

Environmental Governance: Concept and Contextual Illustration through Three Indian Wetlands Cases

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1.0. Introduction

Increasing environmental degradation threatening the sustainability of natural and thus livelihood systems; and limits to hitherto tried technical and fragmented institutional solutions is prompting, new ways of comprehending issues in natural resource management. A major related search in recent times is on innovative ways of environmental governance (hereafter EG), particularly with the hindsight of development thinking and practice in the last half century. EG as a concept got triggered from the need for approaching these cross cutting issue with a more comprehensive understanding. Although there are attempts along these directions recently (MEA, 2005; IPCC, 2007), there is an acute need for contextual understanding of such issues to decipher the challenges at the policy, programme and practice levels.

This chapter will attempt to first understand the conceptual evolution of EG to decipher the challenges to governance in three Indian wetlands. The key proposition is that the challenges to EG are basically triggered because of two reasons: (i) the complex nature of wetland ecosystems with competing uses and resulting multiple livelihood dependencies; (ii) a complex governance structure due to the historical evolution hinged on a sectoral understanding of natural resources that led to a fragmented institutional structure (policies, laws and organizations). The paper is divided into five sections. The second section attempts to explain the conceptual understanding of EG. The third section presents an overview of EG with particular emphasis to Indian wetlands. The fourth section describes the challenges to governance in three wetlands due to the environmental, socio-political peculiarities of each and illustrates the fragmented nature of institutions (policies, laws and organizations) of governance in wetlands. The last section revisits the conceptual discussions on EG and

reflects on the three Indian wetlands for a contextual understanding in order to decipher some general challenges at the conceptual and substantive levels.

2.0. Environmental Governance: Concept and Evolution

EG is an over-arching principle that regulates public and private behaviour towards greater accountability and responsibility for the environment. It operates at every level ranging from the individual to the global and calls for a shared leadership and combined responsibility for maintaining environmental sustainability. Environmental governance is of critical importance for sustainable development, providing specific instruments and tools for a comprehensive and multi-sectoral approach to environmental protection ((Lead, 2006). Environmental governance is a complicated concept since it is trying to club two different but related debates, one on environmental degradation and the other on the renewed concerns on governance ('good governance' as put forward from certain quarters). This section tries first to review these debates briefly to arrive at the genealogy of thinking that shaped debates in environmental governance and then goes on to identify the initiatives on EG at different levels.

2.1. Changing Perspectives on Governance

The 'rediscovery' of governance has been done by mainstream international financial institutions like the World Bank as a rethinking of the pure neoliberal agenda that peaked development thinking in the 1980s. Many writers have been closely associated with this counter-revolution, along with policy-makers like Bauer (1972), Balassa (1982), Lal (1983), Bhagwati (1993). In subtly differing terms these writers have all criticized what they consider as the damaging consensus on development economics that took shape soon after World War II that put State as the main designer, provider and catalyst of economic development. They suggested that such a consensus fails to see that most states are likely to be predatory, rent-seeking economic actors, and fails to recognize that state failures are at least as likely as market failures in the developing world, and far more damaging. This argument found currency in both sides of the Atlantic with Ronald Reagan and Margaret

Thatcher as the torch-bearers of this ideology. This counter-revolution in development theory and policy has also been criticized for its simplistic accounts of the nature of 'real' markets in many developing countries and for its one-dimensional accounts of what motivates apparently isolated economic actors (Stewart, 1985; Killick, 1986). The process was deepened by the ending of cold war with the disintegration of the Soviet Union and fall of the Berlin wall. However, in mid nineties, with more than a decade of neoliberalism with a unipolar world, it was clarified that even for the market to work, there has to be strong institutions, particularly the need of a State. World Bank emphasized on the importance for a 'scaled down' and 'tamable' version of State for the efficient functioning of the market. The World Development Report in 1997 argued against state's role as a direct provider of growth but as a partner (WDR, 1997). In this argument, complementary spheres of society like market and civil society has to be part of governance. Here, governance is the result of a social-political-administrative sharing process where state, market and civil society have their own role without state having a central role since no single sphere has the sufficient knowledge to dominate a governing model (Rhodes, 1997). In this liberal version of governance, institutions are created for coordination among different members of the society, preventing conflicts of interests by defining the rules of the game (Gorringe, 1997). Such a version of institutions as rules of the game is celebrated by the new institutional economics school too (North, 1990). The conditions for "good governance" is the interactions and coordination among government, market and civil society under the framework of democracy and respect for human rights as described by the UN Resolution 2000, 64 (UN Commission for Human Rights). Although the concept of "governance" is as old as human civilization with the rudimentary meaning of the process of decision-making and the process by which decisions are implemented (or not), lately it has been used in several contexts such as corporate governance, international governance, national governance and local governance (UNESCAP, include year).

A perspective of governance as defined by the United Nations System is shown in figure 1. According to United Nations, good governance has 8 major characteristics. It is participatory, consensus oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive and follows the rule of law. It assures that corruption is minimized, the views

of minorities are taken into account and that the voices of the most vulnerable in society are heard in decision-making. It is also responsive to the present and future needs of society. Although, this is a listing of normative ideas, it offers a prism to ray-out the concerns usually piled-up in discussions of ‘good governance’.

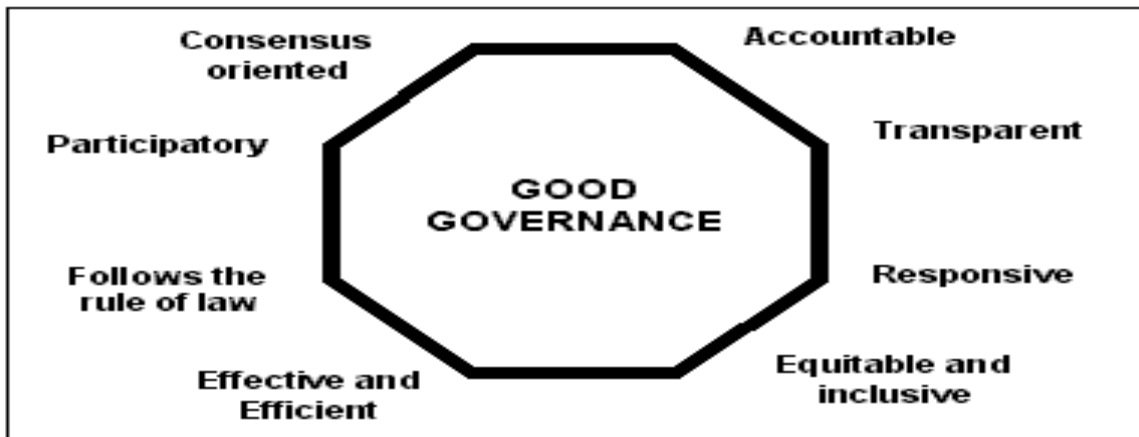


Figure 1: Characteristics of good governance (Source: UNESCAP, year)

In the framework, participation could be either direct or through legitimate intermediate institutions or representatives. However, we need to note that representative democracy does not necessarily mean that the concerns of the most vulnerable in society would be taken into consideration in decision making. This paper argues for an inclusive idea of participation including the necessity for mobilizing the weakest sections to be part of it. The second requirement is fair legal frameworks with impartial enforcement of laws that requires an independent judiciary and an impartial and incorruptible police force. Transparency means that decisions taken and their enforcement are done in a manner that follows rules and regulations. It also means that information is freely available and directly accessible to those who will be affected by such decisions and their enforcement. It also requires free expression of views by all actors and mediation of these different interests in society to reach a broad consensus in society on what is in the best interest of the whole community and how this can be achieved. It also requires a broad and long-term perspective on what is needed for sustainable human development and how to achieve the goals of such development. This can only result from an understanding of the historical, cultural and social contexts of a given

society or community. Accountability in this framework is not only governmental institutions but also that of private sector and civil society organizations. In general an organization or an institution is accountable to those who will be affected by its decisions or actions. Accountability cannot be enforced without transparency and the rule of law (UNENSCAP, year). It is difficult to contest any of these ideas. However, the larger question is the political context under which EG decisions are taken, where fundamental questions like access to and control of resources and power relations are the key to such decision-making. We conclude this discussion on EG with following observations:

EG needs to take the complementary role of the three societal spheres of state, market and civil society in decision-making. Ideas of “good governance” (like UESCAP framework reviewed) with its normative concerns have to be contextualized in space and time with a political understanding of the concept. This is important since often these slip down to an uncritical managerial approach that advocate optimistically about the possibility of good governance without fully considering the political economy in which governance decisions are taken or not. We shall dwell upon this issue at the end of this chapter. EG needs to closely disaggregate the institutions (policies, laws and organizations) of governance.

2.2. Environmental Degradation and Initiatives for Governance

The ecological degradation and indications of an emerging crisis triggered the first global thinking on the subject with the publication of the *Limits to Growth* by the Club of Rome in 1972 (Meadows *et al.*, 1972). However, the first attempts at such thinking came with the publication of *Silent Spring* by Carson (1962), who warned about the environmental consequences of the indiscriminate use of modern chemical pesticides, fungicides and herbicides. *The Tragedy of the Commons* (Hardin, 1968) was part of the pioneer thinking about the relationship between property rights and environmental degradation, linking population pressure and unrestricted use of common property resources to degradation.¹ The first global conference on the environment, held in Stockholm in 1972, set in motion three decades of discussion, negotiation and ratification of a whole series of international

¹ For a hard-line criticism see Ross (1998).

environmental agreements. Schumacher (1974) was one of the earliest ‘green’ thinkers who put forward the idea that ‘small is beautiful’ and warned of the finiteness of resources. He argued to refrain from blind productivism that threatens the tolerance margin of nature and non-material needs of humans, and prescribed intermediate and appropriate technology, especially for developing countries. By the 1980s, the concept of ‘sustainable development’ was first widely publicized by the World Conservation Strategy (IUCN, 1980). It has since become central to the thinking on environment and development and a notable contribution is the report of the World Commission on Environment and Development (WCED 1987), also known as the ‘Brundtland Report’. The most important contemporary initiative is the United Nations Environment Programme (UNEP), which acts to centrally coordinate organizations and information. Major international conventions, held every decade or so, guide the process of global governance, while a series of multilateral environmental agreements (MEAs) provide the basis of international environmental regulation (Goffman 2005).

This table has not been referred to in the text.

Table No. 1: Major milestones of the global environmental movements

Year	Milestone
1970	First Earth Day observed
1971	The Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention)
1971	This Endangered Planet, Richard Falk
1972	The UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention)
1972	Stockholm Conference on the Human Environment
1973	The Convention on the International Trade in Endangered Species (CITES Convention)
1974	The Limits to Growth, Donella Meadows et al.
1978	The Human Future Revisited, Harrison Brown
1978	The Twenty-Ninth Day, Lester Brown
1980	World Conservation Strategy, IUCN and UNEP

1987	Our Common Future, World Commission on Environment and Development (the Brundtland Commission Report)
1992	Rio Earth Summit
1992	Framework Convention on Climate Change
1992	The Convention on Biological Diversity
1994	Convention on Combating Desertification
2002	World Summit for Sustainable Development in Johannesburg
2005	Kyoto Protocol comes into force

Source: Keshwan (2005:5)

Within the context of the evolution of global environmental politics and policy, the end goal of global environmental governance is to improve the state of the environment and to eventually lead to the broader goal of sustainable development (Najam *et al*, 2006). The immense growth of the system of global environmental governance signifies the world's growing appreciation of the scope and scale of the problems. However, this growth has also made the system unwieldy and increasingly incoherent. There is now a general agreement that this system is more cumbersome and less effective than it must be if we are to confront the serious environmental challenges laid out in such international reports as those of the IPCC and the Millennium Ecosystem Assessment (Runnalls, 2006). The major constraint of most of the global solutions suggested to date is their lack of implementation. Although they are meant to complement each other, they often compete and even contradict to cancel out each other's impacts (Dach *et al* 2005).

The Environmental problems in Asia have grown in severity mainly due to the rapid and indiscriminate economic growth in the region. In most of the Asian countries state played a major role in initiating and formulating environmental policies to deal with these problems, except for Japan and India, where environmental, movements among citizens played a major role in introducing innovative policies and actions. The environmental NGOs are now emerging as promising actors in Asian countries (IGES, 2001).

Apart from many existing bilateral agreements on environmental issues between South Asian countries, the South Asia Cooperative Environment Programme (SACEP) in

1982 was the first multilateral agreement, adopted by eight countries. SACEP has the characteristics of a modest-sized regional environmental organization, consisting of three major organs: the Governing Council, the Consultative Committee, and the secretariat. SACEP, as an organ, provided secretariat and administrative services for implementing its own programmes, together with other environmental initiatives such as the Malé Declaration on air pollution endorsed by UNEP (Shihab, 1997; Pradham, 2000). The South Asian Association for Regional Cooperation (SAARC) has been particularly concerned with transboundary and global environmental issues such as natural disasters, climate change and transboundary movement of hazardous wastes, and has developed an action plan. In addition to these two major comprehensive initiatives, several plans focusing on single issues have been developed in South Asia. The launch of the Regional Seas Program was called for by SACEP member states at UNEP's Governing Council in 1982, resulting in the "designation of the region as a part of UNEP's Programme" in 1983 (Abeyegunawardene, 1997).

Legislative efforts at pollution control in India date back to the mid-nineteenth century (Curmally, 2007). There are several legal acts pertaining to Environmental Protection in India such as the Water Pollution, Air Pollution, Environment Protection, National Environment Appellate Authority, National Environment Tribunal, Animal Welfare, Wildlife, Forest Conservation and Biodiversity Act (MoEF, 2008). These Acts dealt with environmental regulation in a piecemeal manner and proved ineffective at reducing the levels of pollution (Curmally, 2007). In spite of such acts and the environmental policy, environmental degradation continues to severely affect India not because of technical failings but because of political and institutional failings (Merrey *et al*, 2007).

3.0 Environmental Governance for Managing Indian Wetlands

3.1. Status of Wetlands in India

Wetlands nourish rich biodiversity and are also of great social, economic, and cultural values for communities. Despite their importance and value, wetlands are being modified or reclaimed. Wetlands can be ranked amongst the most highly threatened ecosystems on the planet. Worldwide around 50% of wetlands are estimated to have

disappeared since 1900 (Wetland Internationals, 2006). Global climate change is expected to aggravate the wetland loss (MEA, 2005).

India is no exception to the global scenario. Indian wetlands, the biodiversity hubs, provide ecological services to support livelihood to thousands of communities, but still they have been mismanaged and are often neglected. Wetlands suffer from unsustainable use and exploitation of their resources, drainage, alternative use and pollution. Like many other common property resources, everyone claims a stake in their use, but few are willing to pay for that use. As a result the state of the country's wetlands is rapidly deteriorating (Parikh and Parikh, 1999).² No foot notes please.

The high level of dependency on wetlands and their high vulnerability to degradation calls for immediate actions. There is international alarm at the impending water crisis at the global level in the coming decades. Taking immediate actions towards sustainable management of existing wetlands is a global priority. While in the past two decades, there has been a significant expansion in international agreements, programs and institutions pertaining to water and drivers of wetland change that contributed to broader awareness of the drivers of wetland change, there is a wide gap between formal policies and actual practices without political will for implementation³ No foot notes please! (MEA, 2005). This chapter is meant to address this gap and aimed basically to map the wetland institutions in India at various levels to illustrate the issues at hand.

² The Wildlife Institute of India's survey reveals that at present, only 50% of India's wetlands remain. They are disappearing at a rate of 2% to 3% every year. The loss of one km² of wetlands in India will have much greater impact than the loss of one km² of wetlands in low population areas of abundant wetlands (SACON, 2005).

The current loss rates in India can lead to serious consequences, where 72.22% of the human population is rural (Census of 2001, Government of India) and many poor people, in rural India depend solely on natural resources for their social and economic well being. If these natural resources deteriorate through pollution or unsustainable use, benefits for the poor decrease (UNEP, 2007).

³ These include the multilateral Convention on Biological Diversity, the Ramsar Convention on Wetlands and the International Convention on the Control and Management of Ships' Ballast Water and Sediments. London Conventions (1933) convention Relative to the Preservation of Fauna and Flora in Their Natural State; Natural Heritage Convention (1972) Convention concerning the Protection of the World Cultural and Natural Heritage; CITES (1973) Convention on International Trade in Endangered Species of Wild Fauna and Flora; MAPP(1973/78) International Convention for the Prevention of Pollution from Ships; Bonn Convention (1979) The Convention on the Conservation of Migratory Species of Wild Animals; UNCLOS (1982) United Nations Convention on the Law of the Sea; Convention on Biological Diversity (1992)

India is a party to the The Ramsar Convention, and has identified 25 sites (677,131 hectares) as wetlands of International Importance under Ramsar Convention (www.ramsar.org, 2006). But the designation alone without any clear policy and rules is not enough for the conservation and management of the wetlands. MoEF, apart from this list has identified wetlands of national importance. The number of such sites is increasing which is a positive sign but their management related issues are not on the decline. India is also a party to the Convention on Biological Diversity (CBD), which addresses conservation of wetland through its international programme of work on Inland Waters Biodiversity (Panini, 1998).

There is no special legislation in India, pertaining to wetlands, but several national policy documents and legislations exist and make reference to wetlands.

3.2. Existing Institutional Structure for Wetland Governance and challenges

Institutions and institutional analysis have a wide and varying history, especially with the evolution of new institutional economics in the past two decades. We follow the water institutional analysis provided by Saleth and Dinar (2004) to bring in some analytical clarity into the analysis of wetland institutions. Accordingly, institution of governance sets the rules and defines, thereby, the action sets for both individual and collective decision-making in the realm of water resource development, allocation, and use, and management. Since these rules are often formalized in terms of three inter-related aspects, i.e., legal framework, policy environment, and administrative arrangement, water institutions can be conceptualized as an entity defined interactively by its three main analytical components, i.e., water law, water policy, and water administration (Saleth and Dinar, 2004).

Box. 1 provides an overview of the existing institutional structure for wetland governance in India and provides an account on three major components of a water institution i.e. legal framework, policy environment, and administrative arrangement. It is clearly visible that there are various environmental laws and policies, which can be implemented to protect wetlands. However, the problem lies with the functioning of organisations responsible for execution of these laws and policies. Without the umbrella governance, wetland remains a threatened ecosystem due to factors such as jurisdictional overlapping and non-recognition as a separate ecosystem (Panini, 1998).

The Ministry of Environment and Forests is primarily responsible for conservation and wise use of protected wetlands, mainly through the implementation of its National Lake Conservation Plan. Whereas, functioning of other central ministries such as Water Resources; Agriculture; Chemical and Fertilizers; Commerce and industries; Science and technology; Tourism; Panchayati Raj; and several State bodies (the Departments of Fisheries; Agriculture; Irrigation; Environment, Forests, Science and Technology; and Tourism and the Pollution Control Board) have a direct bearing on the state of country's wetlands.

Lack of much needed co-ordination and conflicting aims of various government bodies have led to the exploitation of wetlands, and their consequent degradation (Parikh and Parikh, 1999). The Irrigation Department, Fisheries Department and others maintain certain wetlands, but do not maintain the multi-functional and multi-use aspects of these natural resources (Rao and Datye, 2003).

Another major drawback of the existing environmental governance system is that it is still state centric. In the existing institutional structure there is no provision for direct and active role for other actors of governance to play. Civil societies have been struggling for the reorganization of their continued efforts in protecting environment. Whereas, financial organizations have yet to rise their consciousness to the level of willingness for conserving the environment.

Box.2. summarises the major key players of environmental governance in India at various level ranging from international and causes of functional inefficiency. Apart from performance of government, lack of public participation and unethical behavior of commercial organizations (market) are also equally responsible for the present situation.

EG ideally needs all the actors *viz.* state, civil societies and market, together and facilitating co-management of wetlands under the umbrella of environmental governance as mentioned in section 2. The challenges to this will be clarified in the case studies in section 4.

Box1: Institutional Structure for Wetland Governance in India

Wetland Related Environmental Laws:

- The Indian Fisheries Act 1857
- The Indian Forest Act, 1927
- Wildlife (Protection) Act, 1972
- Water (Prevention and Control of Pollution) act, 1974
- Territorial Water, Continental shelf, Exclusive Economic Zone and other Marine Zones act, 1976.
- Water (Prevention and Control of Pollution) Cess Act, 1977
- Maritime Zone of India (Regulation and Fishing by Foreign Vessels) Act, 1980
- Forest (Conservation) Act, 1980
- Environment (Protection) Act, 1986
- Coastal Zone Regulation Notification, 1991
- Wildlife (Protection) Amendment Act, 1991
- National Conservation Strategy and Policy Statement on environment and Development 1992
- Biological Diversity Act, 2002

Wetland Related Policies:

- National Environment Policy 2006
- National water Policy- 2002

Wetland Organisations:

1) National Level

Legislative branch

Parliament

Executive branch

Central Ministries
Environment and Forests
Water resources, Agriculture,
Chemical and Fertilizers,
Commerce and Industries,
Science and technology,
Tourism, Panchayati Raj ...

Judicial branch

Supreme Court

Environmental Protection Organizations: Central Pollution Control Board, National River Conservation Directorate, Central Water Commission, National Committee on wetlands, mangroves and coral reefs

2) State Level:

Legislative branch

State legislative assembly

Executive branch

Dept. of Irrigation, Agriculture, Fisheries, Forest,
Tourism, Revenue, Rural Development, Panchayati Raj

Judicial branch

High Court

Environmental Protection Organizations: State Pollution Control Board, State Biodiversity Board.

3) Local Level:

District Administration and its line departments viz. Irrigation, Agriculture, Fisheries, Forest, Tourism, Revenue, Rural Development. District and Session Court.
Panchayats. Government initiated Cooperative Societies/ Users' Associations.

Adopted from Saleth (2004)

Box 2: Key Actors in the Environmental Governance Structure for Wetland Management in India

Environmental Governance	State			Civil Society	Market
Supra-National	United Nations, Ramsar Convention, GEF: Guidelines and Support to National Governments				World Bank
International	National Governments as international donors				MNCs
Regional	SACEP, SAARC (Mutual cooperation between Governments in South Asia)			WI, IWMI, SIDA, WWF etc. providing technical support	MNCs
	Government of India				
National	Legislative branch Creates Environmental Laws <i>(no direct laws or policy for wetlands)</i>	Executive branch Ministries Environment and Forests Water resources, Agriculture, Chemical and Fertilizers, Commerce and Industries, Science and technology, Tourism, Panchayati Raj ... <i>(Enforcement and administration of national law).</i>	Judicial branch Supreme court <i>(PIL: Good Judgments in the context environmental issues)</i>	Organized <u>Civil Societies:</u> - Community Based Organizations (Traditional Users' Associations) - Other social organizations (political, religious, educational, social welfare etc.) - Environnemental NGOs (National, International, Supranational) <u>Unorganized</u> -Marginalized user groups (e.g. landless laborers and other minor groups) <i>Least Participation</i>	National Commercial Organizations
State	State legislative assembly (no direct Act or policy for wetlands)	Irrigation, Agriculture, Fisheries, Forest, Tourism, Rural Development, Panchayati Raj <i>(Enforcement and administration of state law)</i>	High Court	..	State level Commercial Organizations
Local	District Adminstration	Line departments: Irrigation, Agriculture, Fisheries, Forest, Tourism, Rural Development	District and session court	..	Local market
	Panchayat			..	Local Market
Causes of inefficiency	Unclear Policies. Institutional Complexity. Conflicting aims. Lack of coordination and political will. Corruption.			Lack of awareness, empowerment and participation. Conflicts. Ownership issues. Corruption.	Unethical behavior, economic goals
	Wetland Degradation				

4.0. Case of Three Indian Wetlands

Case Studies:

Three wetlands viz. Kondakarla Ava in Andhra Pradesh, Vembanad in Kerala Chilika of Orissa, and have been selected to examine contextual issues of environmental governance in Indian wetlands. These wetlands pose different challenges to environmental governance and will provide insights into the ground realities of the process. Relevant features of Chilika, Vembanad-Kol and Kondakarla Ava Wetlands are presented in Box 3. Like any other Indian wetland, Kondakarla Ava, Vembanad and Chilika suffer from ecological degradation and mismanagement due to conflicting interests. Chilika and Vembanad are declared Ramsar Sites and have received much wanted attention from national and international community whereas Kondakarla Ava, a lesser-known wetland hinges on hopes based on local level initiatives.

Chilika already has a formal wetland level governance structure in place, known as the Chilika Development Authority (CDA). In case of Vembanad, there are various ongoing efforts by local, national and international organizations to initiate good governance practices. The government and government-initiated users' institutions have earmarked responsibilities of managing Kondakarla Ava.

Kondakarla Ava, Vembanad and Chilika and have key actors from all three spheres viz. state, civil societies and the market, that are responsible for the present status of these wetlands (Box. 4). The governance structures are still state centric and undemocratic with civil societies having not much role in the decision making process. In such a scenario, there is hardly any scope for the voice of the unorganized and marginalized populace and any discussion on aspect about environmental sustainability. These three cases are discussed in detail in the following sections:

Box 3. Relevant features of Kondakarla Ava, Vembanad-Kol and Chilika.

	Kondakarla Ava	Vembanad-Kol	Chilika
Area (km ²)	6.5	1,591	906–1,165
Location (figure 1)	Andhra Pradesh State; Visakhapatnam District	Kerala State (South India); Alleppey, Pathanamthitta and Kottayam <i>districts</i>	Orissa State (East India); Puri, Khurda and Ganjam <i>districts</i>
Conservation Status	Identified as a conservation site by the Asian Wetland Bureau and included under Integrated Protected Area System (IPAS) by the Andhra Pradesh State Forest Department.	Ramsar Site since 2002	Ramsar Site since 1981
Ecosystem	Shallow fresh water lake	Estuarine system with freshwater and brackish water areas (direct connection to the sea)	Shallow estuarine lagoon; brackish water (connected to the sea by tidal channels)
Fauna and flora	14 species of Macrophytes. 25 species of fish including <i>Macrogathus aral</i> (listed under Data deficient (DD) Category in the IUCN Red List 106 species of local and migratory birds.	Shrimp, finfish, shellfish. Spotbilled pelican, waterfowls, etc. Over 90 species of migratory birds Mangroves	Several hundreds of flowering plants. Hundreds of animal species including the green sea turtle, dugong, white bellied sea eagle, peregrine falcon, herrings and sardines
Livelihoods activities	Agriculture, open water capture fishery, Washing and livestock rearing	Fish and shrimp farming, clams harvest, tourism	Fish and shrimp farming, clams harvest, tourism

4.1 Kondakarla Ava

Kondakarla Ava Wetland, the second largest fresh water lake in Andhra Pradesh (AP), is situated in Visakhapatnam district. It is a typical example of a rural lake in a developing economy in South Asian region. Kondakarla Ava, a part of the Sarada riverine system, is rich in its fauna and floral diversity, and is one of the major stop over sites for many migratory birds flying through AP. The wetland serves as an economic backbone of its 17 surrounding villages. The economies of these villages to a larger extent revolve around it, for activities ranging from irrigation, fishing, washing, cattle rearing and others. Kondakarla Ava is recognized as a priority site for Integrated Protected Area System (IPAS) by the Andhra Pradesh State Forest Department. It has been included as a conservation site by the Asian Wetland Bureau. It has also been recognized as one of the important sites for ecotourism development by the Tourism Development Corporation.

However, despite all the importance attached to Kondakarla Ava, it's been subjected to severe environmental degradation in recent times. The surface area and level of water along with the local avian and fish populations have been decreasing and all this has affected the livelihoods of the lake dependent communities very badly.

Conflicts and inequity in sharing Kondakarla Ava's resources, is the major issue, which forms an obstacle to its sustainability.. Many government departments and community based institutions have authority i.e. decision making powers over the wetland. Some of the roles and responsibilities of these decision makers overlap, leading to confusion.

The wetland is used by ten Gram Panchayats (GP) which belong to two different Mandals (blocks), of two different electoral constituencies. The overall authority is vested with the District Administration, which is supposed to coordinate all its line departments like the Revenue, Agriculture, Irrigation, Fisheries, Forest and Tourism departments. The coordination between the irrigation department and the fisheries department is highly essential in case of the wetland management. The irrigation department controls the water flows of the lake through the Water Users Association, which is formed with the farmers of the villages, which receive waters from the Ava Irrigation Channel system. In the real sense, the Kondakarla Ava Water Users Association should be a body of farmers association, and associations for other water users like fisher folk, washer folk, livestock rearers etc. Further

most of the members of the WUA belong to the down stream villages, while the lake adjacent villagers have least participation as they do not receive the waters through the irrigation channel.

The Fisheries department should ensure that the minimum water levels (2 m) are maintained in the wetland as per the prescriptions, but has not taken that responsibility. Thus, during the water scarce periods, farmers' priorities prevailed at the cost of the lake ecology and the privileges of the fisher folks. The fisheries department shreds its responsibility after selling the seeds or nets required, and not interested in protection of the fisher folks rights. On the other all community based institutions in the region aim to work for welfare of the wetland users. But it is ironical that despite the fact that subsistence livelihood of user groups directly depends on the health of the wetland ecosystem; none of them has wetland conservation and management as one of its objectives. A very common perception here is that wetland degradation is a natural process.

With a plethora of "stakeholders" it is almost difficult to distinctly define the rights and responsibilities for each one. There is no coordination between various government agencies and community based institutions. There is no single body, which can coordinate and monitor all the wetland use practices. All these have contributed to rise of several conflicts of very complex nature. Down stream farmers vehemently oppose lift irrigation scheme in the region. They have been agitating against the existing Vadrappalli and proposed Cheemalapalle lift irrigation projects. Their major grievance stems from the fact that there is inadequate water supply to irrigation channels as a result of excessive water usage through pumping of water through individual motors for lift irrigation by upstream villages. The down stream villages also state that they have the first right on the usage of water as they have been using the irrigation channels since a long time (this network of irrigation channels was built by the British), and pumping of water through motors.

The issue of encroachment in the marginal areas of the wetland, primarily for cultivation of crops is another reason for conflicts among farmers. The Water Users Association (WUA) is demanding for a fresh mapping of the wetland survey. There are some points of contention between farmers and fishermen. Use of excessive water for irrigation: Both upstream and down stream farmers use water for irrigation but fail to maintain the permitted water level, which affects fish production. Apart from these major issues there are

several other issues related to wetland use practices, which have caused some minor conflicts among users groups. Conflicts and disputes that arise from these factors are not something that can be avoided, suppressed or ignored. Conflicts over equitable sharing of wetland resources, is the major obstacle to sustainability. Although various acts and policies for environment conservation and protection exist, they are not being implemented effectively for various reasons viz. lack of proper dissemination of information by the government machinery, general lack of awareness among various stakeholders, self-centered attitude and unhealthy politics. To illustrate, the latest National Water Policy 2002 mentions about conservation of water resources through participatory approach and provides clear guidelines towards institution building. General government apathy towards conservation and management of Kondakarla, despite the fact that it is the second largest fresh water lake in the state is a cause of concern. In order to resolve all these problems, the wetland needed participatory governance structures comprised of all the stakeholders.

Kondakarla Ava has not gained the much needed attention. There are very few local level efforts to save this wetland. Shubhada, a youth action group has been working since 2003 towards conservation of the Kondakarla Ava. It acts to achieve this objective through research, motivation meetings, awareness camps organized throughout the year in this region. As an initial step towards the formation of wetland governance, this group initiated Village Level 'Wetland Development Committees' in ten wetland user villages in 2006. But sustainability and empowerment of these bodies, formation of wetland level participatory institution and sustaining its own efforts, are major challenges for this youth group.

4.2 Vembanad Kol

The Vembanad Lake is the largest humid tropical wetland ecosystem of the south west coast of India. Based on the rich biodiversity and socio-economic importance, the Vembanad Lake along with adjacent kol lands was declared a Ramsar site, a wetland of international importance in 2002.

Vembanad lake is ecologically significant due to its mangrove patches and habitat for resident and seasonal migratory waterfowl. A large proportion of the 1.6 million people living on the banks of Vembanad are directly or indirectly dependent upon this wetland ecosystem for their livelihoods. Major livelihood activities include agriculture, fishing,

tourism, inland navigation, coir retting, lime shell collection, shrimp/ crab farming and sand mining. The commercial nature of many of these activities leads to uncontrolled resource use and pose grave threats to the ecosystem (ATREE, 2008).

Vembanad Lake, a part of the Vembanad-Kol coastal wetlands in South Central part of Kerala, state is a low-lying area with backwaters, canals and stream networks. Vembanad Lake fall partly in three districts. The rivers Achencoil, Pamba, Manimala and Meenachil, originating from the eastern hills, discharge their water and sediment into Vembanad Lake, the largest brackish water body in Southern India. The backwaters are connected to the Arabian Sea, which brings tidal influence and seasonal salinity into the system, a sizable area of which lies below sea level. A highly fertile tract of land replenished by silt brought by the river systems, the area was found to be well suited to rice cultivation from early days. Reclamation of land for cultivation and flood control used to be undertaken by private farmers, with assistance from the state.

In Vembanad, the construction of a salinity barrier at Thanneermukkuom and its ineffective operations has affected the system. This barrier was constructed in a narrower part of the Vembanad Lake, in order to prevent the ingress of salinity into the polders of Kuttanad (area for rice cultivation) during summer season and also to retain the fresh water inflow from the rivers into the lake. Only two-thirds of the original number of gates is opened in July to release flood flow, but the gates are closed mid- November. The structure has been relatively successful in keeping the waters in the Kuttanad free of salinity and adding another crop in dry season (SER, 2007). Due to the dwindling of salinity, the area covered by invasive weed species has increased. These restricted the movement of juvenile prawns from the sea to the lagoon with reduced area available for breeding and spawning of some important fish varieties. It has also severely restricted the natural flushing of pollutants too. Hence biodiversity decreased and fish catches also have declined. The traditional fishers are the most affected by these eco system changes.

The early 1990s saw the mobilization of fisher folk against the seasonal closing of the salinity barrier in Vembanad. The conflicts are the result of the twin process of environmental degradation of the bio-physical system and social marginalisation of sections of people directly dependent on the lakes for their livelihoods. The major trigger of conflicts

is the capitalisation of resources by powerful societal groups. Users associations like Dheevara sabha and Farmers' Association played a major role in mobilizing communities.

The marginalized traditional fishermen use agitation as a tactic of protest and also covert tactics like putting physical obstruction to the full closing of the barrier in Vembanad. Such claim making is the first stage. In Vembanad, the constant pressure-building by fishermen empowered through mobilisation led to the formation of a committee led by the District Collector with representation from contesting sections. This was succeeded by a series of negotiations, where the fishermen representatives used the research results from the academia that suggested the environmental degradation and need for rationalisation of operations of the salinity barrier. They could also mobilise opinions of environmentalists to further their cause in the negotiation forums. Fisher-folk accelerated their protests and used a pressure-tactic of pressing for a permanent opening of the barrier. This led to the appointment of a Commission of enquiry under a reputed scientist that suggested timely operations of the barrier as originally suggested in the design (with a closure of barrier restricted to three months). Government accepted this report and timely operations of the barrier were carried out in the last five years (publisher requires exact mention of the period such as 2001 to 2005). However, the sustainability of this resolution of the conflict depends on the continuity and institutionalisation of the process, including continued effective involvement by the State machinery.

There is fragmentation of governance structure in the lakes. Sectoral interests dominate the priorities of 'line' departments like departments of agriculture, fisheries, tourism and forest and environment. In the Vemband case, there is a conflict of interests between revenue administration on the two sides of the lake and also between the departments of agriculture and fisheries centred on the operations of salinity barrier. The respective District Collectors, MLAs and MPs on different sides of the Lake try to represent and pursue the interests of their dominant constituencies. The Department of Agriculture highlight the farmer interests, the Department of Fisheries that of Fishermen (including the environmental externalities). The Department of Irrigation is caught in the crossfire between farmer and fisher folk interests and always in a dilemma since they have to operate the closure and the opening of the salinity barrier. The Kerala Water Authority (KWA) requires the salinity barrier to be closed for freshwater availability. The Regional Agricultural

Research Station (RARS) is responsible for monitoring the salinity intrusion in the lake. The closing date of salinity barrier is supposed to be fixed based on such objective scientific data. However, in practice, a political process described earlier guides the barrier operation. Thus horizontal sectoral divisions with the “line department” approach of government system with different Ministers heading their empires are a major problem. The departments function with narrow technically defined programmes, which may be counter-productive to the larger natural resource system. This horizontal differentiation within the State apparatus gets a spatial dimension when district collectors and local government institutions from different sides of the region taking opposing stances in the conflict. In Vembanad, there is a coordination failure.

There is a need for intermediate level (between state level and local level) governance structures for management of Vembanad Kol. District administration and panchayat raj institutions cannot take care of this since it involves multiple districts and panchayats. The panchayat raj bodies especially may deepen the conflicts because of their local focus and partisan attitude to the local resource use concerns with the risk of being influenced by local elites.

Inclusion of the area in the Ramsar list in 2002, offers huge opportunities for development and implementation of a scientific management plan. Considering the fragile ecosystem of the wetlands, deterioration of water quality and consequent damage to aquatic organisms and the shrinkage of Vembanad Lake, this wetland was included in the National Lake Conservation Plan in 2003. Under this plan, projects of conservation and management will be taken up on 70:30 costs sharing between the central and state government.

Wetlands International-South Asia has formulated a management planning framework for this key Ramsar site. The project was supported through the Dutch Embassy in India.

It has been proposed to establish Vembanad Kol Authority to coordinate activities within river basins integrating coastal processes. The authority will have the responsibility for institutional and financial arrangements promoting communication education public awareness and monitoring evaluation of activities within overall policy framework to be developed and supported by appropriate legal framework (WISA, 2007).

Several local NGOs like Kerala River Conservation Council, the Kuttanad Foundation have approached the Government for implementing an integrated management action plan for this wetland (SER, 2007).

Some of the national level environmental NGOs like WWF-India and ATREE have initiated various projects towards awareness creation and institution building.

Efforts are on, but are fragmented and some times parallel. We may be optimistic to have a governance structure in a long run, but hope that the mistakes of Chilika (presented below) are not repeated.

4.3 Lake Chilika

Chilika Lake is the largest lagoon in Asia spread over three coastal districts of Puri, Khurda and Ganjam. Hydrologically, Chilika is influenced by three major rivers –Mahanadi, Rushikulya and Bhargavi. Apart from the biodiversity and ecological peculiarities, Chilka Lake sustains livelihoods of more than 200, 000 people living in the 141 villages around it. Capture fisheries, the traditional livelihoods of traditional fishermen is organized through 92 primary fishery cooperatives. Six types of traditional fishing methods are in practice.

The early 1990s saw the mobilization of fisher folk against enclosures for prawn culture in Chilika. The protests led to law and order problems that began to recur periodically.

A change in government policy regarding the lease of fishing rights that hampered the access of fishing grounds to traditional fishermen and rise of shrimp culture that enclosed portions of the lake was the major trigger of conflicts. Chilika Matsyajeebi Mahasangh and Khamuha Fishermen's cooperative society led the campaign against the practice of culture fisheries.

In Chilika, the Government of Orissa created the Chilika Development Authority in 1992 as a coordinating institution to balance the various claims of people dependent on the resource and effective liaison with government and other agencies involved in the management of Chilika. The management of Chilika was through the departments of Revenue, Fisheries, Tourism and Forests involved in respective sectoral activities. CDA was created primarily to protect the unique lagoon ecosystem and to coordinate multiple

institutions for coordinated resource management. This was a response to the inclusion of Chilika in Ramasar's Montreux record of degraded wetlands.

The opening of a new lagoon mouth was the most important physical intervention by CDA with technical studies and recommendations by the National Institute of Oceanography and Central Water and Power Research Station (CWPRS). According to CDA, this has improved the hydrology, decreased invasive fresh water weeds, improved biodiversity, reduced silt loading from catchments, increased fish catches and thus income of fisherfolk. However, there are warnings from biological scientists and environmentalists on some unintended consequences of the technical intervention of opening of the new mouth in Chilika. They also highlight the livelihood crisis of fishermen in the near by villages where the new mouth was opened who cannot engage in fishing due to the enhanced tidal effects.ⁱ They point to the unscientific nature of the CDA intervention without proper modeling studies with the evidence of new deposition of sediments in the middle of the new lagoon mouth. Since its genesis was related primarily to the environmental degradation faced by the lake, the Forest and Environment Department was given administrative jurisdiction of CDA with a governing body mainly composed of bureaucrats and people's representatives. CDA is supposed to work with flexible procedures unlike a government department to restore the ecosystem with the backing of academic studies, bio-physical interventions, coordinating the work of departments and most importantly taking on board the aspirations of local people by working through NGOs and CBOs. According to Gosh and Patnaik, (2006), the institutional framework of Chilika is based on a principle of multi-sectoral collaboration with CDA playing the role of central coordinating agency. However, what has not seemingly realized is the lack of any mechanism for local people's voices to be represented in CDA, which is evident from the structure of the governing body with representation mostly (seventeen) by officials and (four) influential politicians.

In the Chilika case, there was a clear policy bias from 1991 to legitimize culture fisheries by the State, which is continuing with the new industrial policy and the latest bill drafted in 2002 that the government repeatedly tried to table in the State legislature. The class composition of people engaged in culture fisheries and the close links to State machinery is evident. This explains the failure of implementation of repeated recommendations from a Commission of Inquiry by Orissa High Court, Legislative Committee and Supreme Court

Order to ban culture fisheries and the ineffectiveness of ‘ceremonial’ removal of *gherries* by the Revenue Department that come back within days of removal.

The Chilika scene is less optimistic although the government could not until now legitimize the illegal culture fisheries due to the mobilization by traditional fishermen. Looking at CDA’s role, they tried to play the newly fashionable role of a ‘participatory’ strategy. CDA tried stakeholder participation and communication through a network of NGOs and CBOs for an outreach programme for awareness building on Chilika environment. According to the former CEO of CDA they have learnt from the conflict in 1999 that unilateral decisions could intensify conflicts and this was the key reason for the changed policy of participation and claimed that many activities, especially the new mouth restoration was done through a consultative process with the community that enhanced the confidence of local population.

There are two problems to such a participatory strategy. First, the NGOs are funded by CDA and used merely for environmental educational activities (which might have a larger relevance) sidelining real livelihood issues and politics of marginalisation described earlier. Second is the ‘benevolence’ involved. One of the active NGO leaders who was interviewed, complained of the clear policy shift of undermining NGO involvement by the new CEO who took charge from June 2006. During the interview, he was not apologetic about this shift since he found that the Forest Department has the capability to do activities that NGOs are doing. About the representation of the civil society in governance structure of CDA, he was adamant that people are represented through their representatives like MLA and MP (need to spell out when first used) and that there was no need for any more involvement of NGOs. However, he vehemently argued for administrative control of officers in other government agencies in the jurisdiction of Chilika to be brought under CDA for effective coordination with adequate control. This raises a question mark to any possibility for a shift to more democratic governance and clarifies the important role of the actor along with the structure needed for such a shift. Therefore, along with structural changes, sensitive and committed individuals are also needed for a shift in governance practices, which will then translate current benevolent notions of ‘participation’ to real practices of democratic governance. The case of Chilika can provide a practical lesson for Vembanad and Kondakarla, which are at the earlier stages of evolution of environmental governance.

The three case studies reveal a fragmented institutional framework familiar to managers of natural resources in developing countries with (i) several federal institutions (Ministries of Water Resources, Environment and Forests, Agriculture, and Rural Development, the Marine Products Export Development Authority, etc.); (ii) several State bodies (the Departments of Fisheries; Agriculture; Irrigation; Environment, Forests, Science and Technology; and Tourism in each State; the Pollution Control Board; The Kerala Water Authority; several Regional Agricultural Research Stations, the Chilika Development Authority, etc.); (iii) several judiciary bodies (Supreme Court of India; High Courts of Kerala, Andhra Pradesh and Orissa); (iv) local institutions (*Panchayats*, associations of farmers and fishermen; trade unions); (v) Revenue departments in each district with representatives at the district (*Collector*), subdistrict (*Tahasildars*) and village level ; (vi) a multitude of regulations and legislations—the Wildlife Protection Act (1972); the Water Prevention and Control of Pollution Act (1974); the Forest (Conservation) Act (1980); the Environment Protection Act (1986); the Coastal Regulation Zone Notification (1991); the Indian Fisheries Act (1997); the National Water Policy (2002); the Biological Diversity Act (2003); the Coastal Aquaculture Authority Act (2005), etc. —for the most important one, and finally (vii) the supranational bodies like the Ramsar convention that lists good practices for the sustainable management of wetlands and is a powerful tool to bring national and international conservation attention but do not have statutory powers. **Box 4 illustrates the governance structures and actors that have varying levels and degrees of influence on the decision-making process in the three wetlands.**

Box 4. Wetland Organisation in the study area

	Chilika	Vembanad-Kol	Kondakarla Ava
Supra National	Ramsar's Site of International importance (1981)	Ramsar's Site of International importance (2002)	-
International	World Bank, Wetlands International-SA, Ramsar Centre- Japan, India- Canada Environment Facility (ICEF)	Wetlands International-SA, WWF	-

National			
	Designated as a site of national importance	Designated as a site of national importance	Proposed Ramsar Site by SACON (2005), Proposed Conservation site by WWF and Asian Wetlands Bureau in directory of Indian Wetlands (1993)
Govt. Organisations	Ministry of Environment and Forests Water resources, Agriculture, Chemical and Fertilizers, Commerce and Industries, Science and technology, Tourism, Panchayati Raj, National Bank for Agriculture and Rural Development INS Chilika	Ministry of Environment and Forests Water resources, Agriculture, Chemical and Fertilizers, Commerce and Industries, Science and technology, Tourism, Panchayati Raj	Ministry of Environment and Forests Water resources, Agriculture, Chemical and Fertilizers, Commerce and Industries, Science and technology, Tourism, Panchayati Raj
Environmental NGO	WWF, CEE, Whale and Dolphin Conservation Society (WDCS)	ATREE (The Vembanad Wetland Conservation Program), WWF, M.S. Swaminathan Commission	-
State level			
Govt. Organisations	Water Resources Department, Fisheries & Animal Resources Development Department, Department of Agriculture, Forest Department, Revenue Department, Orissa Remote Sensing Application Center, Orissa Renewable Development Authority, Orissa High Court	Irrigation Department, Fisheries Department, Agriculture Department, Forest Department, Tourism Department, Revenue Department? The Kerala Water Authority (KWA),	Irrigation Department, Fisheries Department, Agriculture Department, Forest Department, Tourism Department, Revenue Department
	d		

Local Level			
Govt. Organisations	District Administration with its line departments: Irrigation, Fisheries, Agriculture, Forest, Revenue, Tourism	District Administration with its line departments: Irrigation, Fisheries, Agriculture, Forest and Environment , Revenue, Tourism, PWD	District Administration with its line departments: Mandal Revenue Office (MRO), Mandal Development Office (MDO), Irrigation, Fisheries, Agriculture, Forest , Tourism
CBO	Watershed Committees, Self Help Groups, Bird Protection, Committee, Campaign for Conservation of Chilika	Dheevara sabha, Farmers' Association	Kondakarla Ava Water Users Association (WUA), Kondakarla Ava Inland Fishermen Co-operative Society, Vadrappalli Lift Irrigation Committee, Cheemalapalle Lift Irrigation Committee, Raitu Mitra Sangham, Washer-folk Society, Village Milk Producers Mutual Added Cooperative Societies, Women Self Help Groups (DWACRA), Youth Associations.
Environmental NGOs	Wild Orissa, Pallishree, Campaign for Conservation of Chilika Lagoon (CCCL)	Kerala River Conservation Council, the Kuttand Foundation	Shubhada- A Youth Action Group.
Wetland Level			
	Chilika Development Authority	-	-
Market	Shrimp culture	Rice/ fishery	Sugarcane sold to nearby Anakapalli National Sugarcane Mandi.

5. Challenges to Governance

The study attempted to conceptualise environmental governance and to examine the cases of three Indian wetlands with the major issues delineated. Environmental governance has gained currency at the level of rhetoric that led to formulation of many institutions (policies, laws and agencies for implementation). However, in practice the implementation by state institutions (which are still largely responsible for) is seen to be very inadequate. We suggest that the shift from state to non-state (civil society and market) actors prescribed by

good governance proponents is not happening in the ground. Both these processes lead to a situation where the normative gains from environmental governance is not at all achieved. The logic in wetland management still follows the age-old logic of access and control of resources by the powerful. Apart from issues of institutional and administrative fragmentation, the broader context in which policies evolve and the production process is organized is also important. Often, natural resources management is geared towards maximizing economic returns with a thrust on techno-managerial efficiency and problems of social marginalization and environmental degradation are overlooked (Scott, 1998). Export market demands for example often lead to environmental degradation and social marginalization. This is very clear in the process of enhancement of culture fisheries in Chilika. Due to a high export-driven profitability, aquaculture in Chilika benefits from the strong support of the Orissa government, Aquaculture- development policies aim at enhancing the overall economic situation of the the Government scheme of free electricity supply for irrigation in Andhra Pradesh has promoted excessive use of water for irrigation. States through regional economic development but little attention is given to how the benefits are distributed: social marginalization and environmental degradation are common and generally ignored. This is a characteristic of the recent Indian economic boom in the current era of liberalization as also illustrated by land acquisition conflicts related to industrialization (Balagopal, 2007). Pressure over natural resources can also be triggered by strong State willingness towards achieving a given objective as illustrated by the rice-centric development observed in Vembanad and that find its roots in the willingness of the Kerala government to reduce the dependency of the State on cereal-imports from other Indian States (Narayanan, 2003).

In the above discussions, it is clear that there is threat to environmental sustainability of wetlands and that there is an unequal impact of the process that is detrimental to vulnerable sections. Environmental Governance is a generic term that includes a wide range of institutions, organizations, policies and actors, among which is the government, which shapes policies and the production of related outcomes. In the debates reviewed in section 2, the shift from “government” to “governance” has been associated with the dilution of the role and importance of the state: the State progressively lost some of its central functions to other spatial levels such as the supranational and infra-national levels,

and to non-State institutions such as private companies and voluntary organizations (Jessop, 1994). The concept of governance incorporates a notion of public action where “participation by the public in the process of social change” (Dreze and Sen, 1989: 259) is demanded. It theoretically represents a rediscovery of civil society and of the role that institutions in that sphere can play in promoting collective, private and public ends (Mackintosh, 1992). The dilemma of natural resources management and governance is about reconciling the many dimensions of sustainable development (the economic, socio-cultural, environmental dimensions and the politics encompassing them) that are overlapping but often conflicting in the long term. Imbalance in meeting the requirements of those dimensions generally leads to conflicts and further degradation of the resource base.

Box 4 provides an overview of the multiple organisations at various levels in the three wetlands. The role and importance of local institutions have been diluted as the legal and institutional framework of natural resources management broadened in line with the increasing recognition of the importance of environmental preservation for sustainable development. This institutional formalization aimed at better preserving of ecosystems but often led to further degradation of the environment. It is clear that sectoral interests dominate the landscape of natural resources management in these three wetlands: the different institutions generally pursue overlapping but conflicting objectives in the long run. The “horizontal” segregation within the State apparatus between different government departments functioning with narrow and technically defined programs is often paralleled by a spatial partition as populations of different regions may pursue different goals. Such fragmentation is generally counterproductive for the sustainable management of a larger natural resources system.

This does not mean that formalization and planning are not needed. A strong institutional support is indeed essential to achieve governance systems supporting integrated resources management to ensure an environmentally and socially sustainable development (Falkenmark et al., 2007). But this reminds us of the needs for further integration and coordination among the different institutions involved in natural resources management (Merrey et al., 2007). Finally, inconsistencies between biophysical and political boundaries call for a meso-level body that integrates political/administrative divisions within given natural resource settings (a lake, a watershed, a river basin, etc.). However, lessons from

CDA indicate the need of transforming such techno-managerial bodies into truly participating governance structures.

The institutions of governance reviewed in sections 2 and 3 are still state-centric and dysfunctional. The process in the ground illustrated in section 4 shows the multiple and fragmented nature of governance institutions. It is also seen that there is rising dissent from the civil society with claims for more equitable share of resources. However, the relative power of these institutions vis-à-vis the combined power of state and market as in the case of Chilika is evident. In Kondakarla, even there could not be any expression of dissent by a substantive section of landless agricultural labourers who were affected by the EG decisions of the powerful (and hence outside any 'civic' realm of action). In Vembanad, it is noted that the weaker realm of civil society is also fragmented by the conflict between farmer and fisherfolk unions and hence the concept of civil society is also not a monolith as is the case of State.

For EG to become operational, a clear demarcation of institutions (policies, laws and role clarity of organizations) is a necessity. Along with this, defining appropriate levels of governance and drawing boundaries to delineate the responsibilities (both in spatial and structural terms) of the different institutions involved in the use and management of natural resources is also needed. However, such coordination will not just be techno-managerial alone, but also political and hence the need for a democratic space to exercise citizen's rights. This is also because the actors in the various spheres wield unequal powers and hence the need for mobilisation of the marginalised sections who might be at the receiving end of 'development'. Here conflicts become signs of a healthy polity where there is latitude to mobilise and empower those who lose out. Thus democratic governance of natural resources also demands a conceptual understanding inclusive of mobilisation.

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