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## Conceptual framework

### 2.1 Introduction

The main research questions as stated in the previous chapter are foremost about achieving an understanding of the competing values and consequent contrasting forces in operation in the Sundarbans rather than about developing strategies for negotiating the competing values and minimisation of contrasting forces. These contrasts become apparent if the ongoing processes at the local level are viewed from the perspective of commons, collective action, sustainability and sustainable development. There is no ambiguity in understanding the term commons but the other concepts have competing schools of thought. Therefore, I will first elaborate on the concepts and make explicit how I have applied them.

This overview refers to literature on commons and their governance (section 2.2), collective action (section 2.3), sustainability and sustainable development (section 2.4). Finally, in Section 2.5 the objectives of this research alluded to already in Chapter 1, are spelt out in more detail. In this section I also break down the main research questions into sub-questions so as to refine them, as well as take up other questions that I intend to answer, which are incidental to this discourse.

### 2.2 The commons as an analytical framework

“Common-pool resources [or commons] are a sub-set of public goods. All public goods have the property that many can use them at the same time, because exclusion is difficult. Some public goods yield infinite benefits; in the sense that if 'A' uses more, there is no reduction in the amount available for others. Common-pool resources, by contrast, are public goods with finite or subtractive benefits; if 'A' uses more, less remains for others. Common-pool resources therefore, are potentially subject to congestion, depletion or degradation – a commons situation” (Wade, 1988; p. 183). Common-pool resources (CPRs) are not to be confused with common property. In case of common property, no individual has exclusive property right, the rights to exploit a resource are held by persons in common with certain others. These rights may take a variety of forms based on the nature of the resource and the institutional arrangements by which it is exploited: they may allow unlimited exploitation for those within a specified group, or they may stipulate limits on exploitation for each other. Common property lies somewhere in between freehold property or exclusive possession and no property (*res nullius*), as in commons, on a continuum of property rights.

Because commons are outside the net of property relations, exploitation of a common-pool resource is always a “commons situation” (Wade, 1988; p. 184). There are essentially two types of commons situations; (i) where, in the absence of collective organisation, benefits of cooperation are foregone despite the existence of some common benefits that could be obtained, and (ii) failures of collective action result not only in forgoing benefits of optimal use of resources but also in absolute degradation of the resource in question (Herring, 1987/91).

But only some commons situations become “commons dilemmas” (Wade, 1988; p. 184): those where joint use and subtractive benefits are coupled with scarcity, and where as a consequence joint users start to interfere with each other's use. In commons dilemmas, private actions of users have costs that cannot be overcome without collective action (organisation) to regulate use, and therefore, collective action is found where commons situation have become commons dilemmas (Blomquist and Ostrom, 1985; Wade, 1988).

Commons dilemmas turn into 'tragedy' when local societal failure to regulate individual maximising tendencies through collective action leads to destruction of the commons. However, when a “tragedy of the commons” (Hardin, 1968; p. 1243)<sup>1</sup> is averted through collective action, it often poses a real threat to the survival of nature itself, which Herring (1987/91) terms as the *second-order conflict*. In such cases, collective solutions to either of the two types of commons situations, when successful, may run counter to solution of the commons dilemma represented by conflict between human use of nature and ecological imperatives. For example, suppose Hardin's shepherds were able to act collectively not only to preserve grazing grounds but to pool labour to extend grazing into surrounding forest or wetlands through tree cutting and/or water diversion or drainage. A common objective interest in preserving the surrounding ecosystem would be forfeited through success in coping with more classic commons dilemmas.

Since the mid-1980s, scholarship on commons has shown that resource users often create institutional arrangements and management regimes that help them to allocate benefits equitably, over long periods of time (Agrawal, 1999; McKean, 1992; Ostrom, 1992; Wade, 1988). In the next section I propose to examine these institutional arrangements and how they are arrived at. Given the history of human settlement in the Sundarbans, the question that needs to be answered is whether the eco-region, especially riparian Sundarbans lends itself to institutional arrangements that help resource users to allocate benefits equitably over long periods of time.

### **2.3 Collective action**

Social dilemmas occur whenever individuals in interdependent situations face choices in which the maximisation of short-term self-interest yields outcomes leaving all participants worse off than feasible alternatives. In a public-good

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<sup>1</sup>Hardin in his seminal essay termed the societal failure to regulate access to commons as the “tragedy of the commons”, but it is essentially 'tragedy of open-access'. Due to the connotation that “tragedy” has come to acquire over the decades, I persist with the usage.

dilemma, all those who would benefit from the provision of a public-good find it costly to contribute and would prefer others to pay for the good instead: a tendency to free ride. If everyone follows the equilibrium strategy, then the good is not provided or is underprovided (Ostrom, 1998). A situation where people come together to supply themselves with goods and services (social and or public-good) that they all need but could not provide for themselves individually is termed “collective action” or “self-organised action” (Wade, 1988; p. 14). In the absence of such action, social or public-good dilemmas remain unresolved.

Collective action or organisation operates at different levels and spaces, and has different forms. Strictly speaking, collective interest articulated by the state through democratic governments is also, according to Tilly (1978), a form of collective organisation. In this research, I restrict myself mainly to the community level for that is where most of the actions are, but I also look at higher levels to unravel the complex interactions especially when these have a direct bearing on the communities and the physical conditions with which they have to cope with. At the community level, I view statutorily created democratic institutions such as local self-governments (Panchayati Raj Institutions (PRIs)) as an *institutionalised* form of collective action/organisation, although it is in many ways different from the *spontaneous* collective action that comes into being to resolve social or public-good dilemmas. Collective action/organisation also crops up where the state yields space through inaction or withdrawal, for instance erection of jetties by members of a community in the absence of the facility being provided by the Sundarban Development Board or discontinuation of medical facilities by the Government Health Department and subsequently being handed over to an NGO. ‘Collective inaction’ by individuals in the face of legal provisions for action, to supply themselves with goods and services that they all need is also viewed as a form of collective action. This form of collective action is facilitated by yielding of space by the state through inaction, especially through non enforcement of legal provisions. In this thesis, I intend to identify and demonstrate that at certain levels *spontaneous* collective action is capable and more appropriate for provisioning of goods and services whereas in certain cases even if there is space for collective action, the *institutionalised* form is inappropriate due to micro-level exigency.

The questions that also need to be answered are why cooperation levels vary so much and why specific configurations of situational conditions increase or decrease cooperation in social or public-good dilemmas. Understanding these is important for the design of institutions to facilitate individuals' achieving higher levels of productive outcomes in social and public-good dilemmas. One of the most powerful theories used in contemporary social sciences – rational choice theory – helps to understand humans as self-centred, short-term maximisers. Models of complete rationality have been successful in predicting marginal behaviour in competitive situations, such as profits in a competitive market or the probability of electoral success in party competition. Rationality models, however, have failed to explain or predict behaviour in social dilemmas in which the theoretical prediction is no one will cooperate. “In indefinitely (or infinitely) repeated social dilemmas, standard rational choice models predict a multitude of equilibria ranging from the very best to the very worst of available outcomes without any hypothesised process for how individuals might achieve more productive outcomes and avert disasters” (Ostrom,

1998; p. 2). Yet, field research shows that individuals do engage in collective action to provide local public goods or manage CPRs without an external authority to offer inducements or impose sanctions. In contrast to rational choice theory, Ostrom (1998) suggests a behavioural approach to explain outcomes of social and public-good dilemmas.

Behaviour in social dilemmas is affected by many structural variables, including size of group, heterogeneity of participants, their dependence on the benefits received, their discount rates, the nesting of organisational levels, monitoring techniques, and the information available to participants, as well as the location of the group within a space such as a frontier<sup>2</sup>. However, the individual attributes that are particularly important in explaining behaviour in social dilemmas include the expectations individuals have about others' behaviour (trust), the norms individuals learn from socialisation and life's experiences (reciprocity), and the identities individuals create that project their intentions and norms (reputation). At the core of the behavioural explanation are the links between trust that individuals have in others, the investment others make in trustworthy reputations, and the possibility that participants will use reciprocity norms. If initial levels of cooperation are moderately high which is usually the case (both in experimental and field situations)<sup>3</sup>, then individuals learn to trust one another, and more individuals may adopt reciprocity norms. When more individuals use reciprocity norms, gaining a reputation for being trustworthy is a better investment. Thus, levels of trust, reciprocity, and reputation for being trustworthy are positively reinforcing. This, however, also means that a decrease in any of these can lead to a downward spiral. This is often avoided through contingent agreements wherein some individuals agree to contribute  $X$  resources to a common effort so long as at least  $Y$  others also contribute. Contingent agreements do not need to include all those who benefit. The benefit to be obtained from contribution of  $Y$  proportion may be so substantial that some individuals are willing to contribute so long as  $Y$  proportions of others also agree. Once some users have made contingent self commitments, they are then motivated to monitor other people's behaviour, at least from time to time, to assure themselves that others are following the rules most of the time (Ostrom, 2000).

The literature on common property and common-pool resources (CPR) management since the mid-1980s comprises many important studies that seek to specify the conditions under which groups of users will self-organise and sustainably govern resources upon which they depend. Many scholars (McKean, 1992; Ostrom, 1992;

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<sup>2</sup> The term frontier was transformed by Frederick Jackson Turner from the European definition describing the border or border zone between two states or countries to the American one, which described the border between the settled and unsettled. The frontier, in Turner's view, was a dynamic process (Turner, 1962/1996). According to Elazar (1996), the frontier is not only dynamic but in a few cases, the original rural land frontier set off a chain reaction which generated a continuing frontier process, as in the United States. The continuing frontier, wherever it is found, has all the characteristics of a chain reaction. Each frontier, once opened, has bred its successor and has been replaced in turn by it. Each frontier stage has generated its own new world with new opportunities, new patterns of settlement, new occupations, new challenges and new problems. See Footnote 16, Chapter 3 for the identifying characteristics resulting from the frontier experience.

<sup>3</sup> "Substantial evidence from experiments demonstrates that cooperation levels for most one-shot or finitely repeated social dilemmas far exceed the predicted levels" (Ostrom, 1998; p. 2).

Ribot, 1998 and 1999; Agrawal, 1999; and Wolverkamp, 1999) examined the conditions under which communal arrangements compare favourably with private or state ownership, even on efficiency criteria, but especially where equity and sustainability are concerned. These works have important connections to the world of policy-making and resource management. Governments in more than 50 countries claim to be pursuing initiatives especially in the forestry sector that would devolve some control over resources to local users (FAO, 1999). This is a move away from the theoretical presumption that an external, central government intervention is necessary to supply and organise forms of collective action, this presumption had been reinforced by the colonial experience. However, it can be questioned whether the change of administration from colonial to sovereign, democratic (a form of collective action according to Tilly, 1978) governance in India's case, changed the attitude of civil servants; if not, this could be part of the problem for devolving control over resources to local users.

Following Agrawal (2001), I focus on three comprehensive attempts to produce theoretically informed generalisations about the conditions under which groups of self organised users are successful in managing their commons dilemmas. These are

Table 2.1: Facilitating conditions for managing commons dilemmas

Category A Resource system characteristics	Category B Group characteristics	Category C Institutional arrangements	Category D External environment
Small size (RW)	Small size (RW, B&P)	Rules are simple and easy to understand (B&P)	Technology: Low cost exclusion technology (RW)
Well-defined boundaries (RW, EO)	Clearly defined boundaries (RW, EO)	Locally devised access and management rules (RW, EO)	State: Higher level of government should not undermine local authority (RW, EO)
	Shared norms (B&P)	Ease in enforcement of rules (RW, EO)	State: Supportive external sanctioning institutions (B&P)
	Social capital – past successful experiences (RW, B&P)	Graduated sanctions (RW, EO)	State: Appropriate levels of external aid to compensate local users for conservation activities (B&P)
	Appropriate leadership – young, familiar with changing external environments, connected to local traditional elite (B&P)	Availability of low cost adjudication (EO)	State: Nested levels of appropriation, provision, enforcement, governance (EO)
	Interdependence among group members (RW)	Accountability of monitors and other officials to users (EO, B&P)	
	Heterogeneity of endowments, homogeneity of identities and interests (B&P)		
Relationship between Categories A and B: resource system characteristics and group characteristics			
Overlap between user group residential location and resource location (RW)			
High levels of dependence by group members on resource system (RW)			
Relationship between Categories A and C: resource system and institutional arrangements			
Match restrictions on harvests to regeneration of resources (RW, EO)			

Adapted from Agrawal, 2001

the works of Robert Wade (1988), Elinor Ostrom (1990), and Jean-Marie Baland and Jean-Philippe Platteau (1996). Each of these arrives at a summary set of conditions and conclusions that they believe to be crucial to sustainability of commons institutions. See Table 2.1 for a synthesis of these facilitating conditions. In the table, the initials RW refer to Robert Wade, EO to Elinor Ostrom and B&P to Baland and Platteau.

In analysing the cases (chapters 4 through 9) I find the categories of conditions especially group characteristics (Category B) and external environment (Category D) important and helpful. However, according to Agrawal “the enterprise of attempts to create a list of enabling conditions that apply universally can founder at a very basic epistemological level. Instead of focusing on lists of factors that apply to all commons institutions, it may be more fruitful to focus on *configurations of conditions* that bear a causal relationship with sustainability” (Agrawal, 2001; p. 1654, emphasis mine). Therefore, my analyses of the cases will focus on the *configurations of conditions* that bear causal relationship with sustainability of collective action institutions, and individual attributes of trust, reciprocity and reputation of actors.

Before moving on to the next section on sustainability and sustainable development, I will briefly visit Tilly (1978) for an introduction to collective action theory which though close to three decades old, remains one of the most comprehensive statements of the relationship between collective action, political structures, and social context (Agrawal, 2001). Tilly classifies collective action into three categories: competitive, reactive and proactive depending on a particular group's claims or no claims on other groups, which is not really the focus of this research. Here, the interest is in Tilly's analysis of collective action, which has four big components: *interest*, *organisation*, *mobilisation*, and *opportunity*. “Collective action results from changing combinations of interest, organisation, mobilisation and opportunity” (Tilly, 1978; p. 7). The most persistent problem faced while analysing collective action is the lack of sharp edges; *interests* vary from quite individual to nearly universal, and individuals vary continuously from *intensive involvement* to *passive compliance*. *Mobilisation* has three different forms; defensive, offensive, and preparatory. Endowment of the group affects the probability that its *mobilisation* will be defensive, offensive or preparatory. The poor and the powerless tend to begin defensively, the rich and the powerful offensively. *Preparatory mobilisation* requires the members to forego present satisfaction in favour of uncertain future benefits. The trouble with *opportunity* is that it is hard to reconstruct the opportunities available to the group at a particular point in time. *Collective action*, then, is joint action in pursuit of common ends. The extent of group's *collective action* therefore, is a function of: i) the extent of its shared *interest*, ii) the intensity of its *organisation*, iii) its *mobilisation*, and iv) the *opportunity* available to the group at a particular point in time. What, then, are the *configurations of conditions* under which collective action is organised to overcome social or public-good dilemmas and how *interest*, *organisation*, *mobilisation*, and *opportunity* influence the extent of collective action?

## **2.4 Sustainability and sustainable development**

The concept of sustainability originated in the context of living renewable resources such as forests and fisheries. It deals with the propensity of a system to withstand

collapse and stress. It has to do with the robustness or continuing viability of a system. "Sustainability can be defined as the ability of a system to maintain productivity in spite of a major disturbance such as that caused by intensive stress or a large perturbation. Lack of sustainability may be indicated by declining productivity but, equally, collapse may come suddenly and without warning" (Conway, 1983, quoted in Tisdell, 1988; p. 375). Ecologists believe that there are important thresholds of scale, and that human activities can, by stressing ecosystems in ill-advised ways, set in motion large-scale and irreversible losses in the functioning ecological and physical systems (see Section 8.3, Chapter 8). They place considerable stress on the desirability of sustainability of productive systems. The concept of sustainability has subsequently been adopted as a broad slogan by the environmental movement.

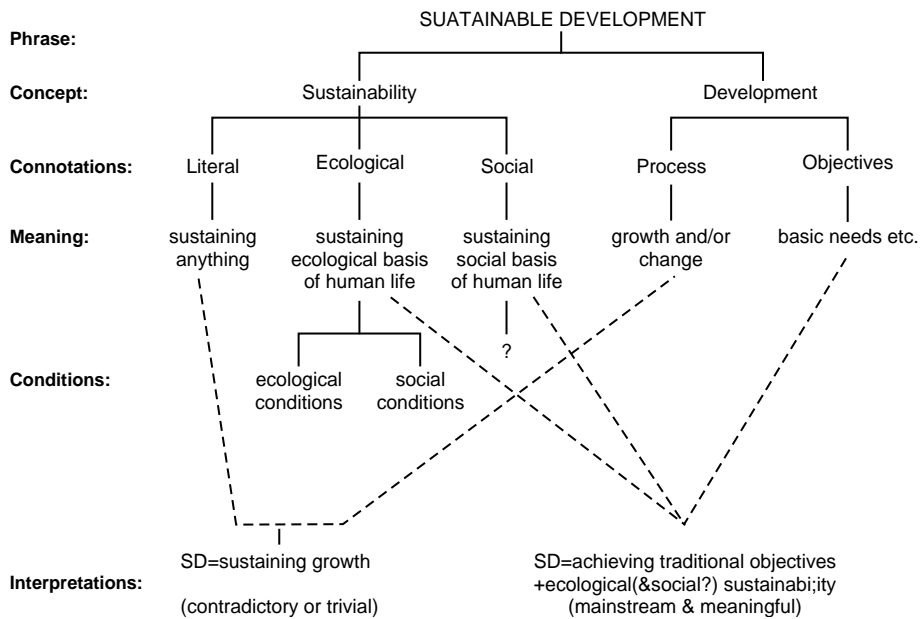
Sustainability came to acquire multiple connotations when the World Conservation Strategy (WCS) articulated by IUCN in 1980 attempted to reconcile the interests of the development community with those of the environmental movement by coining the term "sustainable development". The WCS defined development as "the modification of the biosphere and the application of human, financial, living and non-living resources to satisfy human needs and improve the quality of life", and conservation as "the management of the human use of the biosphere so that it may yield the greatest sustainable development to present generations while maintaining its potential to meet the needs and aspirations of future generations" (Tisdell, 1988; p. 373). Sustainability was a major topic in the Brundtland Report (1987) and became the main objective of the UN where after the 1992 United Nations Earth Summit in Rio, it was put on Agenda 21. While sustainability found firm place as a leitmotif in programmes of political parties and green political movements, as a guideline of environmental policy, and as a pervasive term in the development discourse, it was far from being clear, distinct, or with a wholly accepted meaning. "Sustainability is increasingly cited as an explicit goal of development efforts and remains a widely touted global concern in spite of the fact that it is an inherently complex and contested concept for which precise and absolute definitions are impossible" (Pretty, 1995 quoted in Mog, 2004; p. 2139). This raises many ambiguities not amenable to resolution because academicians as well as practitioners in the different relevant fields see different parts of the picture, typically think in terms of different time scales, and often use the same words to mean different things (Holdren, Daily and Ehrlich, 1995). I find Lele's method of "semantic mapping" (Lele, 1991; p. 608) particularly useful in making sense of the concepts of sustainability and sustainable development. Through the semantic map (Figure 2.1) Lele (1991) demonstrates that not all the interpretations of sustainable development are useful and that many of the policy prescriptions being suggested in the name of sustainable development stem from subjective ideas about goals and means, and are often inadequate or even counterproductive at times.

According to Lele, then, sustainable development is the process of directed change that in addition to traditional developmental objectives has the objective or constraint of ecological sustainability. In an ever-changing world, "the specific forms of and priorities among objectives, and the requirements for achieving sustainability would evolve continuously but sustainability would remain a fundamental concern" (Lele, 1991; p. 610).

For Holdren, Daily and Ehrlich (1995), development is a process that overcomes the main ills that undermine human well-being. These ills have been broadly categorised as *perverse conditions* (poverty, impoverishment of environment, oppression of human rights, wastage of human potential); *driving forces* (excessive population growth, misdistribution of consumption and investments, misuse of technology, corruption and mismanagement, powerlessness of victims); and *underlying human frailties* (greed, selfishness, intolerance, short-sightedness, ignorance, stupidity, apathy and denial). The objective then, is to improve the *perverse conditions* by altering the *driving forces* which in turn requires overcoming, to some extent, the *underlying human frailties*.

In figure 2.1 the objective of sustainable development is the attainment of basic needs in conjunction with ecological objectives. Need-based objectives are

Figure 2.1: Semantics of sustainable development<sup>4</sup>



predominant in sustainable development literature. The definition of sustainable development adopted by the World Commission on Environment and Development (WCED, also known as Brundtland Commission) is "... development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987; p. 43). The Brundtland Commission placed sustainable development within the framework of ethical social choice and distributional equity within which, Howarth (1997) argues that sustainable

<sup>4</sup> Reprinted from *World Development*, Vol. 19, No. 6, S.M. Lele, Sustainable Development: A Critical Review, pp. 607-621, 1991, with permission from Elsevier.



development be understood as a unifying principle of justice between contemporaries, and between present and future generations ensuring that current decisions involve a fair treatment of future generations. Anand and Sen (2000) interpret this principle of justice as the universality of claims applied to future generations vis-à-vis us, that is, the capacity of well-being is to be shared between present people and future people in an acceptable way. Since successive age-cohorts overlap in time, each generation, then, must extend the notion of equal opportunity to its children. This establishes a chain of obligation between the present and long-run future. Therefore, present decision-makers hold a duty to ensure that development is sustainable in terms of non-diminishing life opportunities enjoyed by a typical person from generation to generation (Howarth, 1997). Sen (2000) has taken the issue of distributional equity a step further over Howarth by arguing for a freedom-based view of sustainable development. Sen argues that a freedom-based view within Brundtland's general idea will enable future generations to live the way they like and value what they have reason to value since *their* conception of their needs may not be the same as *our* conception of *their* needs. There are issues of individual choice as well as social choice in determining the priorities between different kinds of freedoms and in the identification of different types of needs and the priorities between them. There are important grounds for favouring a freedom-based view. Sen argues, an individual's conception of needs may adapt downwards as a result of continual deprivation, and in the absence of any hope for achieving even the most elementary freedoms. Downward adaptation of the conception of needs can happen in many different fields, varying from the unquestioning acceptance of authoritarian interference to fatalistic tolerance. Sen, therefore, suggests that sustainable development be viewed as development which promotes the capabilities of present people without compromising capabilities of future generations (Sen, 2000). Therefore, following Sen, I view sustainable development not as a question of non-diminishing life opportunities and capacity of well-being shared across generations but as a process that ensures choices and the continued freedom to make those choices. Given the dynamics of the riparian commons and the concerns being expressed regarding Sundarbans' future in light of global climate change, I am looking at a time horizon of up to 2030 in terms of intergenerational equity and universality of claims applied to future generations vis-à-vis us.

In a situation like in the Sundarbans, the freedom to make choices comes at a premium which not everyone can afford, implying a low level of distributional equity. Collective action under specific configurations of conditions can enhance this affordability. In other words, collective action may help the achievement of sustainable development goals under certain configurations of conditions, which I will identify in this study. Examining the configurations of conditions will not only help design institutions to facilitate individuals' overcoming social and public-good dilemmas, and achieving higher levels of productive outcomes, but also answer the main research questions of identifying conditions under which strategies could be developed for negotiating competing values and minimisation/management of contrasting forces in the Sundarbans.

## **2.5 Research objectives and questions**

This research has two basic aims: (a) to fulfil certain scientific objectives and policy objectives, and (b) to answer the questions raised so far. The objectives are as under.

(i) Scientific objectives:

- To fill the knowledge gap of understanding human-nature dynamics in the Sundarbans.
- To assess whether collective action as suggested in literature has any significance and relevance in sustaining the Sundarbans.

(ii) Policy objectives:

- How best to protect an ecosystem/natural resource base while providing for human needs?
- To critically assess if the state is able to develop an integrated programme for this unique and valued eco-region, execute it in a coordinated manner, and make adjustments in policies.

The research questions to be answered in the course of this thesis are divided into those dealing with scientific issues and those relating to policy.

***Scientific questions***

1. What competing interests and contradictions are at play in the eco-region?
2. What gives rise to these competing interests and contradictions?
3. How do different groups of actors negotiate these competing interests?
4. How, then, do the different social categories/local communities of the Sundarbans cope with the limitations, natural or otherwise, and negotiate their movement towards a better life?
5. Why different groups and various agencies conduct themselves as they do in the face of deteriorating ecosystem integrity and heightened vulnerability of human society in the Sundarbans?
6. To what extent do 'frontier characteristics' explain the conduct of different groups and various agencies in the face of deteriorating ecosystem integrity and heightened vulnerability of human society in the Sundarbans?
7. To what extent do the concepts of commons and collective action help in understanding and explaining movement of different social categories/local communities of the Sundarbans towards a better life?
8. What are the configurations of conditions under which collective action is organised to overcome social or public-good dilemmas and how do interest, organisation, mobilisation and opportunity influence the extent of collective action?

***Policy questions***

1. To what extent are institutional arrangements made by the decentralised Indian political system adequate to help resource users allocate benefits equitably over long periods of time?
2. How can contradictions at play in the eco-region be better managed to attain sustainable development goals?
3. Why is sustainability difficult to achieve, and under what conditions may further deterioration in the Sundarbans be halted?

Not all the questions will be or can be answered across all the chapters but all of these will be taken up in the appropriate context. In Chapter 3, I intend in examining the prevailing situation in the Sundarbans in some detail along with the historical

conditions through which the current situation has evolved, viz. the intense human pressure on the ecosystem as well as the commitment at the global level to conserve the eco-region as a World Heritage Site. This will lead to a final reflection on what the prospects are of attaining sustainable development goals in the eco-region.