

Pardeep Singh · Yulia Milshina ·  
André Batalhão · Sanjeev Sharma ·  
Marlia Mohd Hanafiah *Editors*

# The Route Towards Global Sustainability

Challenges and Management Practices

 Springer

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*Editors*

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# Chapter 1

## Rethinking Environmental Governance: Exploring the Sustainability Potential in India



Jaydip De 

**Abstract** In recent years, environmental governance, its nature, uses, and modalities are enthusiastically coming into the limelight of the academic and administrative community. The dynamic new approaches to environmental governance have made valuable inroads for sustainable governance. Yet this remained insufficiently harnessed in India, both theoretically and operationally. Not only that, there is a paucity of practicable guidelines to run the existing system holistically. This inductive research examines the nature, dimensions, problems, and idealised situations concerning good environmental governance in the Indian context. Both subjective and objective consideration of the available literature and perception study embodies the foundation of this endeavour. It is debated that governments are no longer the sole agent to ensure good management practice and non-state actors are increasingly coming into the limelight of sustainable community building and coordinated network development. Still, the democratic legitimacy of the private stakeholders is questionable, but the incompetence of public sectors to develop and promote a comprehensive framework for the governance of the environment pushes the system to move forward towards partnership building. This chapter calls for delivering an insightful and adaptable framework capable of identifying, analyzing, and mitigating the issues regarding environmental governance in dissimilar social, economic, political, and ecological ambiances where diverse environmental problems and modes of governance prevail. Therefore, idealised plans, models, and attributes are conceived in this chapter to meet the exhortations of Sustainable Development Goals (SDGs).

**Keywords** Environmental governance · Non-state actors · Coordinated network development · Partnership building · Sustainable Development Goals

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## 1 Introduction

The sustenance of the human community on the earth is regulated by factors of the environment. The United Nations Sustainable Development Goals of 2015 looks forward to building sustainable communities and society. This necessitates an overall modification of the approaches and domains of governance. Ever since then, the academicians and bureaucrats are making sincere efforts to monitor and evaluate Sustainable Development Goals (SDGs). Beginning from the local to the global, the approaches of national policies and natural resources are to be addressed in a new way (Paavola, 2007) to attain the objectives of SDGs. Researchers are shedding light on neo-governance to ensure the protection of collective eco-resources. This has also started promoting participatory as well as collaborative forms of governance for conceptualising more sustainable environmental policies (Newig & Fritsch, 2009), the success of which relies upon the realisation and adaptation of policies that consider the functioning of the earth's system and the adaptability of the local community (Knight, 2015). Participatory strategies are preferable to cater for these needs of sustainable development. Notwithstanding the growing anthropogenic pressure on the environment, good governance has become a prime concern to ensure the long and healthy survival of the civilisation. But, it demands a new way forward. So far, the stewardship of governance is confined to bureaucratic decisions and political judgements where the participation of the commons and the policy review at the ground level are not up to the mark. Though the subject matter of environment is nurtured by different disciplines of natural science, social science (Adger et al., 2003), and humanities, it failed to achieve substantial importance among the common people and lower-level administrators.

The natural environment is coming under tremendous pressure from different institutional and non-institutional actors of development. Good governance of the environment is therefore the demand of time to ensure the sustainability of natural resources and ecosystems. Environmental governance is a collection of the regulatory process applying which environmental actions and outcomes can be regulated by authorised organisations and institutions (Lemos & Agrawal, 2006). Practically, good environmental governance is a realisation of community well-being for the long-term availability of natural resources and their maintenance by satisfying the local demand. In other words, it is the collective effort of the community to maintain the health of the environment. Reinterpretation of the theories and concepts is anticipated therefore (Newig & Rose, 2020).

Of late, the mechanism of governance is more concerned about how decisions are made? Who made this? For whom it is made? And what are their impacts? (Graham et al., 2003; Lockwood et al., 2010; Bennett & Satterfield, 2018). In this regard, Mirumachi and Van Wyk (2010) emphasised the ever-changing power relationships among the various actors responsible for dealing with different environmental problems. Environmental governance is largely concerned with the perception of the society and community. Ortolano (2009) highlighted the importance of institutions, good governance, and civil society for an improved

environment. Indeed, it is the means to address the complex managerial, behavioural, and technical issues relating to the environment (Bennett & Satterfield, 2018). Its strategic understanding is even more complex (Van Assche et al., 2020) with the addition of new knowledge (Gerlak et al., 2020), ultimately leading to greater pressure from citizens regarding participation in decision-making and sharing of perceived benefits (Loe & Kreutzwiser, 2007; Armitage et al., 2012). Differently, the institutionalisation of environmental awareness beginning from the western world has paved the way for different stakeholders to discuss, debate, and take part in environmental issues. It is all about how government organisations, non-government organisations, voluntary groups, political parties, interest groups, and individuals collaborate to maintain harmony with the environment, thus recognising the legal connotations among different stakeholders (Nallathiga, 2012). It also seeks for an active role and political space for actors other than government, such as civil society and business sector (Bulkeley, 2005; Lemos & Agrawal, 2006; Büsher & Dressler, 2007; Turton et al., 2007; Ali-Khan & Mulvihill, 2008; Mirumachi & Van Wyk, 2010). Hence, new chains of cooperation among the new actors are anticipated (Mirumachi & Van Wyk, 2010). However, in the early stages of collaborative action, there is confusion regarding the role of non-state actors in the entire procedure of governance. Since the private organisations are run by the autonomy of the ownership, their democratic legitimacy is still questionable; hence, initially government organisations were doubtful regarding their incorporation in public affairs. Bulkeley and Mol (2003) spotted that in the beginning, the role of interest groups and the community was minimal, and dialogues and actions were confined to the state and industry only. Later on, the scenario started changing when the hierarchies of government have confirmed social participation in planning and implementation. Nowadays, non-state actors are hypothetically welcomed to enhance democratic legitimacy (Bernauer & Betzold, 2012). But, the ground reality raises some questions. Do they actually participate? And how far the government is interested to accept public opinion? Whatever may be the role of society, the prime concern is always to keep the environment healthy. Lemos and Agrawal (2006) spotted four collateral aspects of environmental governance, i.e. decentralised environmental governance, market and individual-focused instruments, globalisation, and governance across scales.

The technological man often orients their activities towards profit maximisation, which in the long run destroys their harmony with nature. The *United Nations Conference on the Human Environment*, Stockholm, 1972, has recognised the need for common orientation of all stakeholders to adapt joint regulations and guidelines to save and protect the human environment globally. This was the foremost recognised effort to preserve the environment. This conference has given birth to *United Nations Environmental Programme (UNEP)* that plays the leading role to establish coordinated networks for global environmental governance involving the UN agencies (Najam et al., 2006). Later on, the *United Nations Conference on Environment and Development (UNCED)* or the Earth Summit of Rio de Janeiro, 1992; *Convention on Biological Diversity*, 1993; and the *World Summit on Sustainable Development (WSSD)*, Johannesburg, 2002, are the most recognisable attempts to

protect the human environment involving the governments, NGOs, business organisations, and other interest groups (United Nations Department of Economic and Social Affairs, 2020). Following these global initiatives, there is growing consensus that the public needs are to be addressed properly in the process of environmental decision-making (Owens, 2000; Bloomfield et al., 2001; Davis, 2001; Bulkeley & Mol, 2003).

The relationship of development is somehow dichotomous with the environment (Government of India, Ministry of Environment and Forests, 2006). Socioculturally diverse Indian society is facing continuous challenges from society, economy, polity, and environment (International Centre for Environment Audit and Sustainable Development, 2006). Not only the less-developed world but rather the developed counterpart is also suffering from non-effectiveness of environmental policies (Lenschow, 1999; Jordan, 2002; Knill & Liefferink, 2007; Newig & Fritsch, 2009). Mostly, researchers have focused on some case studies and globally fitted models of environmental governance. But as time flies, the entire system demands context-specific upgradation. The major roadblock for environmental governance in India is the non-empowered local government, which despite the 73rd and 74th constitutional amendments (1992) has not given full autonomy to govern the local environment. Thus, a missing link between the institutional framework and ground-level governance is evident. Unless institutional reforms are imparted, the twin objectives of good environmental governance and supporting natural life cannot be taken forward. Hence, there is an absolute need for identifying proper modalities of governance. In this synthetic study, a comprehensive attempt is so made to identify the existing mechanism of environmental governance in India. It also attempts to answer the following questions – what are the major initiatives taken to ensure good governance of the environment? What are the formal channels of environmental governance? And which is the best fitting way to ensure equitable environmental governance? Presenting a standard operational procedure, this chapter attempts to sum up all possibilities for pro-citizen environmental governance.

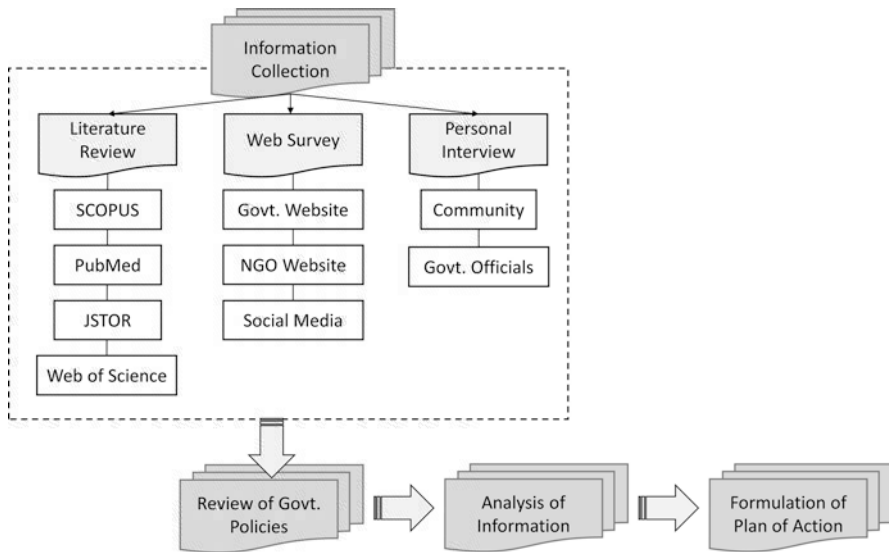
## **2 Objectives of the Study**

The nature and attributes of environmental governance are widely studied in developed economies, but studies are scanty in developing countries where the population is always accelerating its pace of growth. This study aims to identify the ideal means for good environmental governance with special reference to India. Hence an in-depth introspection is made to identify the major policies for environmental governance adopted in India. This study also tends to ascertain the main attributes, potential challenges, plan of actions, and consecutive stages to promote good environmental governance. Further, this inquiry focuses on developing a pro-citizen model of good environmental governance.

### 3 Materials and Methods

In this conceptualisation of environmental governance, introspection of literature and published documents matters a lot. Subsequently, empirical understanding through field observation and unstructured interviews ensure the added realisation of ground reality. Given the insightful thinking of scholarship, it is argued that literature owes a lot of learning lessons and integrate scientific knowledge into actions of reality. This endeavour pays attention to understand what already have done and what could happen from a strategic point of view. Consequently, at first, the complexities of the objectives, attributes, and analytical elements relating to environmental governance were reduced. Because so far, too many academicians have attempted to conceptualise the different dimensions of environmental governance, their improper judgement increases unnecessary confusion. Hence, context-specific and plan-formulating discussions are given priorities. Nevertheless, unstructured perception studies were conducted on government officials, citizens, ward committee members, political activists, and elected representatives to acknowledge the scenario from unlike perspectives.

The literary analysis comprises normative consideration of existing global literature on environmental governance. The objective analysis includes target-specific attitudes, including identifying the number of implemented policies, acts, regulations, a specified number of attributes, working responsibilities, etc. On the other hand, the subjective analysis focuses on in-depth introspection on their modalities and dimensions. A comprehensive attempt is so made to define prime concepts on environmental governance. Research literature, newspaper reports, government websites, web portals of non-government organisations, and other published documents appear to be the main source of information. This research partially followed the PRISMA-Preferred Reporting Items for Systematic Reviews and Meta-Analyses (Moher et al., 2009; Abalha et al., 2020; Huq et al., 2021) approach for systematic evaluation of literature. This meta-analysis covered more than 5000 articles published in reputed repositories including Scopus, PubMed, JSTOR, and Web of Science (Fig. 1.1). The articles were selected based on their relevance to ‘environmental governance’ and ‘environmental governance in India’ (keyword search), and this involves the *Identification Phase* (phase 1) of the PRISMA. Since Scopus is the largest repository of the other three, it is to mention that 4497 pieces of literature against ‘environmental governance’ and 567 literature against ‘environmental governance in India’ were found in its database. In the *Screening Phase* (phase 2), 354 ( $n = 354$ ) and 230 ( $n = 230$ ) sample literature were shortlisted at a 95% confidence with a 5% chance of error. The sampling of literature was purposive. Simultaneously, government reports and websites were also scrutinised thoroughly for policy recognition and evaluation. In the *Eligibility Phase* (phase 3), these articles and reports were analysed based on their effectiveness to propose policies and means to govern the local environment. A total of 78 and 56 articles were excluded based on the abstract review. 18 articles were added to the database to shed some light on the aspects of e-technology adaptation (*Included Phase* – phase 4).



**Fig. 1.1** Workflow of the research

Initially, the concepts and potential challenges among themselves were considered; after that the policy initiatives adopted in India were reviewed. Subsequently, the shortfalls to achieve the desired aim were also addressed. This analysis continued by building upon the recent researches that reviewed and summarised fruitful outcomes of government initiatives. Review of literature continued until the conceptualisation of specific thematic goals was achieved. Idealised instances from all over the world in different sectors like the forest, wildlife, waterbody, soil, wastewater governance, etc. were reckoned in this study. Supporting references are provided throughout the text to provide a strong footing to the discussions of this study.

The interviews focused on the perception of government officials, community engagement, the perceived impact of community involvement in government initiatives, and citizens' aspirations. The sample selection for this study was purposive and snowball. The community leaders and political activists were asked how they worked with local people as well as government officials. It was focused to identify how far the citizens feel that local level environment-related programmes are important to participate in and how far the officials are interested in making them aware and provide the opportunity to get involved, particularly to those who have participated in such activities at least once. The opinion of respondents from both rural and urban areas is given due importance. A detailed note of the field observation was considered for ground verification. The data analysis consisted of a thorough interpretation of field experience and qualitative analysis (not directly quantified but incorporated for investigating the ground reality) of information obtained from informal interviews. The interviews were conducted using e-mail and face to face. The observed issues were categorised into two broad groups: level of civic engagement and conflict between government and community. Inductive synthesis was

carried out thereafter to promulgate the pro-citizen model of good environmental governance upon both subjective and objective recognition of the prime functions and functionalities of environmental governance. While the literary analysis was conducted from 2016 to 2021, field observation and perception interviews were a snapshot of 2018 and 2019.

## 4 Major Initiatives to Govern Environment in India

The Indian subcontinent is well-endowed with a wide variety of natural resources. So far, several attempts were taken by governments to conserve pristine nature, but the ever-increasing pressure of population has impacted negatively upon them. The traditional means of resource utilisation and subsistence-based primary practices are also responsible for resource depletion. The growing greed of people, unplanned urbanisation, forest destruction, and non-eco-friendly tourism practices are imposing serious harms to the natural environment as well. Consequently, an urge was felt to put forward some legal measures to protect the air, water, forests, and biological diversity. Article 21 of the Indian constitution ensures the citizen's right to a decent environment. Hence, the Parliament of India has enacted and amended several acts to protect, regulate, and conserve the country's natural resources. The late 1980s and early 1990s could be marked as a watershed. Ever since then governments and interest groups became proactive to conserve the health of the natural environment. Some of the policies adopted in India are discussed herewith.

- Indian Forest Act, 1878, 1927 and Forest Conservation Act 1980, 1988, 1992
- Wildlife Protection Act, 1972, 2002
- Water (Prevention and Control of Pollution) Act, 1974
- Air (Prevention and Control of Pollution) Act, 1981
- Environment (Protection) Act, 1986
- Hazardous Waste (Management and Handling) Rules, 1989
- Noise Pollution (Regulation and Control) Rules, 2000
- Biological Diversity Act, 2002
- National Environmental Policy, 2006
- National Green Tribunal Act, 2010

Besides, some other specific sector-wise projects like Project Tiger (1973), Project Elephant (1992), Namami Gange (2014), etc. were introduced from time to time depending on the prevailing scenario of qualitative deterioration of the environment. Keeping pace with the global scenario and changing community behaviour, the Indian environmental governance requires some contextual modifications too. The misery of Indian citizens is confronted with poverty, hunger, unemployment, malnutrition, illiteracy, and population explosion. Thus, it demands some special attention on socio-economic issues associated with the livelihood and lifestyle of the commons while looking for environmental policies. Future initiatives must try to keep harmony with that.

#### **4.1 *Indian Forest Act, 1878, and Forest Conservation Act, 1980***

Initially, the *Indian Forest Act* was enacted during the British era to maintain forest cover, regulate entry to the forest, and protect wildlife. Later on, considering the demand of time and international regulations, this act was modified in 1927. This amendment has empowered the government to create Reserve Forest and restrict the use and access to Reserve Forests for government purposes only. After independence (1947), the need for versatile use of forest resources was felt; therefore, the *Forest Conservation Act* was enacted in 1980. In this new act, the earlier income-generating attitude was shifted to conservation orientation (Mondal, 2020). This has recognised the ancillary right over forest resources. To control further deforestation, the said act was amended in 1988. It was further amended in 1992 to allow some controlled non-forest activities.

#### **4.2 *Wildlife Protection Act, 1972***

As a response to human greed against wildlife, the *Wildlife Protection Act* was enacted by the Parliament of India in 1972. This act ensures the protection of plants, birds, and animals against hunting, cutting down, unscientific extraction of forest resources, etc. This act was amended several times in 1982, 1986, 1991, 1993, 2002, and 2006. The amendment of 2006 made it punishable to hunt or change the boundary of a sanctuary or national park.

#### **4.3 *Water (Prevention and Control of Pollution) Act, 1974***

Considering this multidimensional importance of water in the sustenance of life and livelihood of people and maintaining the health of water bodies, *The Water (Prevention and Control of Pollution) Act* was enacted in 1974. This act also considers the assignment of boards and statutory bodies to employ a set of responsibilities and power to prevent and control water pollution. Initially, this act was implemented in the States of Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Rajasthan, Tripura, and West Bengal and all the Union territories. The Central Pollution Control Board (CPCB) and the State Pollution Control Board (SPCB) were set up under the guidelines of this act. Later on, this was amended in 1988 which has made provision for the citizens to lodge complaints in the public interest. This amendment has also made some corporate responsibilities to protect water (Indian National Bar Association, 2018).

#### ***4.4 Air (Prevention and Control of Pollution) Act, 1981***

*The Air (Prevention and Control of Pollution) Act* of 1981 was meant to preserve the quality of air by preventing and controlling air pollution from both natural and anthropogenic sources. It also made provision for the constitution of boards or statutory bodies to meet the aforesaid objectives. This act was a real response to the awareness generated by the *United Nations Conference on the Human Environment* held in Stockholm, 1972. This act also empowers state governments to put forward zonation of air pollution and prescribe different types of fuel based on spatial variation of air quality. Technological modification and upgradation were also prescribed under this act. The amendment of 1987 to this act has recognised noise as an air pollutant (Laws India, 2000).

#### ***4.5 Environment (Protection) Act, 1986***

In response to the recommendations of the United Nations Organisation and to prevent any future occurrence like Bhopal Gas Tragedy, the *Environment (Protection) Act* was enacted in 1986. The goal of this act was to form agencies to monitor the environment and control and prevent any kind of adverse activities that may harm the natural environment. This act has also made provision of improving the natural environment all over the country. This act last amended in 1991 provided an umbrella to all the various acts that deal with the quality and availability of natural resources.

#### ***4.6 Hazardous Waste (Management and Handling) Rules, 1989***

Solid and liquid wastes are generated from the housings, agricultural fields, factories, hospitals, markets, etc. Scientific disposal and management of this waste are essential to prevent land, air, and water pollution. For the eco-friendly disposal and management of hazardous wastes, the *Hazardous Waste (Management and Handling) Rules* was introduced in 1989 and amended in 2003. This has identified the hazardous wastes and recommended the proper way to handle them. For that purpose, this rule exercise jurisdiction, including other acts that tend to control air, water, and land pollution. This has made it obligatory for the operator of the waste-generating organisation to collect, store, treat, and dispose of hazardous wastes as specified by government authorities, thereby preventing all the potential harm to the human and physical environment.



#### **4.7 *Noise Pollution (Regulation and Control) Rules, 2000***

To prevent the adverse impact of excessive noise on physical and psychological well-being of human being, under the executed power of the *Environment (Protection) Act* of 1986, the *Noise Pollution (Regulation and Control) Rules* was put forward to regulate the ambient noise level from various sources like construction, industry, generator machines, loudspeakers, public address systems, music systems, vehicular horns, and other mechanical devices in a public place (Central Pollution Control Board, 2000; Laws India, 2000). The ambient noise level for different land-use zones was determined under this rule.

#### **4.8 *Biological Diversity Act, 2002***

The survival of all living beings on earth is dependent on the existence and preservation of biodiversity. The *Biological Diversity Act* was enacted to regulate access to genetic resources and protect biological diversity along with an opportunity for their sustainable use (National Biodiversity Authority, 2003). This was enacted under the obligation of the *Convention on Biological Diversity*, 1993. The *Biological Diversity Act* empowers the government to constitute statutory bodies for that purpose. This act also made provision of preservation of indigenous knowledge about bio-resources including Intellectual Property Rights (IPRs) as well as sharing of information, developing a knowledge base, promotion of research activities, and provisioning economic benefits to the local communities. In reality, this act was implemented through the constitutionally recognised three-tier government set-up of India. This has empowered local bodies to notify and monitor biologically heritage sites in consultation with the State government.

#### **4.9 *National Environmental Policy, 2006***

At the beginning of the new century, an urgent need was felt to bring all the environment-related acts under one umbrella and put forward comprehensive policy to conserve critical environmental resources ensuring balanced socio-economic development. Thus, the Ministry of Environment and Forests developed this policy for quality control of environmental resources. The main motto of this policy was to conserve natural resources and provide livelihood security for the poor (India Water Portal, 2010). This policy consisted of seven major objectives that focus on conserving natural resources, intra- and intergenerational equity, balanced development, efficient use of environmental resources, and proper governance environment (Government of India, Ministry of Environment and Forests, 2006). This policy is a true outcome of consultation among different ministries, elected representatives, NGOs, researchers, and civil society (India.gov.in National Portal of India, 2019).

#### **4.10 National Green Tribunal Act, 2010**

The *National Green Tribunal Act* was framed to establish a tribunal for dealing with legal activities associated with environmental protection and protection of forests and other natural resources (India Code, 2010). This was a delayed response to the exercise of the Stockholm Conference, 1972 and the Earth Summit of 1992. Under this act, the central government issued notification for the establishment of the National Green Tribunal to exercise the jurisdiction, powers, and authority. This tribunal also aims to reduce judiciary pressure from higher courts and tend to ensure speedy environmental justice under its jurisdiction (National Green Tribunal, 2019).

In India, all the environment-related policies emerged and were modified time to time depending on the then socio-economic context. However, these policies were formulated quite optimistically to restrict all sorts of anthropogenic activities that degrade the natural resources and environment. But, owing to the ever-increasing pressure of the population and prevalence of poverty, good environmental governance remained a sweet dream to achieve. In many cases, the achievement of the documented objectives was hindered by political intervention and the absence of autonomy of the urban and rural local bodies. The surging pressure of basic infrastructure is also adding some hurdles to overcome. The actual involvement of non-state actors is limited to policy guidelines only. As a result, the policies framed so far only become able to reach the goals partially. Local beneficiaries are also made aloof of the initiatives at the ground level. Hence, in most cases, the initiatives failed to acquire consensus. This necessitates a complete reform of the administration and incorporation of non-state actors for planning and project implementation. Keeping these drawbacks in mind, this endeavour idealises the situation and formulates plans of action to develop community involvement and build sustainable communities.

### **5 Attributes of Good Environmental Governance**

In more recent times, ‘good’ governance is credited for its ability to maximise the participation of citizens in the decision-making process. Not merely that, it inculcated transparency, morality, accountability, and responsiveness to the entire system of governance. In the context of environmental governance, the term ‘good’ is applied differently. Where management and preservation of the physical environment are not sufficient at all, qualitative upgradation of human enterprise is also critical to promote balanced development in the Anthropocene. The establishment of good governance is mutually linked to the existence of a democratic political environment. The attributes, key concerns, government responsibilities, and non-government responsibilities in this context are discussed thoroughly (Table 1.1) with the help of earlier initiatives made by Bennett and Satterfield (2018).

The nature of management of individual behaviours and collective actions determines environmental well-being and sociocultural outcomes (Armitage et al., 2012;

**Table 1.1** Attribute, key concern, government responsibility, and non-government responsibility for good environmental governance

Attribute	Key concern	Government responsibility	Non-government responsibility
<i>Coordinating factors</i>			
Participation	Participation of all for good and effective governance. Formulate appropriate mechanisms to maximise the participation of stakeholders Presently the rate of participation is very low in India. Local people are kept apart from the decision making process	Pro-citizen initiatives are needed to adopt. The traditional 'command and control' approach should be shifted to a 'cooperative approach' (Harrison, 1998)	Take part in community activities, providing feedback to the government, interact with elected representatives. In rural India Gram Sabha and urban areas, Ward Committees are the interface to raise the demand of citizens. Proper consumer education is required
Cooperation	Bridging the gaps among various actors. Both vertical and horizontal networking is required to minimise social distance and distance among line departments. Cooperation is absent even among the line departments	Listening to the people. Showing a positive attitude towards the subordinates	Building community organisations, interest groups, and voluntary organisations. Cooperating with government officials
Connection	Inter-connectivity among stakeholders both horizontal and vertical. Bridging the gaps and building social solidarity and resilience to support collective movements; Governments mostly relying upon traditional communication channels	Establishment of channels and networks of communication	Smoothing government activities by responding to the communication process. Active communication with neighbouring communities
Dialogue	Effective dialogue makes the room for balanced development Opportunities are limited by political interference	Ascertain proper persons to initiate active dialogues among interest groups	Convey direct ground-level experience about problems, conservation practices, future requirements
Responsiveness	Responsiveness to the community enhances the trust of the society Delay and non-accountability of government bodies	Response to the needs and aspirations of the common people	The non-state organisation should try to mobilise people. Individuals and families must convey their needs properly

(continued)

**Table 1.1** (continued)

Attribute	Key concern	Government responsibility	Non-government responsibility
Accountability	Elected representatives, bureaucrats, and governments have to possess accountability to the queries of commons. It facilitates the betterment of the performance of the entire system. Recently governments are trying to increase by use of electronic media	Timely accounting of financial statements, budgetary disclosure, public audit of important activities	Raising questions regularly to the authorities about their claims
<i>Knowledge-enhancing factors</i>			
Capacity	Knowledge and skill are abundant, but their nurturing is needed to build context-specific capacities	Capacity building initiatives, skill enhancement programmes are to be organised frequently	Nurturing with the inherent capacities. Focusing on skill development in a single dimension, so that efficiency can be achieved
Learning	Continuous learning from monitoring, evaluation, and modification of existing mechanisms. Platforms are to be built to share learning outcomes	Learning from the field and dissemination of obtained knowledge	Helps to develop context-specific knowledge. Voluntary participation of individuals and groups are encouraged to enable them to act as a facilitator in different areas
Innovation	A robust framework for innovative thinking, technical innovation, and logistic support. Experiments, examinations, and innovations encourage the recording of success and failure. In long run assisting to raise tolerance levels	Innovative knowledge generation and communication. Provision for research and development	Knowledge generation according to community necessities. Context-specific technology development and ways to protect natural resources
Efficiency	Expertise to be developed to enhance efficiency. Needed to concentrate on sector-wise and class-wise capabilities. Government should focus on harnessing individual potentials	Developing the expertise to take care of pro-poor development and conservation of natural environment protecting the rights of indigenous people	

(continued)

**Table 1.1** (continued)

Attribute	Key concern	Government responsibility	Non-government responsibility
<i>Social equity factors</i>			
Information	Non-state participants are commonly considered as the receptor of information. Their role for information generation needs proper recognition. Sharing of information is either absent or very limited with little scope to interact	Citizens are not to be considered passive recipients of information only. Rather, proper information dissemination to mobilise them is needed	Conveying community demands, experiences
Trust	Mutual trust and understanding are obligatory. This leads to sharing of duties, responsibilities, and opportunities	Developing mutual understanding among all the stakeholders	
Justice	Laws and policies are to protect the rights and sentiments of the local people. Pro-poor approaches are necessary to stop the exploitation of nature. Social justice is necessary	Proper identification of beneficiaries, enactment of the law, preserving legal rights. Looking after sensitive areas	Responding to the government orders, supporting them to protect the environment and establishing social justice
Responsibility	Planned initiatives are to be adopted to share responsibilities. Not only the state, rather the non-state actors should limit their activities that could harm nature	Distribute responsibilities among different departments and various stakeholders	Taking up the burden of government and building community resilience to protect the ecosystem

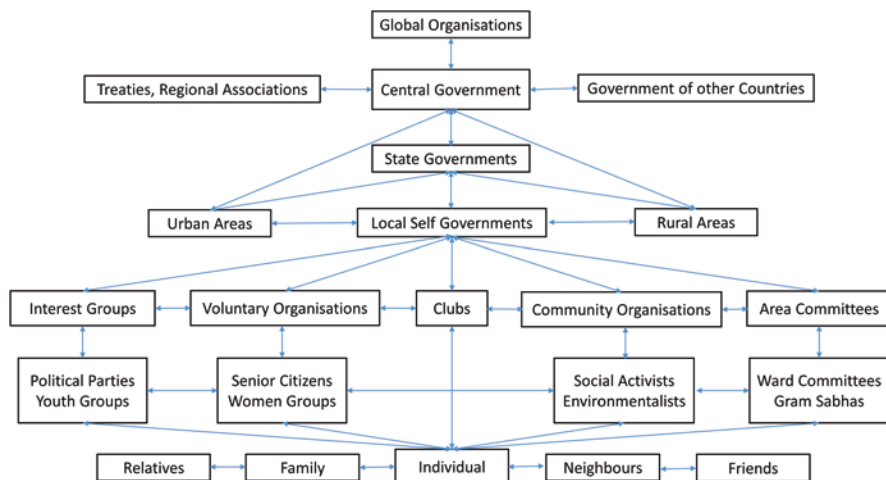
Note: Attributes are modified after Bennett and Satterfield (2018)

Termeer et al., 2010; Bennett & Satterfield, 2018). All the attributes of coordinating, knowledge enhancing, and social equity are intermingled within the superstructure of environmental governance and can be driven by the top of the hierarchy (government) as well as by the bottom (people). However, a shared plan of action and continuous dialogue is crucial to save the environment and communicate the same from local to global. It involves formulation of laws, articulation of community demands, development of institutional mandates, conflict resolution, and policy formulation, thus leading to the indigenisation of governance in the environmental regime. Understanding the factors and dimensions of spatial scales is decisive to the performance and outcomes of environmental governance (North, 1990; Young, 1997; Bennett & Satterfield, 2018).

## 6 Dimensions of Environmental Governance

Mother Earth and its environment is the creator, holder, and carrier of human civilisation. Still, in the era of rapid technological innovation, man is unable to invent a mechanism to control the environment to the fullest extent. The realisation of the fact that anthropogenic activities are dominantly responsible for alteration and degradation of the natural environment has developed concern about environmental management. But with the passage of time management resembles authoritarian moves towards environment conservation, which appeared to neglect the voice of local dwellers and the rights of indigenous people who are dependent on the natural resource by customary rights. Scholarly practices are continuously dealing with different dimensions of environmental governance. While developing the practical framework for understanding the nature of environmental governance, Bennett and Satterfield (2018) focused on institutional, structural, and process elements of governance involving robust, responsive, equitable, and effective attributes. This takes into account a system of enhanced responsibilities through an interactive structure. Quite alike, complex interaction among government regimes and environmental resources is recognised as key for environmental governance by Paavola (2007). Market economics, land ownership, wildlife policies, and other institutional factors relating to the local physical and social condition are crucial. Armitage, Loe, and Plummer (2012) were concerned about knowledge, scale, adaptiveness to learn, accountability, legitimacy, and actors of society. Simultaneously, balanced participation of civil society, state and non-state stakeholders, is having a significant role to protect the environment, but the present administrative framework of India is not supporting the absolute empowerment of local governments.

Furthermore, the tactic knowledge and expertise of non-state actors open up new dimensions of urban governance (van der Heijden, 2016). The horizontal and vertical dimensions of environmental governance also obtained significant attention in global governance literature. Effective networking of both state and non-state actors is to be introduced. This networking may take place through both formal and informal channels. The formal channels mostly involve vertical linkages among the various hierarchical levels. On the other hand, informal channels involve casual modes of interactions, mostly horizontal among individuals and groups. Horizontal linkages may also take place in the top part of this superstructure (Fig. 1.2). In this context, concrete policies are required for *supply management*, identifying the need of the society; *demand management*, depending on cost-benefit analysis; and *soft path*, identifying psychological characteristics of the society and political nature of democracy (Brandes & Brooks, 2007). The soft path moderates the policy decisions by leaving opportunities to modify global or national regulations depending on local aspirations and practices. Four distinct dimensions of environmental governance are identified by Theys (2002: 224) which are mutually dependent based on the demand of the situation. These dimensions include:

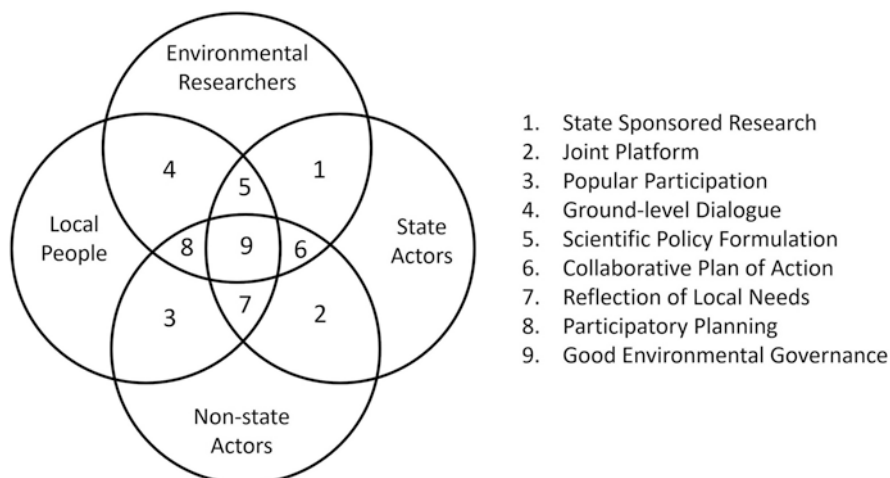


**Fig. 1.2** Vertical and horizontal integration of environmental governance (Indian context)

“modernizing public action and increasing its credibility or legitimacy, developing non-authorian devices for coordinating and regulating collective action, expanding reflexive and procedural rationality, and shifting power.”

Based on this discussion and experience of field empiricism, four major facets of environmental governance are identified; those are environmental researchers, state actors (government organisations), non-state actors, and local people. Interdependency of these four dimensions endorsed the formulation of a pro-citizen model of good environmental governance (Fig. 1.3). This model explains that equal involvement of all the four dimensions would not only open up opportunities for individuals to express their needs but also enable the state to implement, evaluate, and modify the planning initiatives from time to time through voluntary engagement. It also unveils opportunities for research and development in new horizons. Environmental governance initiates with the realisation of the need and sentiments of local people. Even so, it is also important to realise the power politics and environmental economy of the area concerned.

Any policy cannot become fully successful unless it addresses the economic challenges of the local dwellers. It would be an overestimation that following the path of this pro-people model (Fig. 1.3) all environment-related problems can be solved, rather it leaves an opportunity to follow new ways to address these issues. However, the connotation ‘good environmental governance’ sounds very interesting and optimistic but seems very complex and recalcitrant to achieve in reality. While talking with the common people, it was felt that their voice remained unheard in many cases. But, they are the actual sufferer of environmental degradation. The immediate beneficiaries can only address these complexities.



**Fig. 1.3** Pro-citizen model of good environmental governance

## 7 In Search for Proper Plan of Action

Over so many years, the environment has appeared as a ‘*laboratory*’ to test and invent new forms of governance (Theys, 2002: 213; Pellizzoni, 2004). But the result is not impressive for environmental performance and the ability to regain the trust of the society and institutional legitimacy (Pellizzoni, 2004). Presently we are living in a society where globalisation and technological interventions are shaping human life. While the world is becoming more scientific, its scientific tools are destroying the environment alarmingly. Local institutions are becoming obliterated by cosmopolitan values. State authorities are having problems arranging funds to restrict unscientific exploitation and making people educated enough to develop intangible value judgement. Though it is difficult to formulate any universal plan of action to address the varied issues of environmental governance, an attempt can be made to idealise some plans of action (Table 1.2) that are modifiable according to the demand of the situation.

The only identification of probable challenges is not sufficient enough to formulate an acceptable plan of action, rather this also leaves room for the promotion of many strategies involving the different stakeholders. A pro-citizen plan of action requires the identification of demands at the household level considering the diversities of class, caste, religion, and cultural attributes. In many states of India, caste-based discriminations are found in political participation. Sometimes the unprivileged section of the society is kept apart from any community actions, on the contrary, during the election; they are treated as vote banks. This attitude of the political powerhouse gives birth to democratic dualism, where the ground-level government workers get confused. Thus, arises the need for structural reform involving voluntary participation. At the same time, spatio-temporal changes of

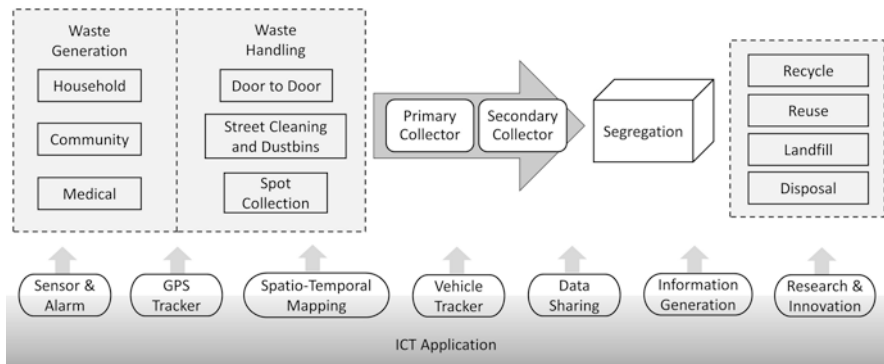


**Table 1.2** Major challenges of environmental governance and problem-specific plan of action

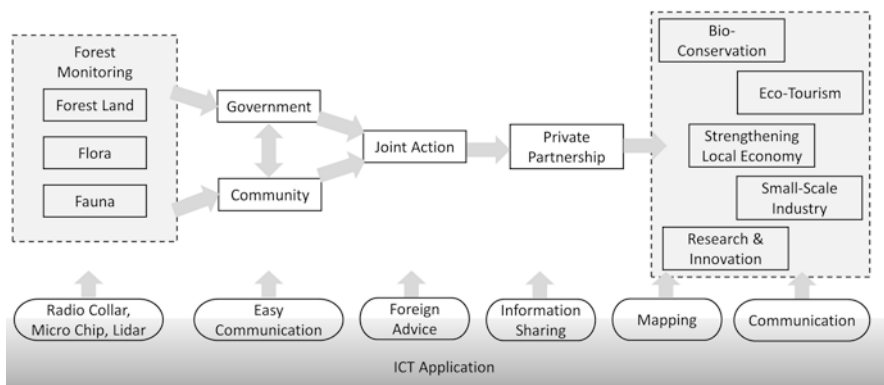
Challenge	Plan of action
Globalisation	Conservation of indigenous traits of environment. Innovative technologies to reduce, reuse, and recycle. It can foster knowledge gathering and skill enhancement through sharing of information and exemplifying ideal situations from distant areas
Uncertainty	The uncertainty to predict the paths of development, in the long run, creates an asymmetry between short-term and long-term policy interventions. Action researches for short-term and experimental pilot projects for long-term policy interventions are the fittest way out
Capital	Availability of capital for physical infrastructure development, providing compensations, zoning of sensitive areas, demarcating boundaries, employing manpower, technological upgradation is pivotal. Sometimes, incentives are required for increasing participation among the poor
Awareness	Adaptation to the new challenges and context-specific mitigation is required. Awareness cannot be developed overnight even not within a month. Learning through interaction and involvement is necessary. Administrators should arrange campaigns, but development of inherent consciousness must be prioritised
Dependency	Dependency over the environment teaches the people to conserve its trait for long and healthy survival. This dependency mostly arises from the supply of means of livelihood. Indigenous people and ultimate neighbours' right over the environment should be protected legally. Together with, outsiders' access must be restricted, because in most cases, they tend to exploit nature unscientifically and make locality unproductive
Consistency	The planning and decision-making process is often well known for inconsistency in participation and time management. This ultimately mentally detaches the non-state stakeholders from the entire programme. The resulting concentration of decision-making power to the bureaucrats. Such initiatives must be consistent enough to grow interested and maximise the participation of the local community
Power politics	Power politics at the ground level have a crucial role, be it political or class-based society. The beholders of power can motivate as well as can demoralise people to protect the natural environment. Sometimes they exert control over elements of the environment forcefully for economic benefit. A democratic environment up to the lowest level of society is a necessity for the good governance of the environment
Stake and right	Adaptation of cooperative approaches for negotiated rulemaking. This generates the feeling of stakeholders among the commons. Not only that, willingness of government to address all stakeholders including business, corporates, individuals, local groups, persons having specialised skills, etc. Voluntary involvement of experts and retired persons. The right of the beneficiaries is to be protected legally

Note: Challenges are modified after Underdal (2010)

locally available resources can serve as an important indicator to gauge the level of environment governance required. For example, water resource mapping is crucial for cultivation for household purposes in rural areas. Similarly, in urban areas, community participation is essential for green and open space governance. In all these cases, participatory mapping could be helpful. Externally, GIS mapping could be done by professional experts and local capacity building programmes. Here the application of different modes of e-technologies could be handy. For example, two



**Fig. 1.4** Incorporation of e-technologies in an urban solid waste management system



**Fig. 1.5** Incorporation of e-technologies in a forest management system

different cases are presented here to show how virtual media can help the local administration in the management of household waste (Fig. 1.4) and forest resources (Fig. 1.5). Here, different technological applications are incorporated with the traditional system of management. In the case of waste and forest management, Information and Communication Technologies (ICTs) can accelerate the pace and inculcate transparency. These applications are a little costly for initial installation, but maintenance is not so difficult and most importantly can create job opportunities for local youth through initial capacity building initiatives. At the same time, the entire operation of the system can be monitored by the local community using some designated website or applications. It also facilitates complaint lodging service thus increasing the system accountability.

Whenever any area or region is considered for adoption of an environmental improvement plan, several stages are to be followed (Fig. 1.6). Here the role of old documents, population-related information, geological maps, and multi-temporal satellite imageries play an important role for zoning and criticality analysis. Proper training of youth for skilled and semi-skilled works is a precursor to assure

Stage 1	Zoning of Physical Environment	Voluntary or Incentive-based Participation
Stage 2	Identification of Environmental Criticality	Mapping of Resources and Activities on Locally Available Maps
Stage 3	Prioritising the Areas and Criticality Ranking	GPS Surveying and Interactive GIS Mapping
Stage 4	Identifying Physical Characteristics of the Area	Literature, Maps, Government Documents and Local Survey
Stage 5	Identifying Social Characteristics of the Area	Community Register Development, Age-Sex-Occupational Structure Identification
Stage 6	Plan Formulation	Involvement of Various Stakeholders, Beneficiaries. Plan Depends on Nature of Physical Resource (Land, Water Body, Forest, Wildlife, Air, etc.)
Stage 7	Financial Resource Allocation	Required for Technologies, Boundary Demarcation, Labour Payment, Logistics, Travel Expenses, etc.
Stage 8	Plan Implementation and Monitoring	Expert Opinion, Regular Supervision
Stage 9	Short-term and Long-term Plan Evaluation	Environmental Impact Assessment, Financial Accounting, Analysis of Opinion of Local Community
Stage 10	Plan Modification	Based on Plan Evolution, Newly Raised Issues, Livelihood Analysis
Stage 11	Planning for Other Prioritised Areas	Similar Stages to Follow with Special Reference to Nature of Physical Resource

**Fig. 1.6** Ideal stages for the development of environment improvement plan

enthusiastic participation of the local people. Youth should be trained properly to operate machinery, GPS equipment, GIS and statistical software, and online applications and keep a record of the database, etc. This not only protects the environment at once but also opens up new job opportunities for the next generation. Therefore, while looking for a sustainable environment, the process of sustainable community building is also fortified.

## 8 In Conclusion: The Way Forward

The analysis of this research highlighted the need for enhanced attention to the understanding and reforming of the myriad systems of environmental governance in the prevailing federal structure of India. The unstructured interviews conducted during this study reveal that the local youth and the grassroot-level administration play an important role to educate the community and mobilise the locally available resources. In India, community participation in conserving greens, water bodies, economically important resources, maintaining air quality, reducing pollutants, etc., is marginalised in the true sense. Because in a federal framework, implementation of national-level plans is handicapped by resistance from state machinery and poor capacity of local governments.

The framework presented in this analysis offers improved comprehension of environmental governance in a dynamic socio-economic-political-ecological milieu. This study raises a strong demand to create statutory bodies that can operate independently and take decisions involving different stakeholders. These legally recognised bodies should act as the custodian of the environment. Indian constitution has promoted devolution of power through Gram Panchayats and Urban Local

Bodies, but these institutes are neither financially nor politically powerful enough to govern the local environment independently. Sharing of responsibilities among state and non-state actors under the guidelines of UN Organisations and bilateral and multilateral treaties should be helpful to bridge the socio-economic gaps. This would accelerate the opportunities to form a platform for joint action to ensure community mobilisation through collective involvement. The deepening of democratic representation is decisive in such a context.

This research argues that the distribution of responsibilities is absent in many instances. Joint action-based activities are best fitted for resource mapping, temporal change detection, necessity identification, economic benefit analysis, threat detection, and impact assessment involving the people having immediate contact with nature. This will also create diversified employment opportunities for the local youth through capacity building in mapping, management, promotion, and protection of locally available resources. Academic linkages like university-community tie-ups are already having important success stories in both urban and rural areas. Formation and nurturing of networks for information acquisition from the grassroots level, not a policy imposition from upper tiers of administration, is the foremost priority. Hence, an adoption of small-area-based hybrid approaches and integration of them into larger ones following the hierarchies of space appear to be effective for long-term environmental governance. In such efforts, non-state actors must have a direct stake in policymaking; not only as recipients of information, rather their active role in regulation and implementation is anticipated (Lemos & Agrawal, 2006; Underdal, 2010). The planning machinery of the national government should act accordingly. Therefore, structural modification of the administration is required.

This study also draws attention to utilise electronic media and mass media for awareness generation. Mobile app and portal-based communicative channels can be developed for gathering, verification, validation, and dissemination of information. It would help to obliterate middlemen, and people can establish one-to-one and one-to-many communication with peers, administrators, and elected representatives. GPS-based mobile phones and web-GIS platforms are handy in such cases. Local people can easily capture data and upload geotagged information on web servers, thus, higher-level officials can gather information consistently. These practices are effective for the daily monitoring of solid wastes in urban areas. But how far the present framework supports this upgradation? These practices are almost absent, presently. The government must make efforts to involve private partners. What already has worked in developed economies may not work here, but local leaders must make efforts to modify them depending on the ground-level scenario.

With the reform agenda put forward here, the traditional 'cowboy economics' of natural resources should be eliminated. This means that a wealthier person keeps on investing capital to exert control over resources regardless of the necessities of others and limitations of availability. Although the concept of the cowboy was initiated in the mining camps of the American west, this idea was introduced in the field of natural resources by Shiva (2002: 22) in the context of water resources. Hence, the need-based approaches of natural environment conservation vis-à-vis environmental governance are appropriate for practising good governance. Certainly, the global

context of environmental governance pursues attention towards decentralised governance and pluralistic strategies (Underdal, 2010) to adopt policies for improved partnership and develop sustainable community resilience. In India, a shortage of financial resources is the prime constrain for sustainable policy adaptation. Still, indigenous area-based perspectives are to be more acceptable and economically gainful for robust environmental governance.

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