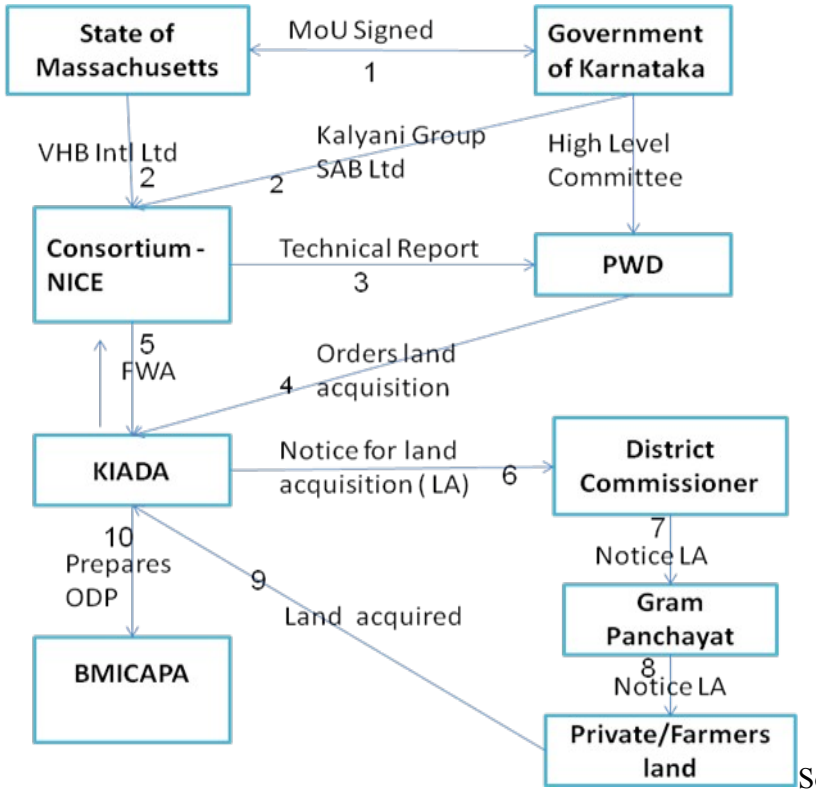
Source: KIADB

Figure 4.4- Map showing the changed alignment to include the lakes that are studied in this research



Source: KIADB

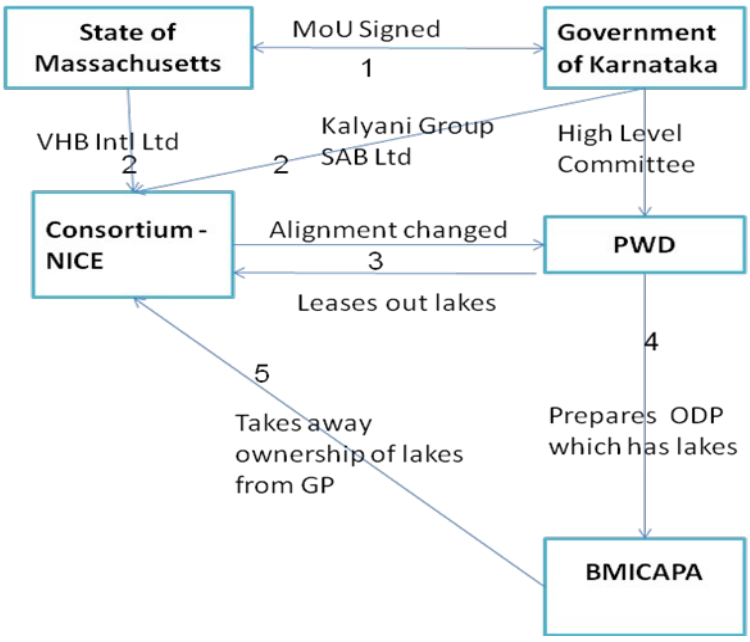
Figure 4.5–Pictorial representation of various Institutions involved in land management in BMIC



Source: Self

This figure gives a pictorial representation of the process of land acquisition described above. By following the number order, one will be able to read the figure in a better manner.

Figure 4.6-Pictorial representation of various Institutions involved in lake management in BMIC



Source: Self

The figure 4.6, shows that, after the alignment of the corridor is changed and approved by PWD, then several lake beds are newly added and thus PWD can lease out these lake to private entity(NICE).

In 2004, after the preparation of the ODP, many people realised that new land acquisition are to happen as per the notification and thus in this regard several people filed petitions against their land acquisition. 1st three petitions[9] are important to this study as it relates to change in alignment of Peripheral road. Their contention in the High Court was that, NICEL submitted affidavit dated 07.03.2005, for changed ODP on 12.2.2004 with changed alignment drawing with respect to Peripheral road and link road and expressway, villages and lake bed survey no compared to G.O Dated 20.11.1995 and Frame Work Agreement. On 22.5.2004 Special DC KIADB Submits to High Court that, the Land Acquisition notification, were issued based on requirements indicated by the promoter company(NICE) and not on the basis of any technical drawings, maps as approved by Government in PWD or the project report.

In light of these writ petitions, the High Court gave an order on 03.05.2005, directing the State of Karnataka and all its instrumentalities including the KIADB to forthwith execute the project as conceived originally and upheld this court in Somashekar Reddy case and implement Frame Work Agreement letter and spirit. Thus BMICAPA and NICE had to implement the project as conceived originally in Frame Work Agreement which does not have any lakes under BMIC jurisdiction. But, from the study it is found that, this is not yet implemented High Court order. Therefore, there was a collusion of PWD, BMICAPA and NICE for changing of the alignment to include the lakes in the BMIC corridor.

On 11th Feb 2006 Government of Karnataka filed a written submission in Supreme Court by suppressing the fact that list of survey numbers with reference to the project technical report, submitted by NICEL on various dates in 1996.

The Supreme Court order said as follows “It is submitted that Nandi is not entitled to the land wherever it makes a demand. This can only be decided by an interpretation of Frame Work Agreement read with the technical material mentioned in the project technical report of 1995. It is clear, therefore, that final identification of the lands had not taken place, though proceedings under section 28(1) of the KIADB Act (which corresponds to Sec 4 of the Land Acquisition Act) were contemplated”.(See Appendix B)

NICE then went to Supreme Court and it gave an order on 20th April 2006 with respect to land acquisition, it reads as follows, “The division bench was right in taking view that the project was an integrated project, intended for public purposes and irrespective of where the land as situated, so long as it arose from the terms of Frame Work agreement”.

[9] First three Writ Petitions No 45334,45386 and 48981

Again on 11th Jan 2010, Supreme Court passes order is as follows: “We have heard learned counsel for the parties on the application for contempt. By final judgement, this court directed the State/ respondents to implement the BMIC as per FWA. There is no direction to implement the ODP dated 12.02.2004”.

Further there is direction by Supreme Court which read as follows- “Have a meeting to implement project, Report on the basis of order passed earlier. Have a meeting with interested party, Government and its instrumentalities, including KIADB which have to take lands only in accordance with FWA and acquisitions are valid only if it arose from FWA, this is what direction of the court hence for ODP acquisition is null and void. Therefore, all the lakes that are leased out to NICE are NULL and VOID”.

This concludes that, the role of the ‘State’ in Governance of the lakes in the BMIC region has shifted since ‘State’ ownership of natural resource such as lakes is changing to private ownership and next sections gives details of this shift.

4.3 Changing Role of State in Lake Governance in BMIC region

In India, the use of natural resources and the associated laws have their origin in traditional jurisprudence. The Governance of significant natural resources such as village water resources was decentralized, having its legal foundation entirely in custom. A custom is a law not written but recognized by long practice and sanction of our ancestors and thus has a force of law. Thus customs typically take the place of law and regulate the conduct of humans in most significant matters of life. Many of these customary practices are even now followed in vogue in traditional water technologies, land-holding patterns, forest use and agriculture.

But, a radical shift occurred with the Easement Act of 1882 that made all rivers and lakes the absolute right of the ‘State’ (Saleth 2004).Thus from the perspective of water use; state has the absolute rights over the development and management of water resources in the BMIC region. The Indian Constitution empowers the State Government to govern the water resources as water is under State List (List II). Therefore, the State Government has absolute control and ownership over the lakes. The Indian Constitution provides, in clear and unambiguous terms, for the State's commitment to protect the environment. Article 48-A of the directive principles states, "The State shall endeavor to protect and improve environment and to safeguard the forests and wild life of the country".

In the BMIC region, the BMICAPA is the sole authority which has the control and ownership of all the lakes that come under the BMIC region. BIMCAPA role with respect to lakes are to Prevention of pollution from point and non-point sources, maintenance of Catchment area and

better of land use to have integration of lakes in corridor.

But in contrast to BMICAPA's role, according to evidence gathered from the Government's own records, this BMIC project has already encroached and/or destroyed 9 tanks. Also the Government in the PWD has leased out the 23 lakes & tanks illegally and questionably to this private corporation to NICE for a period of forty years at a lease rent of Rs 10 per annum. A table providing the details of these tanks currently in possession of M/s NICE is annexed at Annexure A. Therefore, since all the natural resources in the BMIC corridor belongs to the BMICAPA Authority, it has the ownership and right to lease out any land, lake beds to private player NICE and it has done so. As seen from the Annexure A, several of the lake beds are converted to land such as construction of road, as a sewage dump etc. These lakes can be used by the NICE for extraction of water for road construction.

In very few cases such as Kommaghatta Lake, where BDA has restored and fenced the lake, the presence of lakes in the new layouts, townships enhances the property value of the land owned by NICE and thus helps to residents to enjoy the serene surroundings of the lake.

Thus the basic philosophical divides between the treatment of lake as a common property resource[10] owned by the 'State' versus a commodity is challenged here and lakes are increasing seen as a commodity which enhances the property value of the land or lake is used as land property and this marks a departure from viewing the lake as common property resource owned by the State.

Therefore, alongside, such large infrastructure projects like BMIC project, are being promoted, were encroachment, pollution and leasing of lakes in BMIC is happening. This is in total disregard to judicial pronouncements and the law and this forms a cardinal example of such environmentally destructive and illegal practices, actively tolerated by the administration, is the Bangalore Mysore Infrastructure Corridor Project (BMICP).

This shift also marks the departure from the 'Public Trust doctrine' is quite relevant in this matter. It is the legal principle that certain natural resources are preserved for public use by the State and the State is essential to maintain them for the public's purpose and thus protect the public's right of access to certain natural resources. This doctrine lays down the pre-existing rights of the state for water resources, shore lands and thus the state cannot grant exclusive rights to these resources to any single individual or entity (Moench 1998). The state also has the responsibility to administer such lands and waters (Sax 1970). Cynthia Koehler (1995) says "The basic premise of the public trust doctrine is that the state holds navigable waters and related resources in trust for the benefit of the people of the state. The trust responsibility is an

[10] Common Property Resources are broadly defined as those (non - exclusive) resources in which a group of people have co - equal user rights.

attribute of state sovereignty and is therefore beyond legislative modification" (Koehler 1995). Therefore, while applying the concept of state ownership to the public trust, the BMICAPA cannot be withdrawing itself through any legislative abolition or even through constitutional prohibition by leasing out the lakes.

But it is increasingly seen the involvement of private players in management of lakes in BMIC region, as seen above, 23 lakes are leased out to NICE, a private entity and thus 'State' is withdrawing from its role and private entity has taken an upper hand in lake resource usage and management. What should also to be noted is that the role of Gram Panchayat in lake management in BMIC region has changed and next section substantiates this point.

4.4 Changing Role of Panchayat in Lake Management in BMIC region

This section looks at some of the constitutional provision for role of Panchayat in lake management as applicable in BMIC region. The Indian federal government system is a three-tier structure, dividing legislative and administrative powers between the Centre, the States and the local level which includes Panchayat and Urban Local Bodies. As per the Twelfth Schedule to the Constitution, the Union List deals with matters concerned with the inter-State rivers and the State List includes several water related provisions[11].

Laws on control of pollution have been enacted by the central government such as Environment (Protection) Act, 1986, The Water (Prevention and Control of Pollution) Act, 1974, National Lake Conservation Plan of Ministry of Environment and Forests (MoEF) in 2001, National Environment Policy, 2004. Thus Central Government plays a minimal role in water resource management such as formulating broad water policies and monitoring the water resources.

Since water is a State subject, State Governments plays a major role. At State level, the subject 'water' includes "water supply for domestic, industrial and commercial purposes, water resource management, irrigation and canals, drainage and embankments, sanitation, water storage and water power"[12] .The main functions of the State Governments include development and management of the water resources such as lakes, tanks, rivers as applicable in my study.

This function of the State is carried out through the local bodies which have a range of responsibilities as the powers are devolved to them. The 73rd & 74th Constitutional Amendment provided more powers for the local government- Gram Panchayat and Urban Local Bodies. Both "may by law be endowed with such powers and authorities as may be necessary to enable

[11] as per the Twelfth Schedule to the Constitution

[12] Twelfth Schedule to the Constitution

them to function as institutions of self-government"[13].Some of the functions include water delivery, resource augmentation, purification and other treatment. Water and land being a State subject and this eventually allows each State Government to decide how far it intends to further decentralise these functions to the Municipalities and Panchayats by devolving power to them.

In BMIC region which includes 193 villages, terms of water management in these rural areas is provided by the "Karnataka Panchayati Raj Act" where in Gram Panchayat have to 'to maintain the water resources such as lakes, tanks' and thus State Government has devolved its powers to GP. Thus this act provides a legal right to water resources such as lake in rural areas in BMIC region.

In the three villages in this study, the researcher has found out that the role of the Gram Panchayat's was very prominent in managing the lakes in the village. The ownership and decision-making with regards to the lake were taken by the Gram Panchayat's themselves for collective good of all the villagers. But with the formation of BMICAPA, a centralised bureaucracy at the State level which takes all the decisions with respect to the lakes all by themselves and as seen above BMICAPA and PWD leased out the lakes to private entity, NICE .

A litigation related to Gottigere Lake was filed in High Court by Gottigere Gram Panchayat in 2007, when the alignment of the peripheral road near Gottigere Lake was modified. Therefore, the peripheral road would be constructed straight over the lake and thus it was challenged by the Gottigere Gram Panchayat[14]. This would adversely affect the lake ecology of the area since by laying a road which would bisect the lake and thus disturbing the inflow of the water into the lake. The High Court of Karnataka said that "Any road constructed should overpass the lake without disturbing free flow of water into the tank. Since the alignment is made as per the FWA was to pass two km away from the lake and would not pass near Gottigere lake and in absence of any amendment to FWA and thus directing the project proponents to not lay any road on lake bed". Therefore, in this case the Gram Panchayat had to fight to regain its lost powers over the Gottigere Lake.

In case were lake beds are leased out to NICE (see Appendix A), the Gram Panchayat had no role to play in the decision-making process of leasing the lake and it was entirely taken by PWD and BMICAPA. As a result, the Gram Panchayat's power as the 74th CAA is completely taken over by the centralised bureaucracy of BMICAPA and thus violates the constitution powers of GP.

[13] Art 243G and 243W, and the Eleventh and Twelfth Schedule, respectively

[14] Writ Petition Number- 3568/2007

4.5 Concluding remarks

By-passing is happening at two-levels in BMIC corridor, One, where the role of the Gram Panchayat is over taken by the centralised bureaucracy of BMICAPA authority where all the decisions of lake management are taken by the BMICAPA.

Second, there is a shift in role of the BMICAPA authority and it has allowed the private entity NICE to take ownership of the 23 lakes in BMIC, BMR region as they are leased out to NICE. As a result, legally, NICE can use the lake bed for several purposes such as construction of roads, layouts etc. It can even mortgage these lake beds to bank and obtain loan in return. As evident from Government documents, the lake beds were mortgaged to ICICI bank and in return they gave huge amounts of loan to NICE for execution of project. Legally, NICE also has the right to extract as much water as they wish from the lakes and use this water for the infrastructure development such as construction of road.

Third, the role of Lake Development Authority (LDA) which is the nodal agency on all matters related to lakes in the State of Karnataka is completely absent in the BMIC region. LDA had no statutory powers and therefore it is toothless. State Government is contemplating on Lake Development Authority Bill. The Draft bill is under the consideration of the Government. If the bill is passed in the form of legislation, then LDA can play a very significant role in the conservation and management of lakes in BMIC region. Currently, under its custody, it has only 5 lakes in Bruhat Bengaluru Mahanagara Palike *(*BBMP) region and total 11 lakes all over the State. It doesn't govern any lakes in BMIC region and thus LDA role in BMIC region is Nil and therefore has no role to play in this project.

Fourth, Beyond these aspects, lie the traditional water management of the lakes by the local village community and their customary usage of lakes for their water needs. Traditionally certain groups from the community had the role of managing and maintaining the natural resources such as lakes at any particular locality, with accompanying rights, privileges and duties. Even after the formation of Karnataka state, in the rural areas in the BMIC region, the Panchayat had the authority over the lakes in the village and sense of community ownership still existed. The next chapter gives the case study of three villages and analyses these shifts on the local village community.

Chapter 5: Case Studies of three villages in BMIC region

5.1 Introduction to the three villages in study

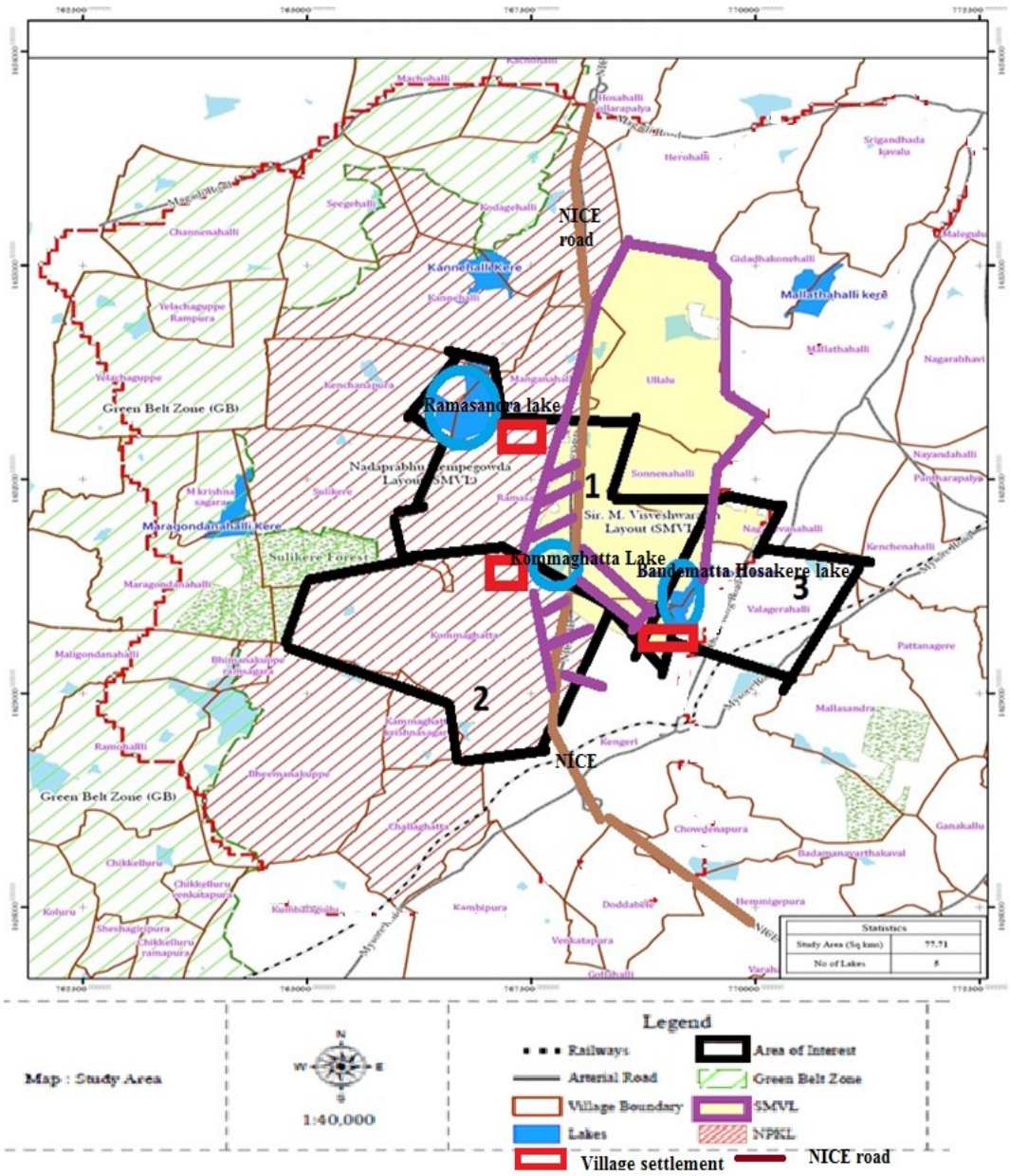
This chapter will introduce to villages- Ramasandra, Kommghatta and Valegerihalli in the study area. I then trace a brief history of these villages to settlement pattern, community segregation and some major events. I then examine each of the lake in these villages and give a brief of current status of lake. Then I trace the changing lake management with respect to the role of the Gram Panchayat and local village community's dependence on lakes. From talking about the key ideas and the components of the project, I also bring forth the current status of the NICE project in these villages and how this project has affected lake management practices of local village community. Also, chapter gives a brief of local village community's negotiations, claims and counter claims over the lake and land. I then go on to explore, if there are any linkages between the 'land tenure rights' and 'water rights' of local community and analyse the differential impact of the same.

5.2 Setting the Research Context of Three Villages in BMIC, BMR region

Kommaghatta, Ramasandra and Valegerihalli villages in BMIC region are the three villages chosen in the study. As said in the methodology section , that each village has a different characteristic and thus this would help the researcher to bring in different dimensions in the study.

This map shows the village boundary, lakes- Kommaghatta, Ramasandra and Bandematta Hosakere, NICE peripheral road and other major roads, Forest areas, new layouts that are planned.

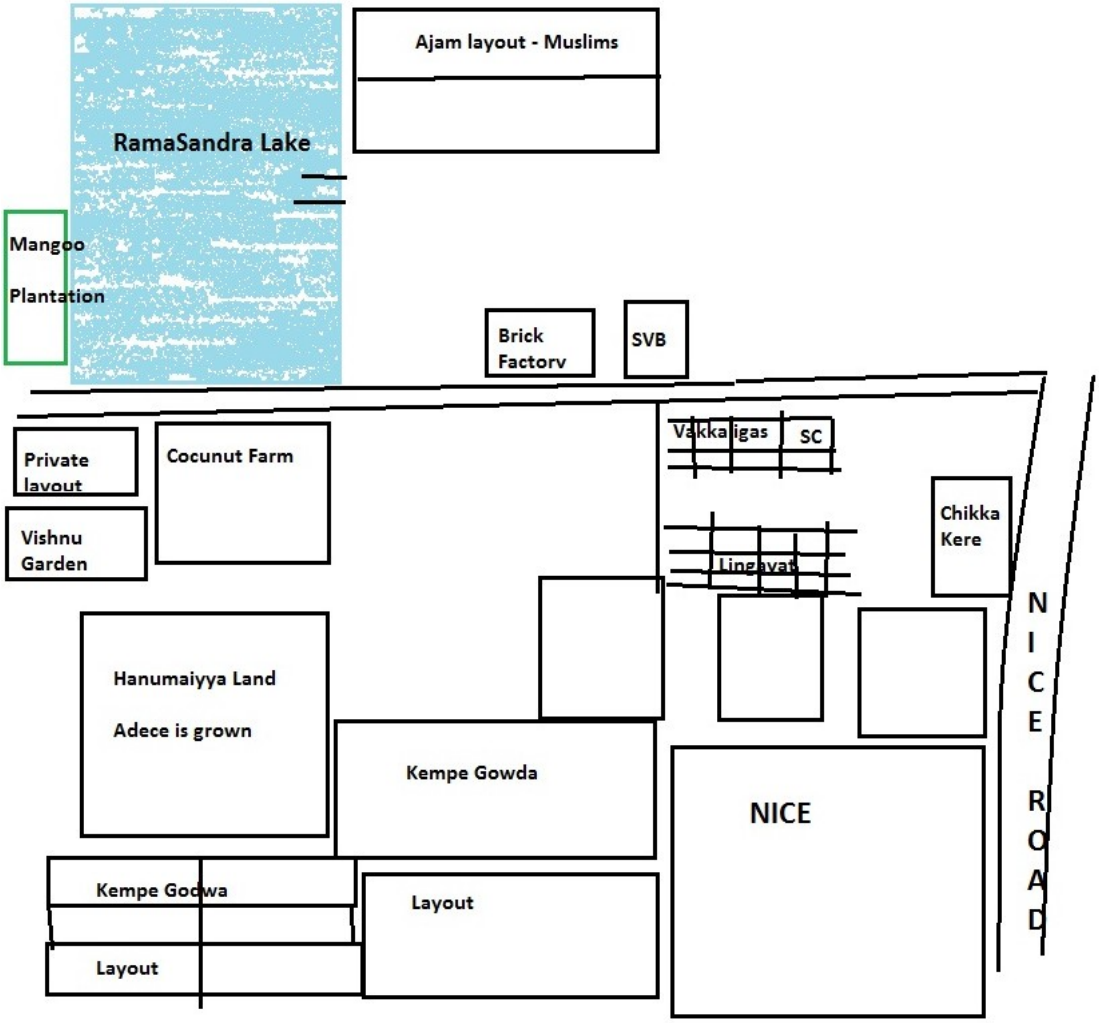
Figure 5.1: Map showing the three villages in the study area



Source: Re- Master plan of BMICAPA

5.3 Ramasandra Village

Figure 5.2: Map showing the resource and social map of Ramasandra village



Source: Self

5.3.1 Introduction

Using participatory approach for mapping the resources in the village and finding social map[15], it was found that, this village is located under the administration of Sulikere Gram Panchayat (GP) in Kengeri Hobli, Bangalore South Taluk, Bangalore. At least three persons from this village get elected to GP. The caste composition in the village is as follows: Lingayat – 200 homes, Vakkaligas- 120 homes, SC- 80 homes and Muslims- 45 homes. This village is very

[15] Participatory group exercise to map resources and social-economic segregation in village was conducted which involved senior leaders from the village, people from different caste groups such as Lingayats- which is the dominant caste, Vakkaligas , Muslims, Naiks(SC)

segregated where the lower caste or dalits or Scheduled Castes[16] stay in a particular row. They are employed in menial jobs in the village and don't own any agriculture land.

5.3.2 History of village settlement

The village settlement is very old. Many villagers were agriculturists who owned land or labourers in agriculture fields (who were landless). The agriculture land amounted to about more than 400 acres in this village. Then after 1995's farmers started to move out of Agriculture due to low yield, low prices for agriculture produce, drought, less water etc. In 1998-99- NICE gave notice to land owners about their land acquisition and thus several farmers were forced to sell land to NICE for formation of peripheral road and private layouts and thus all the farmers in the village lost their land. In 2008, BDA gave notices of further land acquisition to several land owners for Nada Prabhu Kempe Gowda Layout formation (refer figure 5.1)

5.3.3 Ramasandra Lake

The lake here is named after the village itself and its existence dates back at least as far back as fifteen century. Ramasandra Lake is physically located on the north side of Kommaghatta Lake and lies upstream of this lake. The water spread area of the lake is more than 101 acres. The lake is approximately of rectangular in shape. The lake comprises the catchment area, the feeder channel, tank bund, water spread area, sluice outlets, command area, field distributaries (water courses) and waste weir.

5.3.4 Existing Status of the shore line

The Northern side of the lake faces the few NICE private sites. The western side is adjacent to a mango plantation and on southern side mostly has agriculture land and few private layouts and a road which goes to Ramasandra village separates them. There are few settlements near the lake and the village settlement stay quite far from the lake. The only settlement found near lake was the recent private layouts on the northern side of the lake.

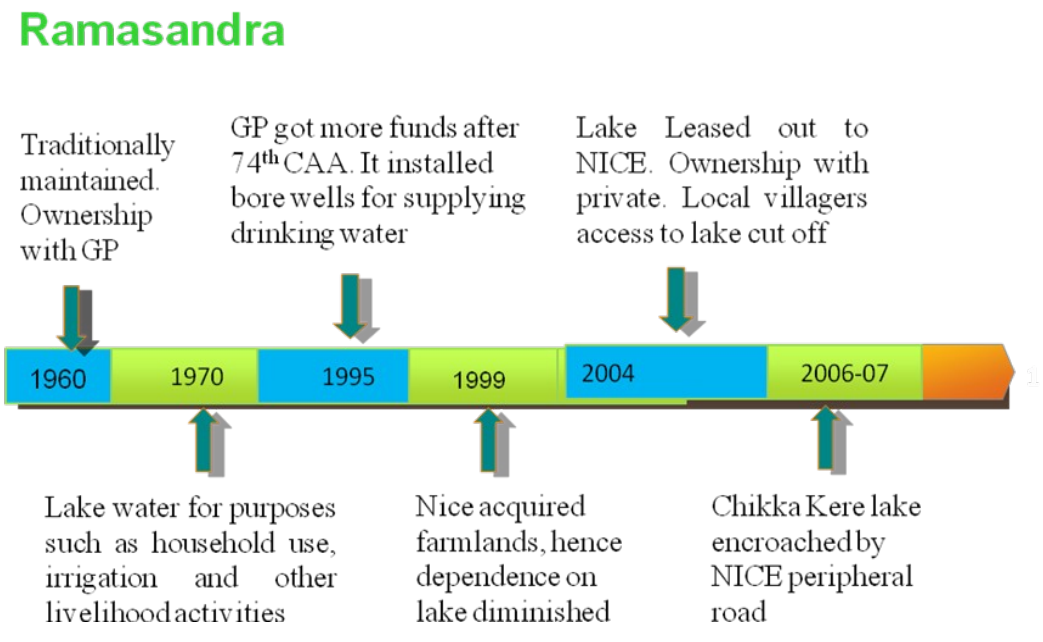
Figure 5.4- Picture showing the Ramasandra Lake with new layouts on northern side

[16] Central Government statistics show that SCs and STs are more deprived than other social groups.


Source:Self

5.3.5 Lake Management

Figure 5.3: Timeline of Ramasandra lake management



Source: Self

From a participatory group exercise, it was found that[17] this village has two lakes, Ramasandra Lake and Chikka Kere Lake were traditionally maintained by the villagers and water from the lake was used for agriculture. From 1960 onwards till 2008 farmers were given water from this lake by G.P. Development of lake irrigation had four phases, namely, water acquisition or

[17] Participatory group exercise was conducted to find the history of Ramasandra lake management which involved people from different caste groups such as Lingayats, Muslims, Naiks(SC)

harvesting, storage, disposal of surplus water, distribution and management of water in the command area. These functions were collective done by GP with the help of local community.

From the focussed group discussion, it was found that[18] , in 1970's Ramasandra Lake was around 400 acres and presently it is around 100 acres. It is due to rapid urbanisation, lack of maintenance, less quantity of water due to fewer rains in village and many more, that the lake size is reduced. All local village community used the lake water for purposes such as household use, irrigation and other livelihood activities. There was no restriction to lake entry. The ownership was with the Gram Panchayat. Lake water was used for drinking purposes since they didn't have bore wells before 1994. So everyone used to maintain the lake due to sense of common ownership prevailed. The lake water was mainly used for agriculture using an irrigation system managed collective by farmers and Gram Panchayat.

The Gram Panchayat was the governing authority over the lake. GP had full powers to do any activities related to lake and people respected them. The GP represented the collective interests of the local community in village and was generally able to resolve the conflicts that occurred in the community in an effective manner. At least 3-4 persons from this village were elected in GP and representatives comprised all caste groups. However, the Lingayat's -the dominant caste, had better representation and took decisions on behalf of the entire village. Overall, this demonstrated a collective effort in their decision-making. To ensure the appropriate use and control of the water management functions, the villagers themselves decided the area to be irrigated, which was decided as a proportion of total area cultivated by each farmer. When in case of scarcity of water in lake, the GP took decision for distribution of water and farmers had to adopt to rain fed crops and those who didn't own bore wells i.e. small and marginal farmers were the ones most affected. The villagers were also allowed for cattle to enter the lake. Fishermen, dhobis (washer people) earned livelihood from the lake.

Till 1993-94, the drinking water was from lake was used by households and mostly women were responsible for water collection. In 1995 after 74thCAA, GP got more funds and thus first bore well were installed by GP for drinking purposes in three places in the village. The ground water level was very good. Many people also dug bore wells in farmlands and these were rich landlords. Villagers were not entirely dependent on lake, since they had bore well or GP gave water through micro-water system to all houses. Therefore, gradually the local village community stopped using water from lake.

After 1999, when NICE acquired farmers, their dependence on the lake was completely diminished. Over years the lake started getting polluted from the newly created layouts by NICE, private and BDA as the untreated sewage enters the lake.

[18] Focused Group Discussion (FGD) to find the key issues regarding the lakes, water and socio-economic impact of corridor development and it was conducted with a group of senior leaders of the village which represent heterogeneity of the community

In 2004, Ramasandra lake was leased out to NICE and Chikka kere lake was encroached and the area used for NICE peripheral road creation. NICE extracted sufficient water for road creation by using tankers from lake. As said in Chapter 4, that this is a gross violation of constitutional provisions and 'public trust doctrine' evolved by the Supreme Court has upheld in many cases, that public commons should be maintained based on the principle of intergenerational equity. Also, according to Section 67 of the Karnataka Revenue Act says that, "all lakes are the property of the state". In other words, it was not legal for the 'State' to transfer sovereignty over lakes to the private entity NICE. Therefore, all development such as this corridor infrastructure project must occur strictly in accordance with the law and the Government has to ensure this. The 'State' must be just as accountable to the law as individuals. But, unlike here, the 'State' itself violated the laws and has leased out the lake beds to private entity NICE.

5.3.6 Negotiations, Claims and counter claims

In Ramasandra village, there were several protest in and around 2009, when BDA started restoration work since the local villagers knew that if the restoration of lake happens then BDA shall put fence and restrict entry of villagers, their cattle and other activities related to lake such as washing clothes, bathing, swimming would not be allowed[19].

The rest of the Chikka keri Lake bed is converted to land and NICE intends to make it a layout and sell the land. From the FGD methodology it was found out that"Chikka keri Lake was around 60 acres in 1980 and now it is converted to land. When NICE road construction started, the sewage, solid waste and other construction waste was directly dumped into the lake and lake got highly polluted and only water hyacinth grew. After allowing the lake water to dry up, the lake bed was converted to land and they want to convert it to layout"[20]

5.3.7 Concluding remarks

What this means to the local village community is that, their access to lake is restricted and the sense of common property has greatly reduced. This also marks a transition from a village socio-economy to urban socio-economy where the corridor development is leading to new urbanisation by creating new layouts in this village and thus Ramasandra Lake ceased to exists as commons as local village community's dependence on lake cease to exist. The irrigation communities have disappeared and the planning functions of village are taken over by BMIC which were characterised privatisation of lakes, followed by protests by local community. Therefore, from the view of local community, there is a paradigm shift of viewing the lake as 'common property' to 'private ownership' or 'social use' to 'economic good'.

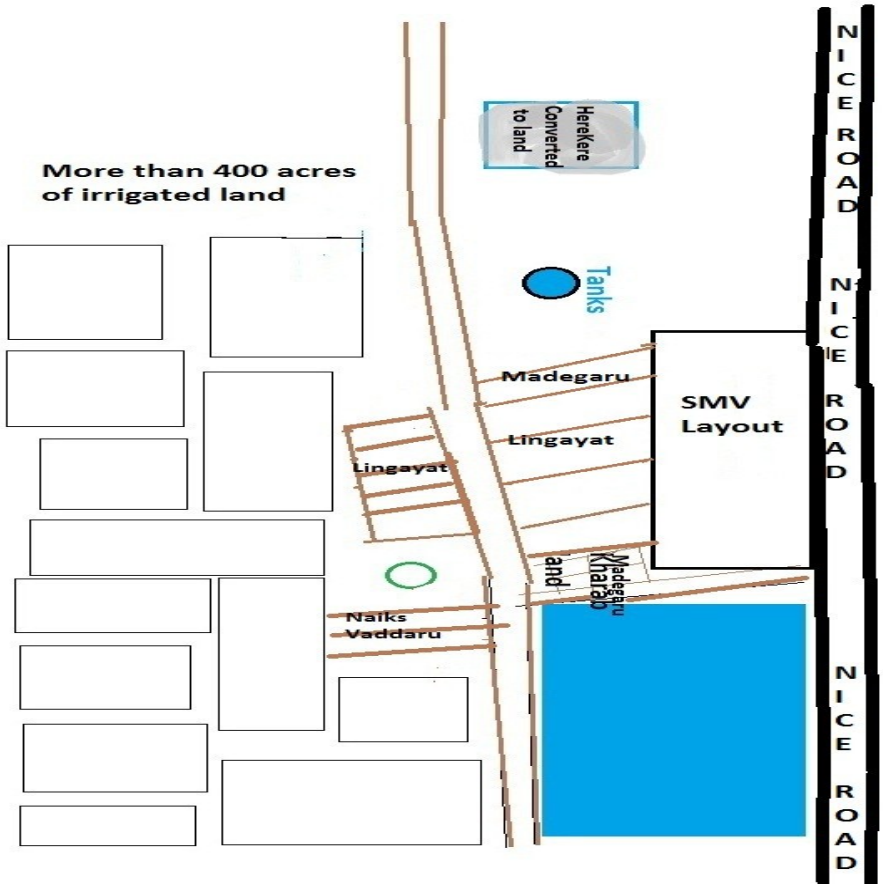
[19]Focused group discussion

[20] Participatory group exercise

5.4 Kommaghatta Village

5.4.1 Introduction

Figure 5.5 – Map showing the resource and social map of Kommghatta village



Source: Self

The village settlement is very old and dates. The village Kommaghatta derived it name from "Komma" which means "buffaloes" and place where there were lot of buffaloes and thus it came to be known as "kommaghatta". This village was famous for mango cultivation in nineteen and early twenty century. Using participatory approach[21] for mapping the resources in the village revealed that, this village forms part of Sulikere Gram Panchayat in Kengeri Hobli Bangalore South Taluk, Kengeri. At least 3 or 4 persons from Kommaghatta village get elected. These are well known, respected, senior leaders from the village who represent the village in GP. Caste composition in the village Lingayat – 120 homes, Vaddaru- OBC- 80 homes, Madegaru (SC)- 110-120 homes, Naiks(SC)- 15-20 homes and Muslims- 4 homes. As

[21] Participatory group exercise to map resources and social-economic segregation in village was conducted which involved senior leaders from the village, people from different caste groups such as Lingayats- which is the dominant caste, Vaddaru, Madegaru(SC), Naiks(SC)

seen from the map above the village is very segregated where the Madegaru and Naiks (dalits or Scheduled Castes) stay at the end of the village settlement and have separate lane for their houses.

5.4.2 History of village settlement

Using participatory approach to find the historical events in the village, it was found that[22], the agriculture land amounted to about more than 700 acres in this village and was owned by several landlords in the village. Farmers were given water by irrigation from lake by Gram Panchayat. From 1985 onwards several migrants came to village and these were landless labourers as they were employed in landlord's farms or took up menial jobs in nearby town. They settled down on the land adjacent to the lake which was 'Kharab land' or Government land under Gram Panchayat. These people got temporary ownership of the land right from the Gram Panchayat.

Even in 1996, there was more than 700 acres of agriculture land and farmers grew- Adeke, Kabbu, Paddy, vegetables and several other crops. But, in 1998-99- NICE gave us notice to few land owners of their land acquisition and in 2000, SMVL layout was created. Thus several of the agriculture lands were acquired and landlords were forced to sell their land directly to NICE. In 2008, BDA gave notices for Nada Prabhu Kempe Gowda Layout and more than 400 acres of land from Kommaghatta village is acquired for this layout and rest was with BMICAPA. Thus all the land apart from the village settlement is converted to either NICE peripheral road or layouts.

From the FGD[23], it was found out that "After 2010 onwards, several farmers protested and put cases in court against NICE. Then Govt set up a fast track court to deal with several cases related to acquisition of land under NICE. The price of the land was fixed by NICE was Rs 4 lakh per acre, but several landlords protested and negotiated to Rs 10 lakh per acre + 60*40 site or Rs 9383 per feet, but settled for Rs 7 lakh per acre + one site. We, landlords have no choice, but to sell off land"[24].

5.4.3 Kommaghatta Lake

The lake is named after the village itself and its existence dates back at least as far back as fifteen century. Kommaghatta Lake is physically located on the west side of Kengeri, adjacent to the Oddarahalli Lake. The water spread area of the lake is 13.25 hectares. The lake is approximately of long triangular shape with its tank bund of length 360m located on the southern end. The tank bund of the lake is on the South boundary line and the inlet zone of the

[22] Participatory group exercise to find the historical events in the village

[23]Focused Group Discussion

[24]Focused Group Discussion

lake is on the upstream side on the north where the water from the upstream Ramasandra flows into this lake.

5.4.4 Existing Status of the shore line and boundary of the lake

The eastern side is flanked by the NICE peripheral ring road and the edge of the embankment from this NICE road is touching the edge of the eastern ring bund[25] of the lake and there is only 1.5-2 m of clearance. On the other side of the NICE road is the Sir M. Visvesvaraya layout (SMVL) Block 4 and NICE private sites are formed. An inlet 2 is provided for water to enter into the lake from this side.

Figure 5.6- Picture showing the SMV layout

Source: Self

Northern side of the lake faces the NICE private sites and a road separates them. Large scale sediment is transported into Kommaghatta lake from the inlet channel-1 at the northern end resulting in the formation of silt islands and enhanced growth of aquatic weeds in the lake in this side. There are also several well grown trees on this side. There is an abrupt lake boundary and therefore there is a loss of natural gradient of the lake and therefore raised few environment concerns.

The western side is adjacent to the SMVL layout and NICE private sites. There is no clearance between the ring bund of the lake and the SMV layout Block house plots. The ring bund itself is used for peripheral road construction of part of SMV layout block 4 located on west side of lake shore. The top level of this peripheral road formed by BDA has been raised by more than 1 m above the present road level and thus obstructs the storm water entry into the lake. There is no extra land available from the road formed on western side of lake and thus there is no scope for buffer zone needed for tree plantation. This is a serious disadvantage for lake shore development and there is no margin of minimum width of 20m land for maintaining the shore

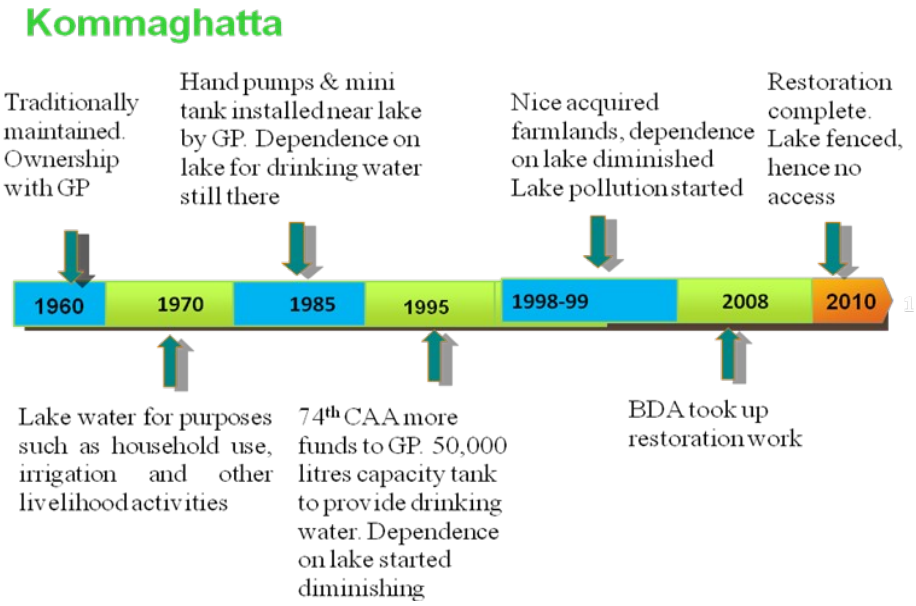
[25] Ring Bund is the walking path around the lake

line vegetation and for other purposes. But in the TC&P A and in BDA Act, saying that there is "No development zone" from 50 m from the highway roads/NICE road. The foundation of the houses in SMV layout will be subjected to hydraulic pressure of the subsoil ground water table due to closeness of the lake. Flooding the houses can happen in times of heavy rains. Any excavation for the basement construction of the houses will result in flooding by ground water seepage due to nearness of lake26.

Southern side of the lake is bounded by the road from the Kommaghatta village to the Kengeri Satellite town which passes through the tank bund of the lake. The North East corner of the lake leads to Dobbabasti village and Chikkahalli village and the water from these villages drain into the inlet 1 of the lake. On N-E side, an STP is planned near the NICE road and temple. This STP needs about 3 acres of land and BWSSB has only 1 acre of land with them and needs to acquire 2 more acres of land from BMICAPA.

5.4.5 Lake Management

Figure 5.7: Timeline of Kommaghatta lake management



Source: Self

From a participatory group exercise it was found that[27], Lake was traditionally maintained by the local village community and water from the lake was used for agriculture. There was an irrigation system to provide water to farmlands. Lake was also used for drinking purposes, household use, cattle use, livelihood activities such as dhobi and fishing and groundwater

[26] Interview with resident in the SMVL layout

[27] Participatory group exercise was conducted to find the history of the Kommaghatta lake management which involved villagers from different caste groups such as Lingayats, Madegaru, Naiks(SC)

replenishment. From 1975 onwards till recently, farmers were given water by irrigation system from lake by Gram Panchayat.

The lake not only acted as a water source for Kommghatta village, but was also integral to the socio-economic, political and cultural life of the people. On the banks of the lake were the 'gunduthoppu' which is village's sacred temple land, the 'ashwatkatte' (banyan tree) where village panchayats were held, and the lake premises where villagers used this place for cultural activities such as celebration of festivals.

From the participatory group exercise, it was found that, there was no domination of any single caste in the matter of water distribution from the lake. The probable conflicts that could happen would be on the issue of allocation and distribution of water between well-owing farmers and non-well owners and farmers near the lake and far away from lake or tail-end farmers. The GP took collective decisions on such matters and on formation of tank bunds, inlet pipes or cleaning of outlet pipes and resolving conflicts among different water users.

In 1985, hand pumps, bore wells were installed in lake bed by GP and a submersible/mini tank was provided which was used for drinking purposes.

Till 1992, drinking water needs of local community was met from lake or hand pumps installed near lake. Women were mainly responsible for getting the water from lakes. Thus lake catered to a variety of needs, as well as supporting a number of birds and other fauna. GP was responsible for maintenance of lake. Fisheries department auctioned the licence to fishermen in the village.

In 1995, after 74th CAA more funds were allocated to GP. A 50 thousand litres capacity tank[28] and hand pumps were installed near lake bed and submersible/mini tank was provided by GP.

After 1998-99, when NICE and BDA acquired several farmlands and thus water was not used from the lakes for irrigation purposes. Lake also started getting polluted from the newly created layouts since the BWSSB didn't provide for sewage lines in these layouts and thus untreated sewage was let directly into the lake.

In 2008, BDA also took up the lake for restoration where 6 crore fund was allocated and it also ended irrigation from the lake. In 2011, the lake was restored by the BDA, thus reduced the pollution levels of lake. Also lake was fenced and thus restricted the local village community's entry into lake. The restricted entry to the lake has several impacts on local village community and next section explore the differential impacts since some communities are adversely impacted whereas few others are not much affected.

[28] Site was located in survey No- 112/1 in Basavaraju land (who voluntarily gave up his land for common interest of villagers)

5.4.6 Differential Impacts of land and water rights on local village community

Fundamentally, importance of role that land tenure rights plays is quite important in this village. In this study the creation of BMIC is driven by use of private property – land to stimulate the private enterprise NICE interests and in the process stimulate the economic growth of the region.

The single-room houses of the migrants (landless labourers) near the lakebed have no access to any municipal services – toilets, electricity, water, or property numbers since they are considered illegal by Gram Panchayat. Therefore, land tenure right[29] plays an important role in this village and this determines the water rights[30] of these migrants with respect to the lake.

The main uses to which water abstracted from lake on the basis of a water right are for agriculture purposes - for irrigation and livestock watering and for urban use including use for domestic drinking water, household and commercial uses purposes. Some of the narratives of migrants are given below.

One of these migrants, Chikkamma who has been residing here since past 15 years says,[31] *"We are not recognised by the GP and thus we are informal. After we protested then GP has given us a pipe connection at the end of the road/street".*

There are 15/20 such houses with 80-100 people and there is only 1 water connection. Therefore, they have to make queues of bucket for which collecting water in early morning. Sometimes when there is water shortage, there are fights among the community to access limited water. In summer, they don't get adequate water.

Chikkamma says that "*I go to Chikkanahalli, to fetch water from public tap or some farmland (who has free water). Since I am old, I can carry only one bucket or max 2 buckets which would be sufficient for cooking and drinking needs for a day".*

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[29] Land tenure rights" proposed by FAO "is the relationship, whether legally or customarily defined between people, as individuals or groups, with respect to land" (FAO 2002) and thus they are "legal rights".

[30] Water rights are created by operation of law and defined as "Water rights are concerned with the removal and subsequent use of water from the natural environment or its use in that environment. Fundamentally a water right is a legal right: a)to abstract or direct and use a specific amount of water from a lake, tanks, rivers for drinking and other purposes b)to store a specified quantity of water in a natural source such as lakes, tanks behind a dam or any other hydraulic structure c)Or to use water in a natural source, to undertake fishing and aquaculture activities; for navigation d) A 'natural source' includes a stream, river or lake, a reservoir created by the damming of a river, a swamp or pond as well as groundwater from a natural spring or a well".(emphasis added) (FAO 2004).

[31] In-depth interview with respondent Mrs Chikkamma

Since the lake is fenced off after restoration, these poor villagers don't have access to lake. Chikkamma says that,

"I also had 6 -8 buffaloes, 2 cows and 10 sheep. Now I have sold many of them. Now, I have only 2 buffaloes. Before 2008, i.e. before BDA lake restoration process, we had access to lake and we used to fetch water from the lake which was used for household purposes. G.P used to maintain the lake and there was no restriction on lake entry. We had a sense of belongingness, common ownership attitude towards the lake. Therefore, we collectively used to maintain the lake. Our cattle used water from lake for all purposes and we got our livelihood from selling the milk in the market. Now that our cattle is not allowed in lake, we are forced to sell cattle and I have lost my livelihood"

These migrants have changed their livelihood and many of them are forced to work as daily wage workers in NICE project itself or as house made or menial jobs in Kengeri town.

Another respondent Sharadamma[32] says that *"Politics over water is very prevalent in our village and access to lake is cut off now since BDA watchman doesn't allow us. If Government-BDA did lake restoration, was it for the benefit of local villagers? Or was it for people to come from Kengeri for walking? We have not benefitted in any way from this lake restoration and NICE project and BDA has spent crores of money on it*"

Another Respondent Mr Manju, a farmer, his land was acquired by KIADB for constructing the NICE peripheral road. Several other farmers also lost their land. Initially they promised 40 lakh per acre, but they were given 7 lakh/acre and 1 site. He says that[33]

"I had 2.5 acre of land in Kommaghatta village. I was doing farming in this land and grew several crops with irrigation from lake water. In 2003-04 NICE acquired it and I have lost my livelihood as a farmer.

Several such people have taken huge amount of loan to build their home in the village. Most of them earn 3k/month and all of it is spent on repaying loan and rest on house expenses. Therefore, these poor villagers can't afford to pay for piped water from G.P and so take water from stand-post at street end.

With regards to lake, Mr Siddappa[34] says that, their access to lake is cut-off. He says that *"our sense of common property of lake trust is lost. Each one of us in village has a different problem*

[32]In-depth interview with respondent Mrs. Sharadamma

[33]In-depth interview with respondent Mr. Manju

[34]In-depth interview with respondent Mr Siddappa

with respect to lake, water, land etc and we are not able to unite and come forward for a cause. The caste issues are prominent. Dominant caste- 'Lingayat's' are GP leaders and we are not heard to them. Therefore, our water issues are not solved by GP".

When I interviewed the rich landlords in the village, they said that they are happy to sell their land as it was not productive any more. Also they get lump sum money for their land as the market prices have gone up with coming up of NICE road. These rich landlords have proper land rights and they are given piped drinking water in their home by the gram Panchayat.

Another respondent Mrs Gangamma says that[35]

"I live in this village since 15 years since then I haven't got water at home. My house is located on Kharab land or Gundtoppo/Government land and thus we don't have legal right to house. Since I came 15 years age from another village, I had no option but to settle down here as my husband got work here."

Another respondent Mr Chikkanna, with regards to drinking water, he says that, [36]

"I have been staying here since 20 years. Even our neighbour on upper street (Lingayat), don't allow us to take water from their pipe and they complain that they themselves have water problem(But this is not the case) and thus we are looked as distinct from village. The layout people are polluting lake and ground water also".

Several such people in this lane have similar problems with water and main root cause is that we are informal and not recognised. In 2004, when KIADB surveyed the village, they gave notice to vacate their homes as land is to be acquired for NICE project. Since they are poor, they live in constant fear of eviction either by NICE people or KIADB or Government people. Drinking water is of bad quality and they bear with it. Since they are lower caste, in many cases GP doesn't hear their voices. Also since they are poor, they can't afford to pay for individual taps. Even their access to lake is also cut off and even GP don't have any ownership of lake since it is taken over by BDA.

When interviewed with Mr. Mare Gowda Panchayat Leader, he said that he taken a list of people who have similar grievances and the GP will hear their concerns and will come to a workable solution. He also said that *"We don't want to remove these people from our village and have requested KIADB to not vacate their houses"*

[35]In-depth interview with respondent Mrs Gangamma

[36]In-depth interview with respondent Mr Chikkanna

When interviewed Mr. Venkappa Mukhandaru senior member from Lingayat community said that *"We (GP) are looking into this their concern. Since our role is limited as KIADB is authorised to carry out land acquisition for NICE project. Therefore, we will try our best to not vacate the poor people's land"*

The village, of course, is a heterogeneous community. Examining the power relations and the representational politics of that heterogeneity, for instance the politics of caste dynamics, is unfortunately not within the scope of this paper. They are less bothered of the untreated sewage that is left into the lake and residents say that, it is the responsibility of BWWSB to provide for sewage lines and Sewage Treatment plant (STP) to treat the sewage before letting into the lake.

The new group of people that has moved into the SMVL layouts and other layouts did not consider the Kommghatta Lake as commons. They generally view the lake as form 'scenery' point of view, mainly used for recreational purpose.

Several of the respondents said that, from 2005, the house near the lake were get flooded during the rainy seasons. Several houses are on low-lying areas and water directly enters their home. One of the reasons given was that, after formation of new SMVL and NICE layouts, the inlet and outlet to lake are partially blocked and thus this leads to flooding.

5.4.7 Negotiations, Claims and counter claims over the lake

In Kommaghatta village, Protests happened in 2005, when 1500 villagers protested against land acquisition in front of KIADB office as they negotiated the land prices for better compensation from NICE. 12 villages joined the protest and leaders from the local community joined. People from all caste community came and protest from 12 villages as they blocked the roads etc.From the FGD methodology it was found out that, "Then CM Kumaraswamy came and met us and convinced us to that we would get a fair market price for our land. In 2008, then CM Yeddurappa convinced that he will help the affected farmers and give better prices for our acquired land, but till now no action is taken by the Government[37].

"In 2008, Sri Bharat Lal Meena, BDA Commissioner called us for a meeting with regards to lake restoration. Farmers negotiated and he promised the local villagers that they would make separate provisions for washing clothes, cattle entry and fishing so that local villagers wouldn't lose our livelihood"[38]. But as seen from the study, these promises are not kept as lake is fenced and local village entry is restricted and thus has adversely affected their livelihood.

[37] Leaders such as Police Chamappa, Kempegowda, Reddy, Ventakachellaih from the Kommaghatta village joined

[38]Focused group discussion

5.4.8 Concluding Remarks

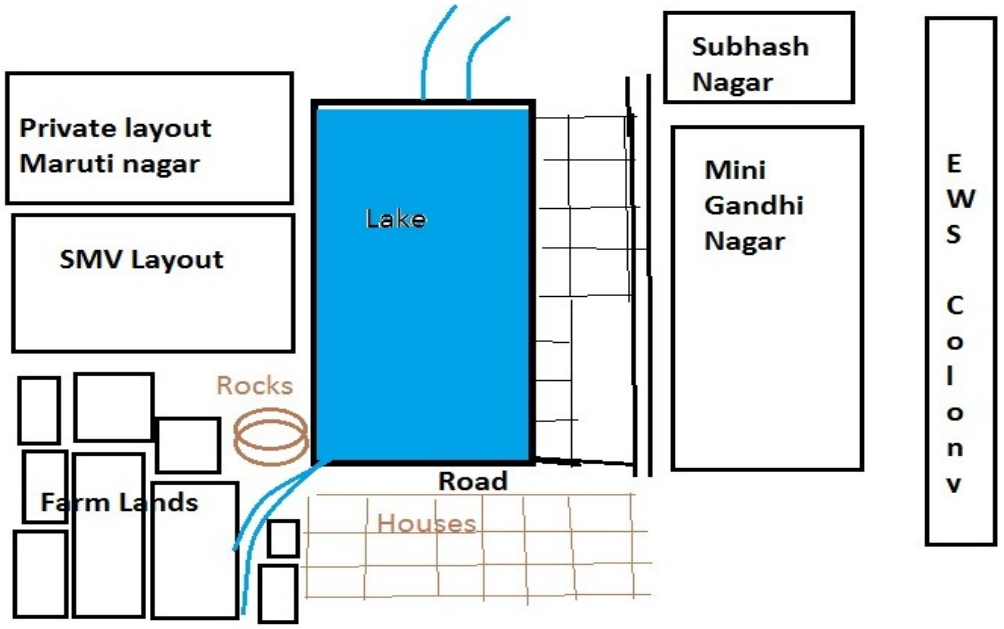
As seen from above narratives, that the poor in the village haven't got their land tenure rights from the GP and after the creation of BMIC corridor, their land rights are not recognised by BMICAPA. Also, what is emerging from these narratives is that, water rights are have been considered as a subsidiary constituent of land tenure rights, since right to drinking water often being dependant on the existence of land tenure right.

Also from the above finding, it can be said that, there is an interface between land tenure rights and water rights. The relationship between these two resources is of equal significance in this study. Water is necessary for most productive uses of land. Kommaghatta Lake in this case is fenced off. The primary instrument for the distribution of land and water resources is the institution of land tenure rights and water rights. Their use and management of lake has major implications on the socio-economic development of the village and the particularly the impacts on the livelihoods of the poor as they don't have land tenure rights.

Since the BDA has approved new layouts such as SMVL (Sir M. Visvesvaraya layout) and Nada Prabhu Kempe Gowda layout in the Kommaghatta, it has taken up the lake restoration process. This also in a way indicates that, the property value of the land increases when there are presence of clean lakes in its vicinity. This is also one of the reasons as to why the NICE has changed the alignment to include this lake and thus Kommaghatta Lake adds great value to property values of NICE in this village. I move on to next section describing Valegerihalli village.

5.5 Valegerihalli Village

Figure 5.8 Map showing the resource and social map of Valegerihlli village



Source: Self

5.5.1 Introduction

Using participatory approach for mapping the resources in the village and social map[39] it was found that, this village came under Valegerihalli Gram Panchayat in Kengeri Hobli Bangalore South Taluk now under Kengeri Municipality and in 2007 it was merged with BBMP. Caste composition in the village is mostly dalits - Madegaru (SC)- 70-85 homes, Naiks(SC)- 35-40 homes, Christians- 5 homes and Muslims- 25 homes and around 80% all of them are BPL(Below Poverty Line) card holders.

5.5.2 History of village settlement

Using participatory approach to find the historical events in the village, it was found that[40], before 1965 until 1990 the village was famous for its Niligiri, coconut and mango plantation and it was grown over several acres of land. Other crops such as ragi, wheat, rice and several vegetables were also cultivated. The land ownership in the village as seen from the map was mostly with landlords and they were farmers. In 1969-70, then Chief Minister Kengal

[39] Participatory group exercise to map resources and social-economic segregation in village was conducted which involved senior leaders from the village, people from different caste groups such as Madegaru(SC), Naiks(SC), Muslims and Christians

[40] Participatory group exercise to find the historical events in the village

Hanumanthaih (1965-70) gave provision for two tube wells and irrigation system to water agriculture land.

From 1975 onwards more number of people started coming to this village since agriculture was very productive due to good yielding crops because of good irrigation system. These people were landless labourers as they were employed in landlord's farms and they settle down on the land adjacent to the lake which was a Government land under Gram Panchayat. The 'Pani Patta' or property rights were given by the Gram Panchayat and thus everyone got ownership of the land rights.

In 1979, then Chief Minister Deveraj Urs allocated the 'Kharab/Dharkhas Jamin' or barren land adjacent to the lake to all the new migrants, who worked as landless labourers. Free site was given to villagers as a promise made during the elections and thus all current residents in village got land ownership rights from GP. Also these people also had access to use the lake for their daily purposes.

In 1985, Valegerihalli village came under the jurisdiction of Kengeri Municipality. Then Municipality also gave 'Hakku Patra' or land right document to these landless labourers. Then, the landless labourers used this 'Hakku Patra' to get loan from the bank and thus everyone constructed 'Pakka' houses. 'Khata' and 'Kandaya'- tax paper was given to them by the Kengeri Municipality. Municipality also gave 'NOC' certificate for construction of houses. Then CM Deve Gowda gave permission to construct poles and the 'Thashildar' gave permission to provide electricity from Karnataka Electricity Board (KEB) and thus villagers got electricity.

After 1997 several landlords started moving out of agriculture and sold land to NICE and BDA since water in lake started to get polluted and agriculture productive decreased. The landless labourers had no choice but to stay on their land and find other menial work. In 1992, 'Hakki Pikki' tribes came to the village. Originally dwellers of the forests of Nagarahole, the Hakki Pikki tribe now live in a slum in the suburb of Kengeri such as Valegerihalli. Under a Government scheme 'Akshaya' housing was provided to them next to the lake bed. About 8-10 families live in ten feet by twelve feet pucca single-room house scattered on the lakebed.

After 2000, rapid growth, more urbanisation is witnessed in this village. More poor people from outside came and built small houses and houses started becoming high rise.

In 2007 BBMP was created and Valegerihalli came under BBMP and they failed to recognise these landless labourers and BBMP didn't issue 'Khata' or 'property tax document' and the reasons given was that "their houses are constructed on Government land and BBMP has no records of their land ownership rights". Even BWSSB has stopped supply water to households and also didn't installed sewage pipes in the village and thus sewage is directly let into lake and is polluting it. Therefore, all the landlords in the village have sold their land to NICE and BDA

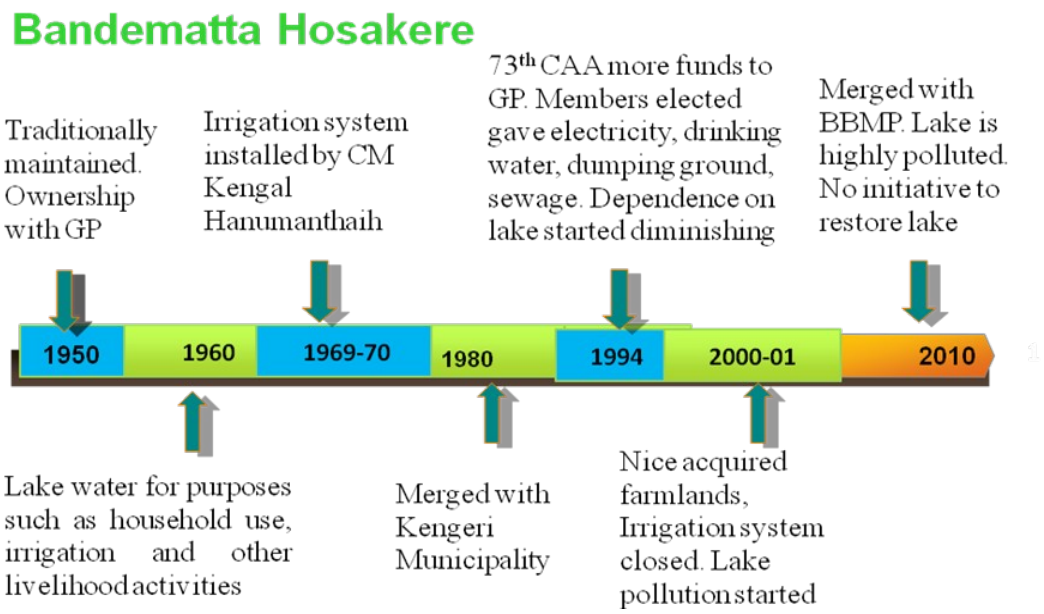
and have moved out of this village, thus leaving only the poor landless labourers in the village. They don't have any choice of moving out of this village by selling their house since no one will buy their house property since it is not recognised by BBMP.

5.5.3 Bandematta Hosakere Lake

From a participatory group exercise it was found that[41] before 1900's,this lake was called 'Haddina Halla' meaning 'Vulture holes' since there were 3-4 huge deep wells. People used water from well for all purposes. In around 1940's, barriers were raised around the wells by local community to create a lake. In 1970 it was called 'Bandematta Halla' since water used to flow towards the rock(Bande) and thus this lake came to be known as 'Bandematta' after the huge rocks. Also nallas was made upstream from Mallathhalli. Then it became a huge lake.

5.5.4 Lake Management

Figure 5.9: Timeline of Bandematta Hosakere lake management



Source: Self

From a participatory group exercise it was found that[42], Lake was traditionally maintained by the local village community. From 1950's onwards, Valegerihalli Panchayat was the owner of the lake. Maintenance of the irrigation system, lake, watchmen salary, cleaning was done by the GP. Lake was also used for drinking purposes, household use, cattle use, livelihood activities such as dhobi, cattle owners and fishing. Generally, all the villagers at this time used the lake

[41] Participatory group exercise was conducted to find the history of the Bandematta Hosakere lake management which involved villagers from different caste groups such as Muslims, Christians and SCs & STs

[42] Participatory group exercise was conducted to find the history of the Kommaghatta lake management which involved villagers from different caste groups such as Lingayats, Madegaru, Naiks(SC)

for all purposes. The population residing around the lakes has increased significantly and residents are from diverse caste, and religious backgrounds.

In 1969-70- then Chief Minister Kengal Hanumanthaih (1965-70) gave provision for two tube wells and irrigation system to water agriculture land. A system of valves was designed in the lake for providing the water for irrigation. A pipe of about 5 feet was installed. When excess rain happens, then the valves are opened and water is let into agriculture fields.

In 1985, this village was merged with Kengeri Municipality, but the ownership of the lake was still with GP. The local villagers used to approach the GP leaders in matters related to lake. In 1994, after 73rd CAA, Kengeri Municipality got more powers. Members elected gave roads, electricity, drinking water, dumping ground, sewage to this village.

After 1994, BWSSB started supplying water to houses in the village. The main pipe was running close to village. EWS houses had come up next to the village and water provision was also given to them and thus poor in this village pooled in their money and got the last mile connection by extending the main pipeline from these EWS housing colony. Hence local village community's dependence on lake water for drinking purposes started to diminish.

By 1995 onwards, due to rapid urbanisation the lake started getting polluted from newly created layouts by BDA. In 2000, as several lands were acquired by NICE, the dependence of lake water diminished. In 2001, Kengeri Municipality closed the tube and irrigation system and it got defunct over the years. After 2001, local village community experienced severe flooding as the irrigation tube was closed and there was no other outlet.

In 2004, the NICE road was constructed along the periphery of the village and land in the village was acquired. Newly created private layouts which were approved by BMICAPA came up in this village and they had no sewage lines and thus polluted the lake even more. In 2007, this village was merged with BBMP. But, BBMP has not initiated any process for restoration of lake and even funds are allocated and there is no process initiated to restore the polluted lake[43]. The taper/slope of this village is towards the lake and thus there is a huge influx of storm water, sewage into the lake.

The local village community don't have access to drinking water as the lake has been badly polluted. Also BWSSB has stopped providing them drinking water as they are no longer recognised by BBMP. Therefore, they only option left for them is to use the public stand post at the end of village, which was erected by then Gram Panchayat in 1980's and thus these people have no drinking water provision in their home.

[43] Report of Karnataka High Court Committee appointed under the Chairmanship of Justice Mr. N. K. Patil

5.5.5 Existing Status of the Bandematta Hosa Kere Lake

Figure 5.10: Pictures showing Bandematta Hosakere Lake in 1998 and 2011

Source: Self

The lake is highly polluted with growth of weeds and water hyacinth. In 2000's, with the development of NICE layouts, SMVL layout and other private layouts, the sewage from these lakes started entering lake and now it is highly polluted. Some of the layouts in the neighbour are GandhiNagar layout[44]. Untreated sewage from other upstream layouts in the BMIC region also enters this lake. The features of this village are inaccessible roads, narrow lanes and a mountainous terrain. The water from this lake flows downstream through the mountainous terrain and joins the Vishibhavati valley. There are lots of plastics, filth, and solid waste near the lake. There are no dustbins and lake is used as an open dump. The open dumps are at two locations, one near the entrance of the lake and another on the other side of lake. BBMP hardly comes once a week to collect garbage as they collect it only from the open dump near the entrance of the lake. The solid waste is left untreated at the other end and this is also entering the lakes leading to more pollution. There is excessive growth of weeds and water hyacinth. There are severe hygiene and health issues and lake is a breeding ground for mosquitoes, rats, lizards and other pests. There are settlements of tribe- 'Hakki Pukki on the lake bed and houses for them were allocated by Government Department under 'Akshaya Scheme'and these are legalised houses.

One of the respondents Mrs Roselyna says that[45] "There was bore well inside the lake, it was set up around 30 years back (in 1980's) and it was in good condition. Then due to negligence of the G.P it was filled up with mud. Then the G.P dug two more bore well next to the lake, but they failed since ground water had gone down. This shows ground water has deteriorated and

[44]GandhiNagar layout is located in BDA Ward No- 130

[45]In-depth interview with respondent Mrs Roselyna

we had severe drinking problems. Similarly nearly 6-7 bore wells failed across the village and they are left abandoned."

While doing a participatory group exercise to find the historical events in the village, it was found that[46], A BWSSB engineer Mrs Nalini came to this village around August 2011 along with four more water engineers to cut off the BWSSB pipe line connection to these houses. Then of the resident saw the BWSSB engineers cut off the pipe line and thus all residents assembled and protested against such act. Then villagers had a discussion for several days with Mrs Nalini in BWSSB office. Later she was convinced to provide drinking water seeing the plight of poor village residents of their drinking water problems. Then Mrs Nalini finally agreed to provide drinking water to them on the condition that they install meters in their individual houses. Then again residents negotiated to install meter at subsidised rates as all of them were very poor since they are BPL card holders. Mrs Nalini, then consulted her senior officials in BWSSB and after several rounds of negotiations meter was agreed to be installed at Rs 2300/ per house". Therefore, those who could afford it have given money for installing meters and they alone are getting drinking water.

5.5.6 Negotiations, Claims and counter claims -Protest around the lake

In Bandematta Hosakere, protests were held in2010 Oct in Freedom Park against the demolition of their houses. The local villagers went to Tashildar and then to D.C. All villagers present in the protest were free site holders. Notice was sent by D.C for demolition of all their houses and new site to be made available to them[47].In 2011 August, Then Revenue Inspector of Kengeri sent a report to Thalisdar of Bangalore South and he forwarded the report to D.C. The report was on encroachment of land by the people living in front of Bandematta lake. Then D.C of Bangalore South sent notices to all houses mentioned in the report. But corporator Mr Rajanna along with Mr S.T Somashekar (Congressman who lost election) supported their protest against the BJP Govt- Mrs Shobha (who has won from this constituency). The argument of the villagers was that, they have been paying property tax to Kengeri Municipality since 1985. But after the formation of BMMP, they failed to recognise this village community and thus stopped their property tax collection. Therefore, villagers argued that, how can Kengeri Municpality recognise, but BBMP failed to recognise them. A total of 1000 local villagers from this community came and they walked from Corporation to Freedom Park.Mukhadappa- Old Freedom Fighter and Activist supported their cause in Freedom Park. Then they assembled in town hall and made a press report and this made headlines in Kannada several newspapers.

[46]Participatory group exercise to find the historical events in the village

[47]Focused group discussion

5.5.7 Concluding remarks

From this study, the researcher has found out that, those, landless labourers who came to village recently, settled on Kharab/ Government land and they didn't have property ownership of their house. However, the GP had given them temporary land ownership of their house. When the NICE peripheral road was constructed and land acquired under BMIC project, several landlords sold their land and many of them have vacated the village in case of Valegerihalli. The poor landless had no option to vacate their house and they are still staying there. However, the BBMP, KIADB and BMICAPA Authorities don't recognise them as legal and thus their basic services such as water provisions are not given to them. Their legal water rights are not given by these authorities since they don't have legal land rights.

Since the lake is highly polluted, it has physically prevented the local community from accessing the lake and also leads to groundwater pollution. This alienated them from this lake and forced them to seek another water source in a neighbouring location.

The data collected from my field visits show that[48], the drinking water quality from these stand-posts is unsatisfactory due to the presence of coli-form, e-coli bacteria and a high level of turbidity. Leakages occurred at up to 30 percent at the stand-posts. Also, almost 60 percent of the respondents showed dissatisfaction with the quality of the water. Thus, there are huge disparities in quantity of water supplied, inequitable distribution, erratic supplies, and water quality continuously degrading through these stand post and these poor villagers are the most affected with respect to water rights. However, it was laid down in the context of Art 21 of Indian Constitution, the right to life refers to right to water is violated.

[48]Data collected from household interviews

Chapter 6: Analysis

The chapter on literature review gave a brief on debates on the changing role of the 'State' with respect to water governance. Also as seen from previous chapters, the lakes are leased out to private entity and this chapter explores the changing paradigm of lake from community owned to private management of lakes. This chapter also gives an analysis of the changing relationship between the local village community and lake and some of the impact of different water users of lake. I then, go on to argue, as to how lakes are treated as land and they are increasingly looked as property which could be traded. This chapter ends by highlighting some of the ecological damage done by this mega-BMIC infrastructure project and what it means to sustainability of eco-system in BMIC region.

6.2 Changing paradigm from community owned to privately managed lakes

From the study, it can be said that lake was the centre of socio economic activities of a village catering to the multifarious requirements of the village community. Customary practices and traditional management systems existed in these villages for lake management. Gram Panchayat in the village had their own norms inherited from their ancestors regarding the management of the lakes and this has been in practice for quite a long time. The norms for usage of lake water for farming and non-farming were evolved based on consensus. The water management was done through several formal and informal associations among the farmers for irrigation purposes and was accepted by GP members as it was a collective decision of the farmers. In case of disputes the GP leaders would intervene and sort out the matter. The linkage of lakes with upstream lake was recognised by the villagers and thus Sulikeri GP has representatives from Kommghatta and Ramasandra. However, the lake was used by different groups in a segregated manner. For Example, the dhobi were allowed to wash clothes at the end of outlet of lake so that it doesn't pollute the lake, the lower caste or Scheduled Caste staying near one part of the lake was used by them and dominant caste used the other part of the lake. However, there was no restriction on lake entry.

With private control of these lake beds, such practices have gradually eroded. Community ownership and use of lakes for even such traditional practices are greatly minimised and then gradually lost. The chances of local village community to come back to the lake and access it for daily needs, is lost as their access to lake is restricted and the sense of common property sense greatly reduced. This also marks a transition from a village socio-economy to urban socio-economy where the corridor development is leading to new urbanisation by creating new

layouts in this village and thus lakes ceased to exist as commons as local village community's dependence on lake cease to exist. The irrigation communities have disappeared and the planning functions of village are taken over by BMIC which were characterised privatisation of lakes, followed by protests by local community. Therefore, from the view of local community, there is a paradigm shift of viewing the lake as 'common property' to 'private ownership' or 'social use' to 'economic good'.

The Karnataka High Court Committee Report[49] said that, when private player is involved in usage and management of lake, there are inherent limitations to this since the private players have commercial interests in the back of their mind and these can have serious consequences on the village communities. It also emphasised that commercial interests infringes the rights of common man and the same is opposed to 'public interest' and 'Public Trust doctrine' evolved by the courts of law.

According to Sax the public trust doctrine imposes the following restrictions on government authority "These types of restrictions on government authority are often thought to be imposed on public trust: first, the property subject to the trust must not be used for a public purpose, but it must be held available for use by general public; second, property may not be sold, even for a fair cash equivalent; and third the property must be maintained for particular types of uses".

In this Ramasandra lake case, all the three principles are violated by NICE. First, Even though the BMIC project is a public purpose project and land is acquired through eminent domain of the State under Land Acquisition Act, 1894, the principle says that property (here the lake) must not be used for a public purpose, but it must be held available for use by general public and study shows that lake is not to be used by the local villagers for their purposes. Second principle that property may not be sold is also violated since the State has leased the lake bed for 40 years for a sum of Rs 10/year. Third principle is also violated since the lake is no longer used for irrigation, drinking, bathing, washing, and fishing as there is restriction to lake entry. Thus lake is mainly used for recreational purpose by layout residents and it enhances the property value of the land prices around the lake. Also part of the lake bed is converted to land and it is sold in the market as a property. This marks a paradigm shift of viewing the lake as 'common property' to 'private property. This point is again emphasised here, as the lake is no longer used by local community villagers for their daily use as the lake is leased out to NICE.

The grievance of the villagers from the study in relation to free access , charge for entry , non-maintenance of ecological balance are unsatisfactory and thus giving scope for the villagers to

[49] Karnataka High Court Committee appointed under the Chairmanship of Justice Mr. N. K. Patil, Judge of the Karnataka High Court and Chairman High Court Legal Services Committee, in response to the Public Interest Litigation by Environment Support Group in Writ Petition No 817/2008 challenging privatisation of management and rehabilitation of lakes in Bangalore

protest against private ownership of the lakes. Also the “Dominion” of “Natural Resource” belonging to the State is handled over to the private NICE, which is against the constitutional provisions. Also State and its Authorities have to ensure that there is no violation or deviation from the stated policy and norms and in this case, it becomes extremely difficult for the BMICAPA to find a workable solution which further public interests and prevent NICE from making undue benefits at the cost of local community villagers and public in general. Thus has allowed the “public interest” to prevail over the “private interest” and “public trust” and lakes are viewed as “private property” against “common property” and lead to changing relationship between lake and local village community.

6.3 Changes in the Relationship between the Lake and the Local Village community

It is clear from the findings from the history and development of the lake that the villagers associate themselves with the lake for over several generations and many of them told stories about it from their fore-grandfathers times. The village community collectively maintained and preserved the lake and it was well supported by the Gram Panchayat. Fisheries Department provided few engineering tips for canal maintenance etc. Elder residents of the village indicated that bathing, washing clothes, swimming was done directly in the lake and they collected drinking water from two wells in the village adjacent to the lake and water used for irrigation. Much of the land in the village was agriculture land where several crops were grown. Most of fishermen and dhobi were from the adjacent village and they earned livelihood from the lake. But now use of the lake and its management by the villagers seems to be more or less absent. Most villagers responded that they did not visit the lake.

Much of this disconnect can be traced to land use changes following urbanization through the BMIC corridor. A major change was after 2001, when the land in the village was acquired for NICE road formation and layout creation. The lack of access to lake for local community depends on the three criteria

- Pollution
- Fencing
- Leasing

As seen from the case of Bandematta Hosa Kere Lake, once the layouts were create, the untreated sewage was let into the lakes and thus they got polluted. Diagram shows the levels of pollution- low, medium, high. Presently, the lake is highly polluted and thus the local

community has no access to the lake. This lake is not fenced and is not leased out, but is highly polluted and thus there is lack of access to lake.

In case of Kommaghatta lake, the BDA restored the lake in 2010 and fully fenced the lake. Thus there is restriction of entry into lake. Lake is now meant only for recreational purposes for the people in the layout. The pollution levels are low and lake bed is not leased out. Even in this case, the local villagers lack access to lake.

In case of Ramasandra Lake, the lake bed was leased out to NICE, the entry was restricted. The pollution levels are medium. It is partially fenced as the lake restoration by BDA is in process.

It can be conclude that, in all the three cases the local villagers don't have access to lake. The fishermen, dhobi's and cattle owners were not allowed inside the lake and they indicated their apathy with Fisheries Department and the BDA for denying them leases to fish in their own lake. Thus these people have lost their livelihood. Lake is also no more used for drinking and other household purposes.

But interview with BDA officials suggest that lake should be used only for recreational purposes[50]. Now the new residents in the layout use the lake for recreational purposes such as walking, jogging etc. Nature lovers, bird watchers also use the lake. The lake restoration has also enhanced the property value in the village and lakes are viewed only from scenery point of view from the residents in the layouts. This marks a transition from sense of common ownership of the lake by the local villagers to commoditisation of lake.

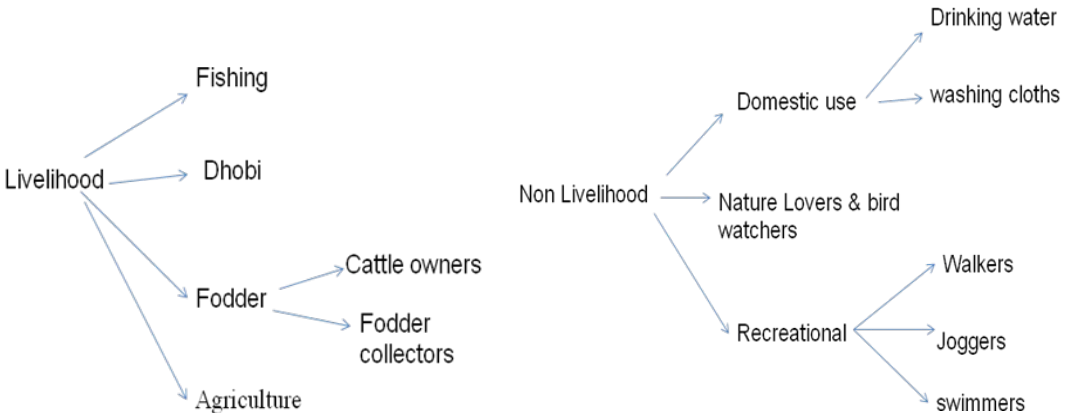
6.4 Micro analysis of water users of lake and the Impacts of implementation of BMIC project

Different water users of the lake

1. Fishermen
2. Dhobi (washer men)
3. Women who use water for domestic purposes- drinking water, washing cloths
4. Cattle owners
5. Agriculture/ land owners
6. People who use lake for recreational purposes- walking, jogging, swimmers etc

Figure 6.1: Classification of water users of lake

[50] Interview with BDA Official



Source: Self

1. Fishermen

The Fisheries Department gave licenses for fishing and these licenses are auctioned and highest bidders get licenses on yearly basis. They earned livelihood from the lake by catching fish and selling them. The income depended on several parameters such as quantity of fish catch, quality of fish, access to market, market price, distance to lake, competition among license holders etc

Initially all three lakes- Kommaghatta, Hosakere and Ramasandra had clean good water and thus fish were in abundance. All fishermen in same village and few from other villages came to catch fish and earned livelihood. Percentage of Fishermen to total population was about 5%-7%

Table 6.1 Comparison of before restricted entry to lake and after of fishermen

Parameters	**Before restriction to enter lake**	**After**
Quality of fish	Was good	Nil
Quantity of fish	Good quality of fish such as cutla, Glass crop fish etc.	Nil
Income	Earned Rs 200-300 per day	Nil
Access to market and market price	Market was nearby Kengeri. Villagers also bought. Market price was good	Now they have to travel far off. Therefore many have moved to other occupation and thus changed their livelihood
Distance to lake	Was in village or in neighbouring village	All neighbouring lakes are polluted. If they want to fish, they travel to far off lake
Competition	It was evenly distributed and fishes were in abundance. everyone got their share since less competition	Many fishermen have moved to other occupations

Source: Self

This shows that several fishermen have moved to other occupation or travel to far off lake and thus restricted entry to lake has changed their livelihood.

2. Dhobi

Dhobi are washer men from the local village community. They wash clothes and earn livelihood from the same. The parameters used to analyse the change in their livelihood are quality of water, access to lake

Table 6.2 Comparison of before restricted entry to lake and after of dhobi

Parameters	**Before restriction to enter lake**	**After**
Quality of water	More dhobi men were from village and earned better livelihood	Nil
Access to lake	Easy access, no restriction	No access since lake is fenced or polluted or leased to NICE and thus moved to other occupation.

Source: Self

After restriction of entry into the lake, the Dhobi's have no access to lake and thus their dependence on lake has completely reduced. They have moved to other occupation, since they have got easy/unskilled work in Bangalore city and earn daily wages of Rs 100-200 and thus their livelihood has changed. Their economic structure has also changed. Before they used to walk to lake to washing cloths and thus didn't spend money on transport and earned better wages. But now, their job is uncertain, wages vary daily and they spend much of their earnings on transportation. Thus, this section of community is more vulnerable after implementing of BMIC project.

3. Cattle owners

There are many landless villagers who own cattle and they produce milk and milk products, wool, manure etc and earn income. Access to lake for the cattle was easy and thus many villagers maintained cattle for their livelihood. Their income depended on several parameters such as number of cattle and income generated from cattle products such as milk, curds etc.

Table 6.3 Comparison of before restricted entry to lake and after of cattle owners

Parameters	**Before restriction to enter lake**	**After**

# cattle	Maintained more number of cattle	Have sold all their cattle
income generated from cattle products	Earned their daily wages from selling milk products, organic manure etc	No income from cattle products and thus moved to other occupation

Source: Self

After restriction to enter lake, their cattle have no access to lake and thus most local villagers have sold their cattle and have moved to other occupation. Some of women work as house made/Kamwali in rich landowner's home in same village and women are forced into such occupation in rich landowners home as they have no other option. The men have moved to other occupation available in the city.

4. Agriculture land Owners

Their income depended on several parameters such irrigation from lake, quantity of water, quality of water.

Table 6.4 Comparison of before restricted entry to lake and after of agriculture land owners

Parameters	**Before restriction to enter lake**	**After**
Irrigation from lake	Mostly all farmers had irrigation from lake	Irrigation system is closed down
Quantity of water	Sufficient to grow crops for 2 seasons	Nil
Quality of water	Good	Nil

Source: Self

Before, all Agriculture/farmers/land owners had irrigation facility from the lake water and thus their agriculture produce was better and earned good livelihood. A system of tubes, pipes and canals were used to irrigate to farmlands and this was done by Gram Panchayat, Minor Irrigation Department and therefore farmers depended on lake water. The quality of water was also good and thus this resulted in good agriculture produce. They had better livelihood as they got good yield of crops.

Now, Lake is either polluted or not used for irrigation after rejuvenation. These land owners are forced to sell of their land to BDA, NICE, KIADB since their farmland don't yield any income. Some of the large land holding farmers are happy to get Rs 40-80 lakhs per acre from Government and NICE and they have bought car, constructed new floors/renovate their home and thus they are well-off in short-term. This section of community, mostly the dominant caste

in the village, is less impacted and less vulnerable from the BMIC project and several landlords are quite well off as they are given lump sum money by selling their land.

5. Women who use water for domestic purposes- drinking water, washing cloths

Table 6.5 Comparison of before restricted entry to lake and after of women

Parameters	**Before restriction to enter lake**	**After**
Quantity of water	Sufficient for household use	Nil
Quality of water	Good	Nil

Source: Self

Before 1985, all women got water from the lake for their household purposes. But after bore well was established in village, the households which had legal property/land right got pipe from G.P. The people, whose houses were on Gomala/Kharab/Gundtoppo land/Govt land, didn't have individual land right and they were not recognised by the G.P and thus didn't get water supply in home. After 2000, GP made provision to supply water to each street by stand post and installed a water tank for storing. Before the lakes got polluted or fenced or leased, the women from these homes got drinking water from lake as it was easily accessible, clean and unlimited. There were no queue or fight at stand post and thus women didn't spend long hours or great effort in bringing drinking water. Usually women from different communities used to wash cloths in lakes and this was a meeting/chatting place for women. Several women used to get their child to lake and thus many kids played around the lake and women didn't worry about leaving their kid back in home.

After restriction to lake entry, the poor villagers have no access to lake and thus all above parameters are reversed. They have become more vulnerable. In Hosakere Lake, they have to pay monthly bill/meter charges at Bangalore (i.e, higher than GP) rates since the village is now part of BBMP and thus has affected their economic life. Women wash cloths in home and they get water from stand post and spend long hours. Water is also not sufficient. Their access to lake is cut-off and thus women are more burdened and they worry about their child having to leave them at home. This has affected their productive hours of work. Thus, the women of this section of community which doesn't have legal land rights are the most vulnerable.

6. People who use lake for recreation such as walking, jogging

This section of people, are the new entrants to the village, staying in layouts. After the restoration of Kommghatta Lake several people from layouts, Kengeri town come here for

walking, jogging and thus they are quite happy with lake restoration and subsequently the fencing of lake.

From the above analysis, shows that the local village community is the most affected after the lakes got fenced or leased or polluted. Women migrants who don't have legal land rights are the most vulnerable since they don't have the basic rights of drinking water and usually depend on other sources of water such as stand-posts, neighbouring water from village and farmlands , thus in the process lose their productive work time.

6.5 From Lakes to Survey Numbers

Several survey numbers in Ramasandra and Kommaghatta village were mentioned in the land acquisition by the KIADB. The District Commissioner has sent notification to GP and thus GP has notified all the land owners about their land to be acquired. In 2002, KIADB gave notice to all land owners for land acquisition and thus everyone are forced to sell land. In return the local villagers got Rs 7 lakh-, but they negotiated for 10 lakhs and 1 site. But the catch is that the site was not allocated in their land. Several of villager's lands are near by the main road, market, near lake and are suited for agriculture and land value is high here. But the site allocated is at boundary of the village and it is a "gomal land"- barren land which is far-off and site is of low value and they felt cheated[51].

There were protests around the land issues and KIADB officials who visited village were sent back several times. Therefore, again local villagers negotiated with KIADB. Finally, they agreed for higher price as they have no other option since they can only negotiated over the land price, but they can't question land acquisition as it is done for public purpose using the State's eminent domain.

The biggest catch was that even Ramasandra lake bed was also mentioned in the survey numbers and thus the lake bed was leased out to NICE. With the creation of the BMICAPA, the KIADB had authorised to carry out acquisition on behalf of BMICAPA. As the lake beds come under the category of Government land, the lake beds were directly leased out to NICE without the knowledge of the GP. Since all the survey numbers mentioned in the land acquisition order belongs to BMICAPA, it has the sole authority and ownership of these lands and natural resources in BMIC area. The lake beds were not explicitly mentioned in the land to be acquired and they were mentioned as survey numbers. When cross-checked with Government official documents (see Appendix A), it was found that Ramasandra lake bed -Survey No 4– was mentioned. Thus under the cover of survey number, the lake bed was also handed over to

[51] Interview with Chikkanna – resident of Ramasandra village

private player NICE. Therefore, lakes came to be referred in terms of survey numbers and they were no more treated as water bodies nor were the ownership of GP over lakes taken into consideration and the sense of common property ownership of the local villagers was far from consideration.

6.6 Water as a 'property'

The fact is that water in its natural liquid state is 'a moving thing'. It is constantly in some phase of the hydrological cycle which means that it is quite impossible to mark a portion of water. Land is stationary and it is possible to assign legal ownership of the land. Physical control over water is hence not practical in the same way as over land and most other material matters. For these and other reasons, water has by tradition not been regulated as such within 'property law' (Getzler 2004).

The Romans coined the expression '*res nullius'* which means objects owned jointly by everyone and thus they are commons and these objects do not belong to anyone and thus these objects cannot be owned by anyone. For instance, fresh air and rain cannot be owned by a private subject (Getzler 2004).

Then, What kind of property is water to be classified as? To understand this, here I refer to the commentaries and doctrines published by authoritative legal scholars, foremost of them all were William Blackstone and Edward Coke[52]. Edward Coke had pronounced that "land in legal importance comprised hidden treasures and many other things mainly in terms of profit, as it had a great extension 'upwards as well as downwards' " (emphasis added). Water was, in his words, 'a species of land'. William Blackstone[53] also quoted that land and water could not be separately treated (Blackstone, (1765-1769)). His quote

> "I cannot bring an action to recover possession of a pool or other piece of water, by the name of water only; either by calculating it's capacity, as, for so many cubical yards; or, by superficial measure, for twenty acres of water; or by general description, as for a pond, a watercourse, or a rivulet: but I must bring my action for the land that lies at the bottom, and must call it twenty acres of land covered with water…If a body of water runs out of my pond into another man's, I have no right to reclaim it. But the land, which that water covers, is permanent, fixed, and immovable… and therefore

[52] Edward Coke who was Chief Justice of the King's Bench in England In the early seventeenth century

[53] Blackstone, Commentaries on the Laws of England, Book III, Ch 7

> in this I may have a certain, substantial property, of which the law will take notice…" (Emphasis added) (Blackstone,1769))[54]

Therefore, when water is possessed so as to be deemed 'captive' when water is kept in a water container, a lake, a pond, or some other holder, then ownership to it can be claimed (Clark 2002).

From these statements, what is interesting is that, the land and water can't be treated as distinct and thus this study tries to integrate land and water dynamics. Thus water can be subject to private ownership only when it is tied to the land and thus suitably captured. Thus water is considered as part and parcel of land. The lake beds are mentioned as survey numbers and thus leased out to NICE. Therefore, in order to take possession of lake, the NICE had to take control of the land or survey number of lake beds. Thus the term 'water as a property' is used in this section.

6.7 Land and Water Rights

In Karnataka, water supply and sanitation services are carried out through the mandated local bodies – by the Panchayat for the villages. But after expansion of BBMP, the Valegerihalli village came under BBMP and BWWSB was supposed to provide for drinking water, since the BWSSB Act stipulates that the Board may on application arrange to supply water to the building[55]. However, BBMP failed to recognise the land right of the poor villagers, these people didn't get water rights by BWSSB. In practice, from the information got from the BWSSB's web pages – "the applicant is required to own or live in a house for which there is a Khata issued. Non-pukka dwellings hence do not seem to be covered by this provision[56]. But, referring to several judicial pronouncements, each individual has a 'right to water' is interpreted in 'right to life'- a fundamental right as per the constitution of India. In Narmada Bachao Andolan –case regarding the large Sardar Sarovar Dam Project on the Narmada River where Justice Kirpal held that "water is the basic need for the survival of human beings and is part of right of life and human rights as enshrined in Article 21 of the Constitution of India"[57]. Then there was another judgment regarding the fundamental right of water in a case involving The High Court of Andhra Pradesh which subsequently held, in the matter of naturally fluoride-contaminated water, that "under the Constitution, the role of the State to provide every citizen with adequate

[54] Blackstone, Commentaries on the Laws of England, Book II, Ch 2, p. 18.

[55] See Section 32(1) of BWSSB Act

[56] BWSSB requires a 'tax paid receipt'. The Corporation or BDA must have approved watersupply in the area, and further a Road Cutting Endorsement must be issued by the BBMP.

[57] AIR 2000 SC 3751 = (2000) 10 SCC 664 = 2000(7) SCALE 34, para 248

clean drinking water and to protect water from getting polluted is not only a fundamental directive principle in the governance of the state but is also a penumbral right under Article 21 of the Constitution of India"[58].

Most villagers in the 'Valegerihalli' village are located on the 'Kharab land' are given temporary 'Khata'(tax) certificate by the Gram Panchayat. When the village was merged with BBMP in 2007, the BBMP fails to recognise them and hence didn't collect tax from them and thus they fail to have 'Khata' (tax) certificate issued from BBMP. Thus BWSSB as per the Law is not authorised to provide water for domestic consumption in these houses in village. Also in Kommghatta, study reveals that those who don't have proper land right over their house are not given legal water connection inside their homes. But they are given water only through stand-post at the end of their house. Thus, here I argue that, the land tenure rights are interwoven with water rights and those who don't have land tenure rights are denied water rights. But, referring to judicial pronouncements it can also be argued that, these poor villagers are also denied their fundamental rights.

Further, it can also be argued that, the exact boundaries of the jurisdiction of various Government institutions such as BBMP, BWSSB and BMIC are apparently not as well defined as requisite by the rule of law. No court decisions on the BWSSB's geographical extension have been found. Without clear geographical jurisdiction for the mandate and obligations of the BWSSB makes it practically impossible for it to provide water supply for everyone in urban areas BMIC region. There is a great probability for someone located in the outskirts of Greater Bangalore to claim his or her legal rights to water is thereby mostly diminished and the case of Valegerihalli validates this point.

6.8 Pollution and Contamination of lake

Lakes maintain the salubrious climate as they provide various benefits that include influencing the microclimate, flood control, encouraging bio-diversity and replenishing groundwater. The flow of water from one lake to another through the wetlands and storm water drains builds the eco-system of lakes. Lakes have several other functions such as feeding zones and nesting zones of water fowls and migratory birds and they have to be preserved. The natural recreational services from natural breeding habitats both for aquatic plants, aquatic animals, migratory birds demanding an ecological purity and other ecological niches and thus preservation and maintenance of lakes are very important from this perspective.

[58] P.R.Subhash Chandran v. Government of A.P. 2001 (5) ALD 771 (DB), Cf. A.P. Pollution Control Board II (2001) 2 SCC 62

Lakes must also be protected for the benefit of current and future generations, to build water security for all and also supporting traditional livelihoods and conservation of bio-diversity. To effectively ensure that statutory laws and authorities should take responsibilities the Court's in India over the years have evolved several principles that have strong sustainability dimension. The doctrine of Inter-generational equity, polluter pays principle and precautionary principles are some of the principle evolved by the courts in India.

In the same matter keeping "ecology" as a focal point of view, the Hon'ble Supreme Court in case of A.P Pollution Control Board vs Prof .M.V. Naidu says that[59] "The basic insight to ecology is that all living things exists in interrelated systems, nothing exists in isolation. The world system is one web like; to pluck one strand is to cause all to vibrate; whatever happens to one part has ramifications for all the rest. Our actions are not individual but social; they reverberate throughout the whole eco-system"[60]. When one applies this above principle to Ramasandra Lake and Bandematta Hosakere lake which involves private participation and high levels of pollution respectively. Then the experience from this study is largely unsatisfactory and where the lake beds are lease out to private player NICE. This is another shift, where lakes are no longer treated as a part of eco-system, but are largely viewed as land and thus question of environment sustainability arises. When lake is increasingly seen as land where private can claim ownership and this result in damaging the eco-system. In Bandematta Hosakere Lake the newly developed layouts in BMIC region are polluting this lake. These lakes exist as system of lakes and by breaking one chain in this eco-system has a disastrous effect on the eco-system at large.

Another policy which is relevant to waste water is the, Bangalore Water Supply and Sewerage Board (BWSSB), new policy for wastewater treatment. It says that "The onus of monitoring the discharge of wastewater lies mainly on the BWSSB board officials. The permission for discharge of wastewater should be accorded or rejected within seven days from the date of receipt of the application filed by industries"[61]. Thus the BWWSB is the solely responsible for waste water treatment in these newly developed layouts. But, what can be argued is that, there is no way to penalise the board, for non-implementation of sewer lines in the newly constructed BDA, BMIC layouts and the sewage is left untreated into the lakes in the villages in BMIC, as the policy can't be questioned in the courts.

[59] Hon'ble Supreme Court in case of A.P Pollution Control Board vs Prof .M.V. Naidu reported in 1992(2) SCC 718

[60] Science Action Coalition by A. Fritsch, Environmental Ethics: Choices for concerned citizens, 3-4 (1980) (1998, Vol 12, Harward Env. L. Rep at 313)

[61] http://articles.timesofindia.indiatimes.com/2011-05-25/bangalore/29581166_1_sewage-treatment-plants-discharge-wastewater

In Bandematta Hosakere Lake, one can see an overgrowth of water Hyacinth, algae and other weeds, indicating very high levels of pollution. Bandematta Hosakere Lake also impacts the lake system as a whole, as water from the lake moves further into 'Vrishibhavati valley' and thus polluting several downstream lakes.

In this village, often trash is tossed near the collection bins and thus lot of trash stays lying outside the bins. As seen from the study, the BBMP doesn't collect the trash often. As a result, trash spills into the streets and storm drains and ultimately end up in the lake itself. Stray dogs and cows eat some of the biodegradable waste, while the non-biodegradable water including plastics, paper, and chemicals end up in the lake and worsen the pollution levels in the lake. Also several underground sewerage lines are blocked and do not function for a variety of reasons. Sewerage flows through open lines in the village, which were formerly meant for storm water drainage for harvesting rain water to lake. But now this untreated sewage enters the lake.

The accumulation of pollutants and sediments in the lake are directly distressing the biodiversity of the lake ecosystem. A major concern is that, when the untreated sewage enters the lake it increased the proportion of nitrates and phosphates and thus reduces the level of oxygen dissolved in the lake water. These nitrates and phosphates are nutrients for growth of water hyacinth plants and they grow very rapidly. Thus decrease in oxygen in the lake water has greater impacts as fish are dependent on oxygen levels. Without the fish, the weeds like water hyacinth are ultimately left unchecked. Thus, this leads to a vicious cycle by breaking down the eco-system of the lake in a very short time.

The nuisance of sewerage not only affects the lake, but also has contaminates the groundwater, making it unhealthy for human use and spreading water borne disease to those who have no other source of water. Contamination of lake by sewerage and solid waste have rendered their water polluted and contaminated, making life difficult for poorer people in the village who have no access to the piped system for water.

Chapter 7: Conclusion and Policy recommendations

This research shows that 'Bangalore' in the process of becoming 'World Class' city by implementing the mega-Bangalore Mysore Infrastructure Corridor project involves land use change from agricultural rural areas in the periphery being converted to urban land uses. In the process, landscape surrounding the lake and the village appears to have transformed from a wetland-lake ecosystem which acted as a village commons to private property owned by NICE or fenced system disconnected from ecosystem under the centralized 'State' agency of BMICAPA. The lakes in BMIC region are now inadequately maintained, polluted with sewage and solid waste and with depleting water quality and quantity as many of the lakes in BMIC region are leased out to private entity NICE. As argued in this research, lakes here are increasingly looked as land property for profit-making and thus the shift of viewing lakes as 'common property' to 'private property'

Debates on privatisation of lakes

Along with these lakes in BMIC region, several other lakes are being developed and managed through public–private partnerships. There were several strong protest and agitation from variety of civil society groups and several PIL were filed in High Court. Often in public–private partnerships, the public is entirely the 'State' and the local community is left behind in the planning process. Given the socio-economic inequalities in the villages under study in BMIC region and in general applicable to several places in India, the section of society which remains most vulnerable are the disadvantages sections where their interests are over taken by private interest group for making profits. The traditional users who maintained this lake have been sidelined in this process and given the complex governance structure, overlapping jurisdictions in BMIC region , the BMICAPA authority is not able uphold the rights of these traditional users.

With respect to several litigations filed in the courts, the Hon'ble Supreme Court in the Jagpal Singh case gave directions against privatisation of lakes in India and accordingly in my study the question remains as to, How 'State' in BMICAPA, PWD and KIADB can leased lake beds in BMIC region to private entity NICE as there is no enforcement of the above Supreme Court directions? (Saldanha 2011)

Protect lake systems while developing new layouts, industries and infrastructure projects

Lakes provide numerous essential ecosystem services thus maintaining substantial biodiversity of region. Therefore, every time when there is a need to develop new residential layouts or industries or infrastructure projects such as BMIC, or expand existing ones, concern should be to preserve the eco-system of lakes.

At the planning stages itself, different Government agencies such as BMICAPA, BDA, BBMP, BWSSB that are involved in this project, must co-ordination and integrate themselves in a better manner to identify features of the lake such as to demarcate the lake area and the Raja Kaluves and make plans to protect them.

Government agencies must also involve traditional community-based users such as fodder collectors and fishermen etc, in planning process itself. As per the provisions of the Karnataka Town and Country Planning (T&CP) Act, 1961, provides for public consultation in planning and implementation of any project. Therefore, the BMICAPA, which is governed by T &CP Act, along with Gram Panchayat must also include traditional local community in management of lakes.

With respect to design of the layouts, the storm water drains and sewage drains should be separate. Storm water should be harvested in lake by planning the roadside water runoff channels. No sewage or effluents should at all be let into these storm water drains, and in any case they must be discharged after appropriate treatment in accordance with the Water (Prevention and Control of Pollution) Act, 1974(Saldanha 2011).

Local Rights to be recognised for better use of lakes

In this process new urbanisation through mega-infrastructure project, the question remains is to, Why a critical natural space of lake has been significantly reshaped, which result in considerable differences in the perceptions of the significance of the lake between traditional rural users, and recent layout residents? While the local village communities, that were in the past, dependent on the lake for drinking water, irrigation water, fish and grazing purposes, are often neglected and these lakes are now largely treated as recreational areas by the new residents. Therefore, what appears is that lakes are of some value to all, but essential to none.

Also while lake restoration special provisions in the lake have to be made to protect those whose livelihoods depend on lakes. Any lake management plan has to integrate the interests of local communities such as subsistence fishermen, dhobi, cattle grazers, vegetable growers, etc.

Participation of women, young people in lake management

Women play a key role in the family unit at the grassroots of the community. Women play a major role to motivate and bring up children from every home who are the future citizens of country. Particularly, in rural and peri-urban areas where portable water supply is not adequate, women play the most vital role of obtaining the daily needs of potable water sully for their homes. Hence participation of women is very essential for lake management.

Moving away from Civil Engineer's model for lake restoration

The lake development model presently followed by LDA, BDA and BBMP is a civil engineering design and it does not take into consideration the structure, ecology and the biodiversity of the lake. These agencies appear to largely focus on surveying, mapping and fencing these lakes and on engineering and ecology oriented designs for rejuvenation. There is very less concern to understand the social use of lakes as critical natural spaces in the city, or to developing approaches to lake design that facilitate the use of lake for traditional community-based users.

This civil engineering model does desilting of the lake and then utilises this mud for in situ development of ringed-elevated-wide jogging tracks so as to cut costs involved in transporting and dumping mud elsewhere. This ringed-elevated-wide is unnecessary constructions within the lake area. Such desilting practice of this model leads to the steady or sometimes a swift destruction of the natural structure of the lake. All lakes in Bangalore have a pattern that, the deepest zone is close to the bund and the depth gradually increases towards the foreshore (Saldanha 2011). The present design model indecisively deepens the lakes, frequently contributing to the collection of polluted waters resulting in extensive pollution of ground water aquifers[62]. Also, while taking into consideration lakes for development or restoration, each lake should be considered as a distinctive case and a universal development model should not be adopted.

Island Design

Islands are used by birds and other species for resting and nesting. For this, islands should be made away from human activity and must be positioned at adequate distance from the main-bund and water-edge in such a manner that the adjoining water provides adequate insulation from ground predators and human activity (Saldanha 2011).

[62] http://www.indiawaterportal.org/sites/indiawaterportal.org/files/Lake_Rehabilitation_ESG_Submission_High_Court_2011.pdf last accessed on 11th March 2012

Live fencing of Lakes instead of stone wall or mesh fencing

If the lake is situated in dense urban areas, an appropriate method that could be used is a 'live fencing' approach (Saldanha 2011). In this method, tree of specific species are planted all around the lake instead of fencing. This method will not restrict the entry of local community from entering, but it will help check encroachment on the lake bed. This would also save hundreds of crores of public money from needless construction of stone walls. This live fencing with specific species of trees would help build bio-diversity of the lake and would also be a minor forest produce for local community.

As an alternative to the current practices of ringed elevated jogging tracks, a packed-mud or stone can be made all around the lake. This will be on the ground-level and thus it would not obstruct the water from the surrounding catchment area from entering the lake.

In the open lake area that spreads above this mud and stone walkway, around the perimeter of the lake, several select trees and bushes that are beneficial to birds, butterflies and other biota can be planted.

New process of Sewage treatment in a decentralised manner

By using an organic solution of based upon the technology of Effective Microorganisms to treat domestic sewage (Boyd 1999). The microbial technology easily degrades complex organic substances to simpler ones and it synthesizes pathogens and thus removes foul odour. This technology used fermentation process to treat sewage and thus these microorganisms such as yeasts and cyno-bacteria etc transform complex organic molecules into simple organic compounds that often can be absorbed directly by plants (Boyd 1999). With this technology several Decentralized Waste Water Treatment can be established before the lake and thus treat sewage in an effective manner. By distributing the infrastructure of waste water treatment, one can avoid the necessity to maintain an underground sewage grid. It also saves expenditure on pumping and sewer lines and has minimal maintenance and reduces the chance of complex contamination.

The audience of kind of study would be those working on lakes from point of view of traditional management perspective, inclusive, collaborative management based on dialogues between local communities and the government. This study could be used for better planning in BMIC project. Some of the questions raised in the study are possible areas of further research.

Appendix A

TANK IN BANGALORE HANDED OVER TO M/S. NANDI INFRASTRUCTURE CORRIDOR ENTERPRISE LTD. (NICEL), WHICH DOES NOT ARISE FROM THE FRAMEWORK AGREEMENT BETWEEN GOVT. OF KARNATAKA AND M/S. NICEL, DT 03.04.1997						
Sl. No.	**Sy. No.**	**Villages**	**Total Extent**	**Extent Transferred**	**Excess**	**Remarks**
1.	43.	Manganahalli	6-22	6-22	5-32	Road utilizes 30 guntas
2.	48.	Begur	6-05	6-05	5-35	10 guntas used for the road
3.	38.	Kammanahalli	18-37	2-30	1-00	1A 30G covered by road
4.	13.	Doddathoguru	44-31	44-31	38-36	5A 35G covered by road
5.	38.	Gollahalli	19-10	5-02	0-27	4A 15G used for road
6.	71.	Gottigere	37-13	5-00	3-00	2 acres like to be occupied by road
7.	6.	Ramasandra	7-06	3-00	1-10	1A 30G utilized for road
8.	46.	Ramasandra	28-01	1-00	0-10	30G occupied by road
9.	48.	Madavara	43-38	1-01	0-11	30G occupied by road
10.	24.	Varajasandra	13-09	13-09	13-09	Not utilized for road formation
11.	4.	Hemmigepura	4-11	4-11	4-11	Do
12.	25.	Hemmigepura	8-25	7-25	7-25	Do
13.	113.	Doddathoguru	12-39	12-39	12-39	Do
14.	43.	Beratena Agrahara	29-10	28-10	28-10	Do
15.	51.	Konappana Agrahara	28-10	28-10	28-10	Do
16.	48.	Manganahalli	4-00	4-00	4-00	Do
17.	43.	Manganahalli	6-22	6-22	6-22	Do
18.	25.	Gonipura	8-26	8-26	8-26	Do
19.	45.	Gonipura	17-28	17-28	17-28	Do
20.	60.	Gonipura	12-14	12-14	12-14	Do
21.	22.	Doddakuntanahalli		117-32	-	-
23.	259	Kodiala Karenahalli		04-31	-	-

Appendix B

Some of the details of Court Orders

1. 11.02.2006 GoK filed a written submission in Supreme Court by suppressing the fact that list of survey nos with reference to the project technical report, submitted by NICEL on various dates in 1996 and that they have duly vetted by nodal department – PD and circulated to all Departments as well as to Deputy Commissioners of the districts within jurisdictions of which the project components are situated ad GoK on 11.02.2006 submitted in Supreme Court is as follows:

    a. It is submitted that Nandi is not entitled to the land wherever it makes a demand. This can only be decided by an interpretation of Frame Work Agreement read with the technical material mentioned in the project technical report of 1995.

    b. It is clear, therefore, that final identification of the lands had not taken place, though proceedings under section 28(1) of the KIADB Act (hich corresponds to Sec 4 of the Land Acquisition Act) were contemplated

    c. It must be emphases that after project technical report of 1995, there was no other technical appraisement in the field or otherwise, which has been referred to in FWA.

    d. The only document prior to Somashekar Reddy's case which referred to survey numbers is a circular dated 31-July 1997, which was issued by the then Chief Secretary of Karnataka specifying certain survey numbers for the hole project. The total extent of land contained in those Survey Nos, added up to about 49000acres ad included both Government land and private lands as against 20193 acres

2. Submission of NICE in Supreme Court:-

    a. Land- land 1means all land necessary for the development and implementation of the infrastructure corridor and as generally described in Schedule I and more specifically described in Infrastructure corridor project technical report and any additional land reasonably requested by company and agreed to by GoK for use in Infrastructure corridor project.

    b. Technical requirement- means the specification, drawings data procedures and programmes proposed by the company in connection with Corridor project as generally contained in Corridor project technical report, as amended modified or supplemented from time to time in accordance with this Agreement

    c. Therefore, even otherwise, it is incorrectly submitted on behalf of the State of Karnataka that the land were not identified before and after Somashekar Reddy judgement and till K.C Reddy committee was constituted. Therefore, the Govt must be allowed to correct mistakes.

3. Supreme Court order on Dated 20.04.2006 is as follows

a. confirmed High Court order Dt 03.05.2005

b. With respect to acquisition of lands, The Supreme Court reads as follows " The division bench was right in taking view that the project was an integrated project, intended for public purposes and irrespective of where the land as situated, so long as it arose from the terms of Frame Work agreement" . The findings of H.T Somashekar Reddy's order is final, even this court cannot open in view of Resjudicata.

4. On 04.02.2008- PWD Secretary on behalf of empowered committee members filed an affidavit w.r.t to C.C.C. 265/07 is as follows, there are impermissible changes effected in FWA which amounts to loss of Rs 30,000 crores of rupees to the ex-exchequer.

5. On 21.08.2008- Sir Udaya Holla Advocate General gave an opinion as follows " To implement as Originally conceived and upheld in H.T Somashekar Reddy Prder"

6. On 09.09.2008 – PWD Secretary filed affidavit which is adapted by the Chief Secretary and other members of Empowered Committee is as follows

   a. In act this alignment (i.e ODP dt 12.02.2004) is not in accordance with the earlier alignment given by petitioner (NICE) and approved by State and which has been noticed by High Court in Somashekar Reddy case" (Para 34)

   b. The agreement dated 14.10.1998 between KIADB & NICE contains land in detail either in excess or really not needed for project purposes such as Lake lands , according to the indicated components in Frame Work agreement(para 35)

7. On 07.10.2008- Sir Yediyurappa C.M approved cabinet note to implement in accordance in the Frame Work agreement, High court order passed in W.P 29221/97 and Supreme Court dt 20.04.2006. Document

8. On 18.10.2008 Government Order issued as per the directors of Sir Yediyurappa C.M approval dt 7.10.2008 to implement as Originally conceived W.P.29221/91 and dt 20.04.2006 Supreme Court Order

9. On 04.02.2009 – Solicitor general submitted before Supreme Court to give time to implement G.O. 18.10.2008 , Supreme Court order dt 20.04.2006 and FWA.

10. On 24.10.2009 – PWD Secretary Sri R.B. Agawane .IAS request Adovocate General to submit to Supreme Court to seek time to implement in accordance with FWA and Supreme Court order dt 20.04.2006

11. On 27.10.2009 Advocate General Sri Ashok Haranahalli requested orally Supreme Court to pass orders to complete the road as per ODP dt 12.02.2004; which is rejected by Supreme Court order dt 20.4.6006; this is done by misrepresentation that, the ODP alignment approved on 12.02.2004 is one which arose from FWA and noticed in High Court in Somashekar Reddy case.

    This submission is to contrary:

    a) Affidavit dt 9.9.2008

    b) CM approval Dt 7.10.2008

c) G.O dt 18.10.2008

12. On 03.11.2009- Supreme Court – Confirmed the submission of Advocate General and ordered to complete as per ODP dt 12.02.2004

13. On 09.11.2009- KSPCB categorically says, alignment approved on 12.02.2004 does not have board approval.

14. On 25.11.2009 – Sri **A.B. Agawane Principal secretary** filed affidavit accepting the 27.10.2009 submissions and orders dt 3.11.2009 , instead of correcting as per his old affidavit dt 9.09.2008. He states as follows in para 4: it is submitted that State Government is committed to implement the project in accordance with FWA and ODP dt 12.02.2004. As stated above various steps are already been taken for implementation of the project and as such there is no justification to continue with the contempt proceedings. Hence, it is submitted that the contempt proceedings to be dropped in the interest of justice.

15. 11.01.2010 Supreme Court passes order is as follows : We have heard learned counsel for the parties on the application for contempt. By final judgement, this court directed the State/ respondents to implement the BMIC. There is no direction to implement the ODP dt 12.02.2004.

    Further there is direction as follows

    1) Have a meeting to implement project

    2) Report on the basis of order passed earlier

    3) Have a meeting with interested party

    Note: Government and its instrumentalities , including KIADB have to take lands only in accordance with FWA and acquisitions are valid only if it arose from FWA, this is what direction of the court hence for ODP acquisition is null and void. Therefore, all the lakes that are leased out to NICE are NULL and VOID and they can’t claim ownership of these lakes.

Appendix C

Interview Schedule

Area: Village: Date:

Name of the respondent and relationship with HOH:_____.
Religion: _____. Caste: _____

Since how many years you are living here? _____ House: Own / Rented.

Do you have water connection? Yes / No. If Yes, since when? _____

Drinking Water:

What is your source of: Drinking water _____What purposes_____.

How far is that source of water: _____How long does it take to fetch water & return home? _____

What is the frequency of water supply?

_____

How much quantity of water you get?

_____

Do you pay for water? Yes / No How much:

_____

Who fetches water most often?

_____

What are the available storage facilities at your home?

_____

Size of the connection: Connection type:

Timing: Pressure:

Is this sufficient for your needs? Yes / No. If No, where you get excess water?

_____

How much you pay for that:

_____

How often would you like to get water?

_____

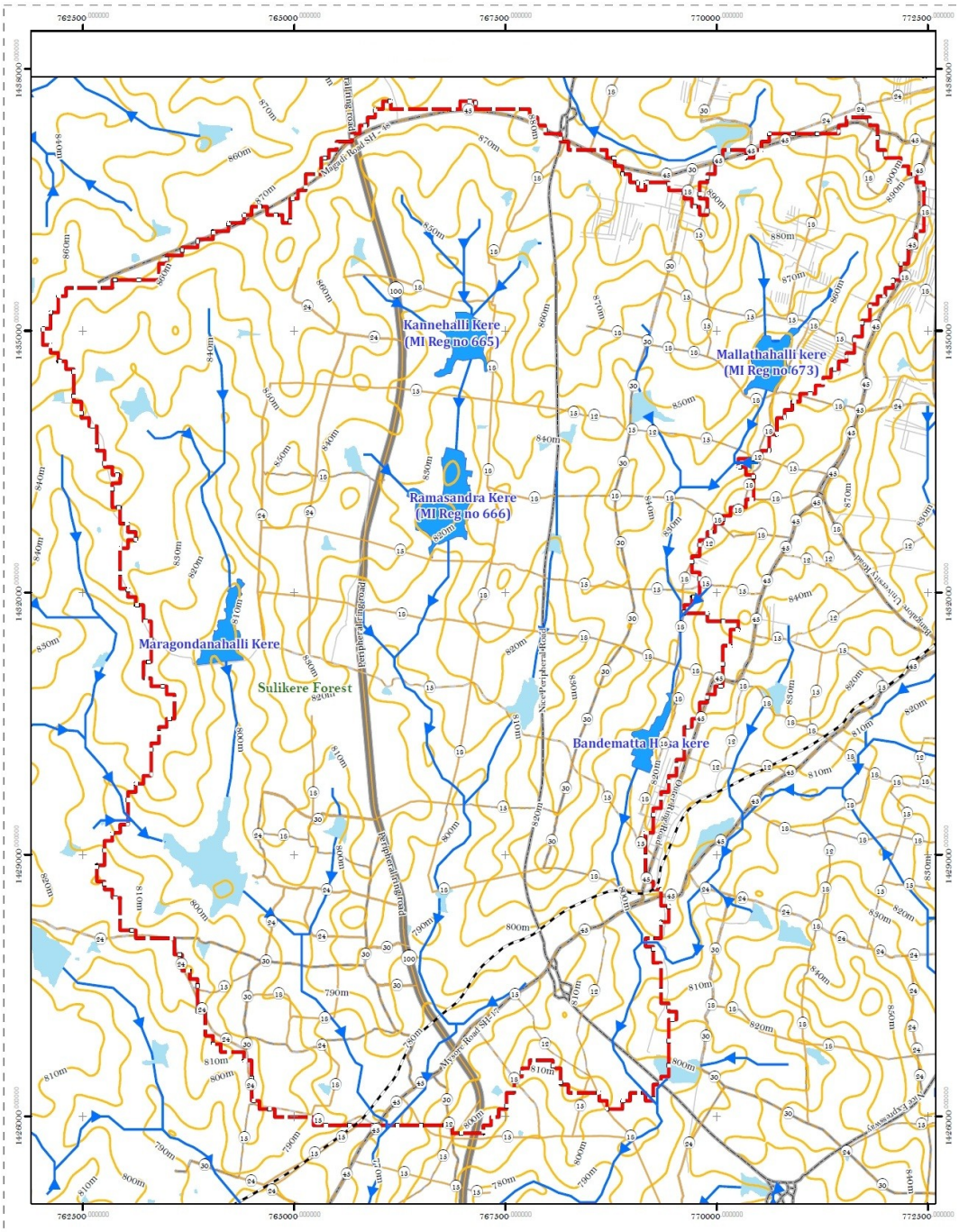
Which kind of problem are you facing due to this water scarcity? (Like, in health, sanitation)

Your experiences regarding drinking water: (water politics in your village)

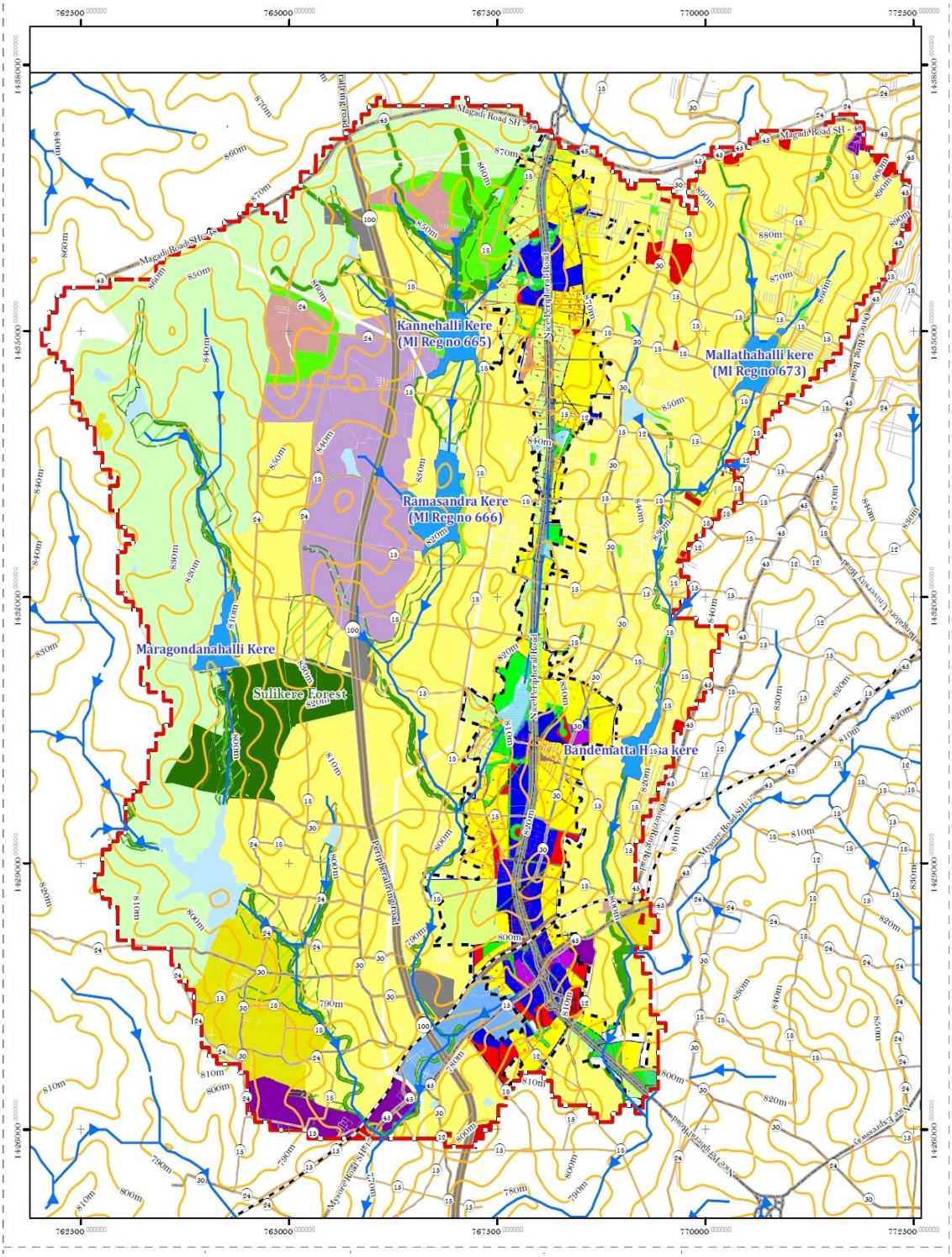
Appendix D

Maps

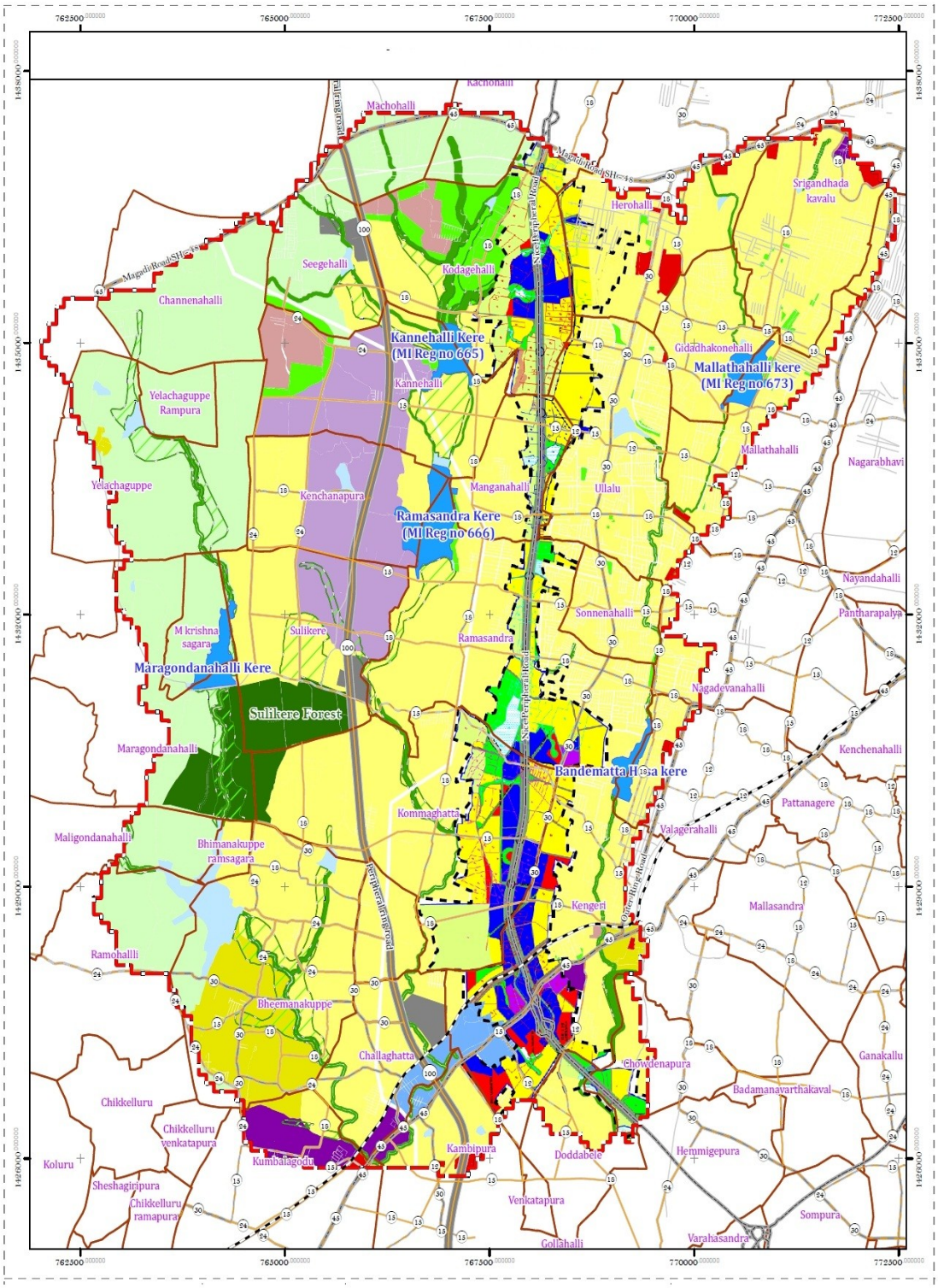
Road and Nallas



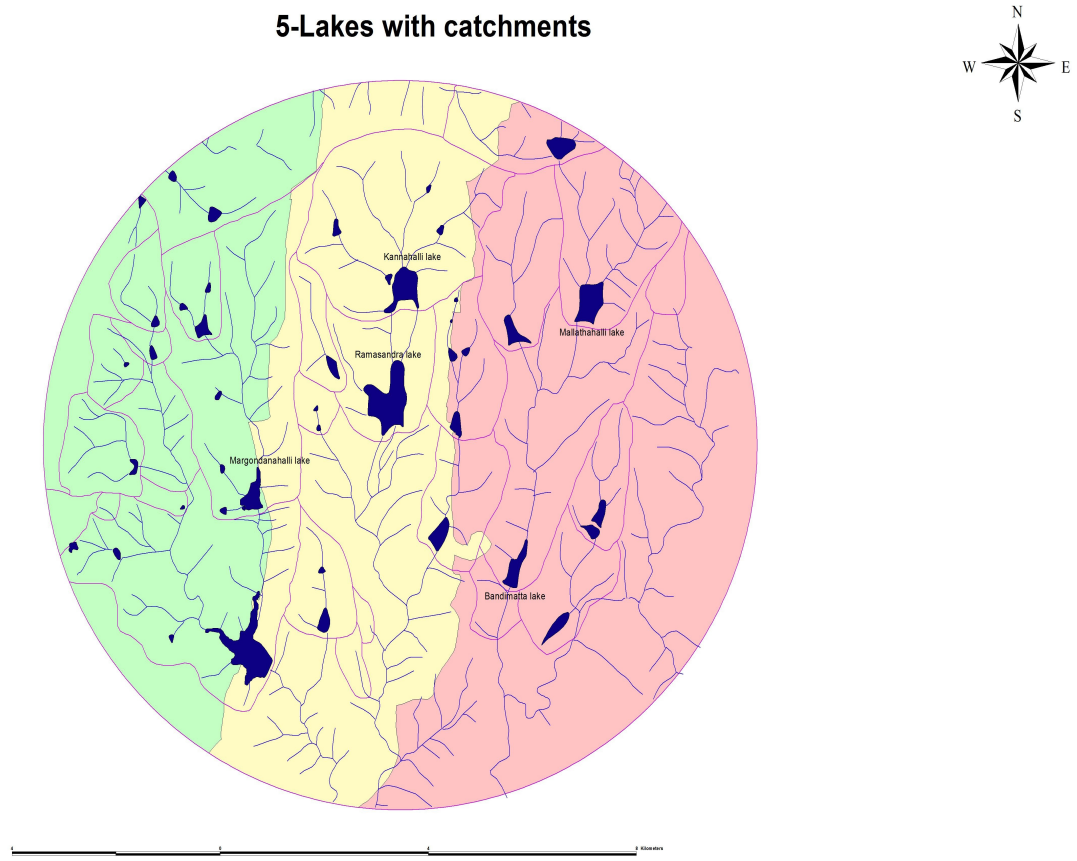
Land Use Superimpose Roads



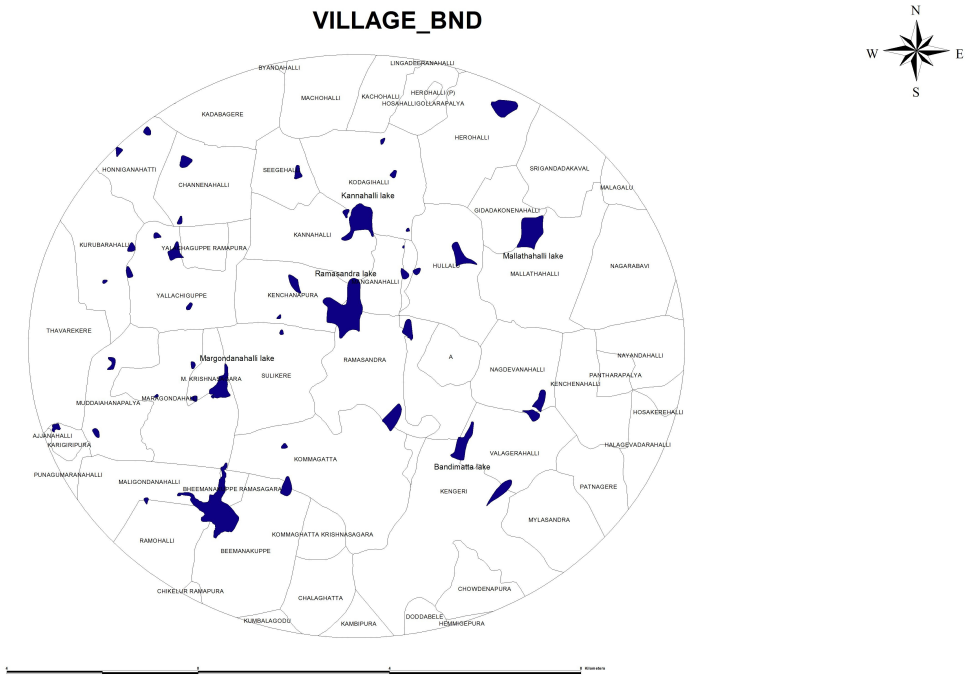
Break Up of Land Use



Lakes with catchment area



Village Boundary



Appendix E

Pictures of traditional water management in the villages under study

Picture showing use of small tanks

Defunct Irrigation system in Bandematta Hosakere Lake

Glossary of Indian terms

“Gomal land”: Barren land

“Khotta land”: ‘Bogus land’

'Kharab/Dharkhas' Jamin : Barren land

‘Pani Patta’: property rights

'Hakku Patra': land right document

'Khata': 'property tax document'

'Kandaya': tax paper

'Pakka': concrete houses

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