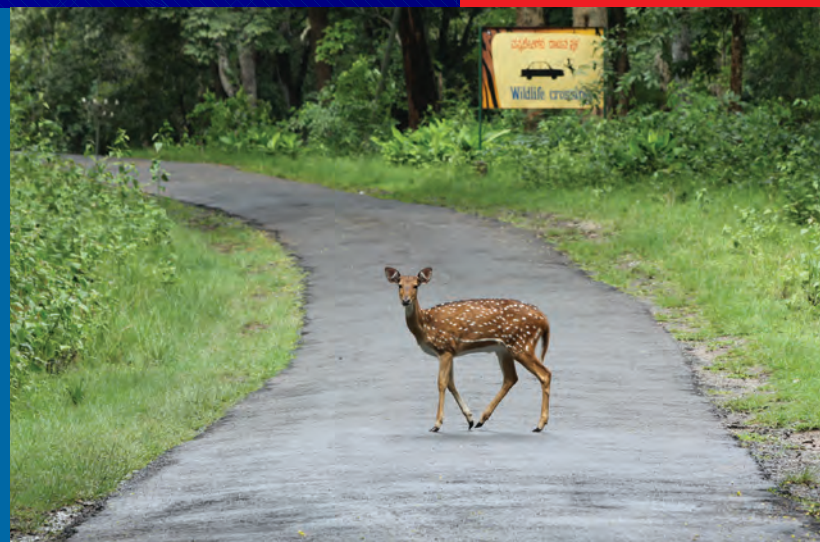


5TH TERI-KAS ENVIRONMENTAL GOVERNANCE POLICY DIALOGUE

Environmental Governance in the Context of Sustainable Development in India: A Synthesis

July 14-15, 2015



TERI, in partnership with the Konrad-Adenauer-Stiftung (KAS), organized a series of dialogues titled “Environmental Governance in the context of Sustainable Development in India” during 2012 and 2013, focusing on the different ecosystems of India. The aim of these dialogues was to engage with multiple viewpoints on issues of environmental governance using a multi-stakeholder approach and then formulating the norms/rules for sustainable development in the country by including these viewpoints in policy making exercises. The dialogues have been instrumental in capturing the diversity of stakeholder opinions using a multi-stakeholder approach and increasing participation of major groups in governance mechanisms for sustainable development. The objectives of these dialogues have been:

- First, to highlight the specific environmental issues and challenges in different regions.
- Second, to bring out the diversity in perceptions of issues and solutions to underscore that a diverse set of viewpoints needs to be valued and incorporated in the environmental governance framework for the country.

Four dialogues were conducted focusing on the northern mountain region, the western desert region, the coastal region including marine ecological systems and the plateaus and hilly regions of India. The first of the series took place at Shimla from the 29th to 31st of July, 2012. It focused on the environmental governance issues of the Indian Himalayan region. The second of the series took place at Jodhpur from November 15th to 16th, 2012 and focused on the environmental governance issues of the Indian Desert region. The third took place at Goa from 5th to 7th of April, 2013 looking at the challenges of coastal and marine ecosystems in India. The fourth dialogue took place at Bangalore from October 6th to 8th, 2013 addressing the plateau and hilly region of the country. A fifth concluding policy dialogue was organized on 14-15 July, 2015 which aimed to bring together these diverse perspectives from across the country.

These geographical regions were chosen keeping in mind that ecological and social systems traverse across administrative boundaries and often have fuzzy outlines. This approach had relevance to the context of environmental governance as it provided a focused discussion on ecosystems of the region and their interconnectedness with society and economy. As the discussions in these dialogues went beyond the traditional sectoral focus of economic development, environmental degradation and drivers of social change, this approach also aimed at bringing stakeholders together and gathering varying perspectives across themes to overcome the silo thinking in public policy.

Introduction

The most widely quoted definition of ‘Sustainable Development’ is from the World Commission on Environment and Development (1987) (Brundtland Commission), which in its report; ‘Our Common Future’ defined sustainable development as ‘meeting the needs of the present without compromising the ability of future generations to meet their own needs’. The concept came into being in the light of concerns about pollution, environmental protection and arguments surrounding limits to growth. Amongst discussions questioning the acceptability of conventional economic growth, the definition provided by the Brundtland commission left a legacy of a thought process that environmental protection or ecological sustainability is compatible with continuing economic growth which is socially just (Baker et al, 1997).

Despite the eager reception of and the continued interest in the idea of sustainable development, there still is a lack of concrete examples of it becoming the basis for a genuine model of development successfully. One of the biggest attempts to promote this concept and its mainstreaming into development philosophy as we know it has been the United Nations Conference on Sustainable Development (UNCSD), the 3rd decadal version which concluded in 2012. The Rio+20 covered the topics of Green Economy and Institutional Framework for Sustainable Development (IFSD), though a lot of discussion on IFSD was focused on international modalities and structures.

The outcome document “The Future We Want” defines a roadmap for us to take collectively. Translating these outcomes and directions into actual action towards sustainable development requires a considerable amount of conviction and action at the national and sub-national level through the development of effective governance frameworks. Furthermore, as the discourse on sustainable development shows, the integration of environment, ecology and society is imperative for fulfilling our collective aspirations.

True sustainable development is not possible until the existing understanding of ‘development’ undergoes a complete change and moves away from its present consumption centred meaning. There has been a noticeable lack of practical commitment to the idea by many of the developing countries, even after its adoption by a large number of national and international bodies. The reason for this, it has been argued, is that the concept has failed to extricate itself from the ‘dogmatic power of the dominant scientific-industrial paradigm, where instrumental rationality and the cognitive framework of neo-classical economics

dominated the validity and creation of new knowledge' (Fergus & Rowney, 2005).

At the same time, there has been environmental degradation and appearance of environmental problems. This has led to the conclusion that natural resource management requires an overarching framework that can deal with the complex characters of environmental systems and is agreed upon by various stakeholders at different levels.

Environmental Governance

When perspectives on 'governance' are coupled with issues of the 'environment' and "sustainable development", the picture may get quite confusing, since not only is there no agreement on what sustainable development is, but there is often disagreement about the nature, allocation, distribution and use of resources, about the consumption patterns of society, and the sustainability of lifestyles that emerge. Perspectives on 'governance' emerge from several perspectives:

- that of institutions, agencies and organizations - be these corporates, government departments, courts, community based organizations, non-government organizations, etc., where the emphasis is on design characteristics, such as formulating procedures, establishing jurisdictions, initiating decision-making mechanisms, reporting and audit systems, etc., and also with practices such as reflexivity, responsiveness, efficiency, transparency, etc.;
- that of groups who make different demands on these institutions and participate in them with different expectations; and
- that of outcomes where the consequences of the interaction between institutional design and group demands and expectations is examined and evaluated. The yardsticks by which such evaluation is done are not commonly shared, in fact, they are contested. They are the domain of politics, of conflict and negotiation.

In this context, environmental governance has come to be understood as interventions aiming at changes in environment related incentives, knowledge, institutions, decision-making and behaviours. It refers to regulatory processes, mechanisms and organizations through which different stakeholders influence environmental actions and outcomes. These stakeholders include the government, businesses, communities, civil society and NGOs. These mechanisms are affected by the socio-political relationships between these stakeholders, the national and international policy and legislative frameworks and

institutional motivations and actions (Lemos & Agrawal, 2006). Environmental governance can also be understood as the establishment, affirmation or change in institutional arrangements to resolve environmental conflicts – not essentially violent conflicts but conflicts in opinions and motives (Lemos & Agrawal, 2006).

Addressing environmental governance may also involve addressing the problems of fit, interplay and scale, but it should be understood that within the concept of institutional diagnostics, one size does not fit all, especially when we face large scale environmental problems or govern human dominated ecosystems (Young, 2003). Complex ecosystems require an adaptive governance strategy to deal with frequent changes within the system. But adaptive governance requires dealing with uncertainty in the system itself, as well as diversity and conflict among stakeholders. This requires an understanding of ecosystem dynamics as well as an understanding of socio-ecological interactions (Osterblom, et al., 2010).

Within governance frameworks, government is seen as the most influential actor in providing necessary public services and creating a level playing field for competing agendas; with other actors only playing the role of agents and stakeholders promoting their own agenda. This notion of a single producer of services for public purposes has put an onus on the government (at different levels) to make decisions that are in public interest resulting in a 'top down' approach of decision making and few actors (with access to knowledge and monetary resources) impacting decisions for the larger population based on their own cognitive and normative frames. This was acceptable when a larger part of the population was either unaware or did not see the need to participate in decision making, but this paradigm has not resulted in the human progress we wished it would.

Elinor Ostrom in her article describing the concept of Co-production has said,

"As long as public officials and citizens in developing countries continue to see a great divide between them, potential synergies will remain mere potentialities.... (textbooks in the fields of public administration, economics, political science) seldom discuss how services are produced and delivered, or how agencies work at levels below that of national government. The role of citizens is depicted as casting ballots and watching the action.... No mention is made of village governance or local governance, which is the only governance that has an impact on the lives of most people..." (Ostrom, 1996)

There is interesting empirical evidence from India as well as other developing countries that demonstrate the importance of active participation of citizens in the production of services for a public purpose, in ensuring the conservation of commons and in moving businesses and government towards environmental stewardship. It is time to recognize the role of non-governmental actors, civil society, sub-national entities and all major groups¹ in managing social and environmental resources; and create the favourable conditions that bring their perspectives into the deliberations around sustainable development.

International processes and environmental governance

Sustainable Development Goals

The progress made in implementing the Millennium Development Goals (MDGs) has provided the basis for launching another spell of mobilization of the international community and collective action to achieve certain common goals. There have been deliberations regarding the global sustainable development agenda beyond 2015 which revolve around 'the development of a universal, integrated and human-rights based agenda for sustainable development, addressing economic growth, social justice

and environmental stewardship and highlighting the link between peace, development and human rights'.²

The Rio+20 conference established the intergovernmental processes which were completed in 2014 and the Open Working Group proposed 17 specific goals with 169 associated targets for a people-centric and planet-sensitive global agenda. Mobilizing action on these goals will require an enabling framework at the global level which can provide finance for action on these goals; development and sharing of technology, science and innovation; and development of capacities for sustainable development.

The implementation of MDGs resulted in active policy and financial support for poverty alleviation, promoting primary education, improving child and maternal health and combating diseases which have seen admirable progress against the indicators developed to measure success. Similar action is envisaged for the Sustainable Development Goals (SDGs) once they are materialized and set out as programmatic frameworks which can be tailored to suit national contexts. The experience of the MDGs particularly in the developing countries can be very helpful to initiate this action in an accelerated manner. The challenge at the moment remains making them relevant to countries such as India with varied priorities and capacities in different sectors.

BOX 1: SUSTAINABLE DEVELOPMENT GOALS PROPOSED BY THE OPEN WORKING GROUP

Goal 1: End poverty in all its forms everywhere

Goal 2: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Goal 4: Ensure inclusive and equitable quality education and promote life-long learning opportunities for all

Goal 5: Achieve gender equality and empower all women and girls

Goal 6: Ensure availability and sustainable management of water and sanitation for all

Goal 7: Ensure access to affordable, reliable, sustainable, and modern energy for all

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Goal 10: Reduce inequality within and among countries

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable

Goal 12: Ensure sustainable consumption and production patterns

Goal 13: Take urgent action to combat climate change and its impacts

Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development

¹ Agenda 21 defines the nine 'Major Groups' and in chapter 23 recognizes the important role of civil society and the need to strengthen the role of Major Groups.

² As submitted by the Secretary General to the UN General Assembly in the report "A life of dignity for all".

The discussion on SDGs points to the fact that the path of progress and development which has been shown by developed countries in the past has led to adverse consequences as has been realized by these countries themselves and this process is an exhortation for developing countries to not follow the same path.

UNFCCC negotiation processes and post 2015 agenda

The process of negotiations for a global agreement on action to tackle climate change began taking form with the Bali Action Plan that was accepted at the 13th conference of parties in 2007. The Action Plan included five main categories of: shared vision (long-term vision for action on climate change, including a long-term goal for emission reductions), mitigation, adaptation, technology and financing. While some considered the Bali Road Map to be highly ambitious, it nevertheless started the negotiation process and gave proper direction for future interactions of the parties in this aspect.

The Bali Action Plan was given a further boost with the Durban Platform for Enhanced Action as it recognized a need for a legal agreement to tackle climate change. Four main areas on action and implementation were agreed:

- Second commitment period of the Kyoto Protocol
- A new platform of negotiations under the Convention to deliver a legal instrument by 2015 for the period beyond 2020. This aims to increase the level of national and international action to reduce greenhouse gas (GHG) emissions
- A decision on concluding the broad based negotiations by 2012 and making existing work on reducing national emissions more transparent.
- A global review of the science and data to ascertain the extents of the climate challenge.

At the UN Climate Change Conference in Warsaw, governments decided to communicate their contributions towards the universal agreement which is to come into force in 2015 at the Paris COP. The conference also addressed important issues such as the rulebook for reducing emissions from deforestation and forest degradation (REDD), the modalities for the Green Climate Fund and the mechanisms to address damage and loss from long term climate change impacts.

The COP 21 is slated to take place in December 2015 in Paris and three main issues would be discussed – sectors that need to be focused upon to reduce emissions (for

example fossil fuel subsidies), countries' own plans for reduction of carbon emissions and review mechanisms for measuring progress on these plans. Countries have started submitting their Intended Nationally Determined Contributions (INDCs) that are shaping the scenario on the post 2015 action to reducing GHG emissions and limit the increase in global temperatures below 2 or 1.5 degrees Celsius above pre-industrial levels. 120 submissions representing 148 parties have been made.³

The INDC submitted by India states that development is a right of every human being as the right to improve upon one's condition; however, what this improvement entails and how it affects the lot of others is in question. The challenge is to ensure one's development does not become detrimental to the development of another and of the environment that eventually supports all human beings.

It is important that a legal instrument is designed and agreed upon at this conference of parties which can translate into national actions tailored to their contexts and needs. Discussions around binding global actions have not given the results that were hoped for and hence the focus is now moving to countries (at least the big emitters) and the actions that they decide themselves. Major GHG emitters such as the USA, China, EU and India are expected to take the lead in terms of reducing emissions as compared to base year levels and some progress shall definitely be made. Developing countries have and still maintain that they have the right to economic growth which has already been achieved by developed countries and have used the principle of 'common but differentiated responsibility' when negotiating.

The foremost concern of most countries is the source and sharing of the means of implementation (MoI). Countries have been asked to create action plans and management plans and urged to formulate ambitious goals for achieving the SDGs. If there are 17 SDGs with 169 targets for countries to follow, there is a need for resources to achieve them. There are countries that may have already reached some of the goals that are prescribed for others and it means that they don't require those resources while others need them.

Sustainable development of natural resources and understanding complexities of ecosystems

Environmental governance in India no longer only deals with issues of environmental protection. It exists within a background of the economic growth paradigm, issues

³ As accessed on UNFCCC webpage on INDCs http://unfccc.int/focus/indc_portal/items/8766.php on October 1, 2015

of livelihoods, issues of rights of communities and of institutional arrangements that influence the environment discourse. Strategies for promoting economic growth have been at the expense of the environment; under the pretext that achievement of economic growth will automatically lead to environmental protection – as has been put forth by the hypothesis of the Environmental Kuznets Curve. This approach, though dominant for years, has seen social unrest, resistance and negotiations by groups who have had to face the immediate consequences of poor environmental conditions and loss or depletion of natural resources to the cause of economic growth.

The demands of a growing population and increasing aspirations have led to economic concerns taking priority over ecological ones. Private players that have been responsible for most of the developmental activities have faltered in environmental stewardship largely because it has been a voluntary process. But the absence of benefit sharing mechanisms for resource development has taken a toll on the environment. While the classical model of development has involved resource extraction, there is now only a fine line that separates such extraction from debilitating exploitation. The valuation of present actual and future perceived needs of an economy, injects resource cornering tendencies in the policy roll out and into the overall governance structure. There is a larger responsibility of the polity, the scientific community and the society as a stakeholder to come together and look at ecologically valuable areas and create an agenda for their conservation and development.

At the same time, there is much more to be done to reduce our collective ecological footprint and develop appropriate benefit sharing mechanisms so as to ensure that the gains from natural resource extraction from a particular region actually reach the local community as the beneficiary.

The 'commons' of the country are facing unprecedented degradation and community practices of common resources management have weakened due to neglect of traditional knowledge in planning processes, uncontrolled grazing and a general decline of social capital which had an important role in maintaining the health of the 'commons'.

Valuation of ecosystem services has been seen as one of the ways of getting investment for conservation and a way of justifying diversion of resources on the basis of alternatives considered for analysing the costs and benefits. While proving to be a popular tool in making policy decisions, valuation has also been considered as a double edged sword as it increases the tendency to monetize

priceless components of ecosystems and create access rights for transactions. If we accept that our knowledge of ecosystems is very limited, there are going to be inevitable gaps in terms of ascertaining the intrinsic value of ecosystems in the light of irreversible change and valuing alternatives that are mutually exclusive.

Nevertheless, valuation and monetisation can help set minimum levels for consideration when creating compensation packages for those who lose access to ecosystem services. The current problem is that there are only a limited number of alternatives considered when comparing the valuation and more often than not, the social benefits of alternatives are ignored along with the benefits accrued from the interaction between society and ecology. Since private benefits are easier to calculate in monetary terms, it ends up taking precedence than the larger public benefit. The exercise runs the risk of being subjective based on who is conducting the exercise and the benefits accrued by different stakeholders. Furthermore, changing cultures and practices within communities, may also change the value of ecosystems with time.

Meaning and application of the concept of 'Sustainable Development'

Despite numerous definitions of 'Sustainable Development', there still are contentions with regard to the interpretations of its core ideas and the norms for sustainable development must take into consideration the complexity involved.

The process of developing norms for sustainable development requires a certain commonality of experience, or at least an agreement on how a particular experience is to be understood. While there has been a need for greater conceptual clarity about the concept of 'sustainable development' and its relevance for the Global South, there is also a need to admit the existence of a plurality of positions long held by diverse and differentiated communities. Even as we recognize that we share a common planet, the contention that we have a 'common future' has been met with a degree of scepticism. These have different implications for paths that communities might chose to adopt in the future, especially with regard to objectives that have so far remained ambiguous and poorly defined from their point of view.

The idea of 'sustainable development' may have been, in some part, a conceptual device for protecting the older idea of development for the purpose of making it more complimentary to other agendas. There exists an apprehension that 'sustainable development' is merely another way of saying 'development' and represents an

interminable spiral with no achievable end in a neo-liberal environment. It is important, therefore, to engage more critically with the concept.

This raises the question about how and where the lines both of consumption and of development are to be drawn as there has been a tendency to look at natural resources in purely material terms. For understanding an eco-system it is important to accord equal importance to the culture with which it has a symbiotic relationship as cultural and ecological diversity often go together, and recognition of this will make for better and more effective ecological stewardship. We usually only talk of human to environment interaction but human to human relations especially exploitative relations also play an important role in environmental governance and the result of democratic instruments.

There are issues related to the development discourse itself. There is tension between understanding environmental issues through a landscape lens and resolving environmental problems through processes in which people are tied to their cultural identities. In fact, there is a need to examine whether concepts in the environmental governance discourse are still relevant. For instance, migrants or outsiders cannot participate in environmental movements that are based on historical ties to land. We need to question the developmental premise of any environmental intervention, and recognize new actors and their aspirations while critiquing development projects.

Environmental issues, especially those regarding depleting bio-diversity and climate change, can neither be understood nor communicated through a limited number of indicators. There must, therefore, be a sound scientific basis for delineating areas for purposes for environmental protection and those that can be utilized for economic development activities. Nonetheless, these should be reflected in the sustainability indicators that are applied by society and policy makers for decision making. In order to make the indicators more context-specific and relevant to a society, it would be necessary for governments, NGOs and others engaged in development activities to shift from the idea of development to the idea of 'sustainable development'.

Environmental governance has been working on the information flows of traditional knowledge and modern science – both of which though considered as dualities, need to be seen in tandem as inputs for rational decision making. In the light of changing attitudes and experiences, environmental governance also needs to progress and

stakeholders across the board have the responsibility to determine the principles of sustainable development. This context points to the importance of a participatory process that empowers people and puts them in a position to make informed choices.

Over a period of time, a vast amount of traditional knowledge has been lost and there is a compelling need to recover this lost history. Embedded in this history were important cultural indicators that would enable us to develop norms of sustainability that stood the test of time. Many of these are in the form of qualitative indicators based on deep knowledge of specific eco-systems and an improved understanding based on cultural indicators would also enable better management of conflicts arising over environmental issues.

Our vision of development has arguably been based on short term fixes and sharing of benefits from short term experiments rather than on overall long term sustainability of our environmental and economic systems. Development decisions are based on annual or at the most 5 year cycles, while environmental decisions are based on the long term outlook and in these decisions environmental wellbeing gets short changed for economic gains. Numerous examples have demonstrated this thinking – the recent Mumbai coastal road projects which will eventually shift the modal share of transport from a currently public transport oriented one to a private car ownership scenario and lead to loss of biodiversity and cultural identity of people and connectivity with the coast; mining in pristine forest areas in central India leading to loss of biodiversity, prime forests and culture and dwellings of tribal populations; and construction in ecologically sensitive areas near protected areas and coastal areas leading to loss of habitats for endangered species.

Impacts of climate change and preparing for shocks, surprises and uncertainties

The impacts of a changing climate are being felt all over the country. The Himalayas are facing the impacts of rapid glacial melting and fluctuating weather regimes. In the desert region these are manifested as uncertain rainfall and changes in temperatures coupled with increase in the incidence of floods and droughts. Along the Indian coast, observed trends show net sea level rise for Mumbai, Cochin, Vishakhapatnam and Diamond Harbor (Kolkata). Studies have also shown an increase in the number of tropical cyclones in Category 1, 4 and 5 between 1977-1991 and 1992-2006. The possible impacts on the Indian monsoon due to climate change include extremes in rainfall, delayed

onset or early withdrawal which will shorten the length of rainy season, prolonged break periods during monsoon season and increase in intensity of monsoon depression leading to extreme events. In the recent decades, the all India mean annual temperature has increased at a much faster rate than the long term average.

Climate change poses three questions for environmental governance: One, how should surprises and shocks be governed? Two, will large scale engineering solutions be successful in the absence of more complete information on how they will work and if they do work, how will they solve the problem? Three, how can equity and aspirations that differ across communities be considered in decision-making and how can people who bear the costs of interventions to restore systems, be compensated, especially when they are least able to bear such costs?

Climate change brings uncertainty to our understanding of how ecosystems work and how humans and ecosystems work together. While we are aware of some fingerprints of climate change (rise in temperatures, sea level rise, acidification etc.), there are some other impacts about which we have very little understanding. Different ecosystems respond differently to these impacts and little is known of how detrimental climate change can be for each of them.

Good governance generally assumes a certain knowledge and predictability of the socio-ecological systems being dealt with. The confidence in this predictability guides actions and plans for governance. But our ability to govern may be undermined due to something inherent in the system rather than our assumptions about it. There is a presumption in governance actions that we understand and know how systems work and how they would respond; however, phenomena may occur due to actions that were expected to have very different outcomes. While the scientific community is seen as all knowing of the system under consideration with precise data, models, analysis and predictions, this omniscience of scientists can be a myth. Uncertainty is inherent to natural systems and the science about these systems but communicating this uncertainty has always been a challenge. Ecological systems are known to be non-linear, to have thresholds and we are often unaware of the existence of these thresholds as well as their specifics. This characteristic uncertainty of systems has implications for science and the policy that it informs. There is a need to overcome the gap between the common public, bureaucrats, legislators and the scientific community about what the current state of knowledge of the natural systems and its competence to predict socio ecological systems' behaviour.

As responses to incremental changes in the environment take centre-stage within the mandates of NGOs, CBOs, the research community and governments, it is extremely important to work towards preventing mal-adaptation while implementing adaptive responses. The environmental research field and especially climate change adaptation is mired with the challenge of addressing short term needs of the populace along with keeping a long term outlook on scientific enquiry and prevent actions that may prove detrimental to the ecosystem in the future. But preventing mal-adaptation is easier said than done. Implementing the correct adaptive response requires deliberation with multiple stakeholders at different levels of functionality spanning across multiple disciplines and with a basic requirement of updated relevant databases that can assist in informed decision making. Currently, these remain challenges to environmental governance in the desert region.

On the other hand, the changes brought about by climate change should also be capitalized upon. There is an enormous opportunity with regard to climate change mitigation. By harvesting renewable energy sources like solar and wind power, the impact of energy systems on the local environment and ecosystems can be reduced in conjunction with reduction in overall greenhouse gas emissions of the country. The potential for the renewable energy sector in the country is immense and some steps have already been taken to harness it, though a lot more action can be taken in this regard. Renewable energy can act as the fulcrum of development if there are supporting regulatory and institutional mechanisms along with new partnerships with industry and the local people for the advancement of the sector.

Even interventions that seem small can have a great impact on socio-ecological systems and cause uncertainties. It is not possible to consider all scenarios for consequences of an intervention before actual implementation. But it is possible to invest in the enhancement of our understanding of the complexities of the system, communicating them, the adaptability of systems and factors that make them more or less resilient in their functions. The current understanding indicates that encouraging diversity of options for socio-ecological systems enhances the stability of the system. At the same time, it is encouraging redundancy of functions and forms which may also increase the stability in the face of changes.

Governance today presumes a 'business as usual' scenario for planning, but there is a need to prepare for unforeseeable scenarios as well. Making use of what we do know from our experiences – the successes and failures –

are the low hanging fruits. There may be a repository of practices in local ecological knowledge that have helped people deal with uncertainty, surprises and shocks and can be used as a template in dealing with such situations.

One single solution cannot be valid for every location and a chain of interventions would be required (in decreasing order of value) to deal with uncertainty, surprise and shock:

- a. Protecting what is left – if there are successful socio-ecological systems they must be sustained through whatever means possible;
- b. If what we have left is not good enough, then resilience potential of the system must be enhanced by exploring the factors that may add to resilience;
- c. For degraded habitats, noninterventionist restoration must be attempted. This means understanding what caused degradation in the first place, removal of those factors and then management of the system directed towards enhancing the ability of the system to recuperate on its own in case of surprise or shock;
- d. Active restoration strategies including retreat, rezoning, replacement strategies spanning biological, ecological and civil engineering solutions.

The ability to adapt is an integral part of achieving sustainability, which in itself is a dynamic process. It requires people and governments to make conscious and informed choices based on sustainable development norms. However, such choices are premised on the assumption that there is resilience, both in the government and in society that will enable them to respond to challenges and opportunities while responding to development pressures.

It is also important to see how climate change interacts with other ecological barriers that are being crossed. While climate change is receiving the most attention out of all the ecological barriers, the agenda of environmental governance does not stop with it.

Interface between science and policy and the need for reliable evidence from science to make informed policy decisions

One of the challenges to environmental governance in India today is the disconnect between science and policy. Science can play a positive role in empowering communities and local governments. But the increasingly pivotal role played by scientific experts in environmental decision-making has become a cause for concern. Scientists are doubling up as policy experts and mediating the interaction between government and natural realms, while citizens tend to get left out. Science and policy get further fragmented if the limitations of science are not duly appreciated as it may

not be possible to scientifically “fix” every environmental issue. Standardized procedures may not be effective when applied uniformly to diverse ecosystem contexts and failing to acknowledge how little we understand of ecological complexity, and fearing uncertainty, tend to lead to erroneous decisions.

Besides the production of scientific knowledge, it is important to evaluate the channels through which science can influence governance. Rarely do researchers genuinely involve stakeholders in knowledge creation or create pathways to carry that knowledge forward. Civil society organizations can play a powerful role, by bringing their niche knowledge to broader platforms. Activists have used litigation to highlight environmental non-compliance, but they have refrained from engaging with powerful provincial governments for whom environmental sustainability takes backstage to economic and social agendas.

Communication of science from experts to communities and back to policy

The process of taking knowledge to science, policy and then to the community is a reinforcing feedback loop that involves numerous stakeholders as knowledge generators – community groups, scientists, bureaucrats, policy makers and even industry to a great extent. These stakeholders need to be sensitized towards their role as knowledge generators and the impacts of their actions in the process of policy making in general. The knowledge flow under consideration here can be split into 3 heads – taking science to communities; bringing traditional knowledge from communities and incorporating it into science; and taking this combined knowledge into policy formulation.

Science to communities

The ‘science talks to policy’ concept is of considerable importance for the higher levels of policy making. But it should also be able to ‘unpack’ modern science in a manner that is comprehensible and relevant for the masses. Science, therefore, needs to be communicated more frequently in popular literature in a manner that reduces the prevailing knowledge gap between science and the people. This will enable science and popular participation in policy making to come together. There are examples such as the case of Chilika Development Authority where scientists and community came together to generate valuable data and information which was immensely more relevant as compared to only scientists endeavouring to do the same. Science communication needs to be done on a large scale base and focus on demystifying technology and law which

is unfortunately being done only in the English language currently. There are data bases existing but meaningful data is missing – such as those that should be seen with reference values and those that create better understanding of how the system actually works to facilitate participation.

This process of participatory research can bring about participatory action where community is involved in initial research giving its inputs as well as final implementation phases where the community takes stewardship as well. In order for the community to play a role in this participatory process, there is a need for providing training to monitor resources and empower them to use the knowledge they possess so that they may contribute to the knowledge generation process. Currently, there is an issue of inequities between different disciplines and introduction of new and complex technologies to communities will only exacerbate this inequity.

Even within the scientific and academic community there are a few features about legal and policy instruments that lack clarity and there is a need to decode these in such a way that any common person could understand it, find it interesting to deal with complex issues with multiple facets and find workable solutions. On a cautionary note, oversimplifying communication directed to communities may be patronizing, because members of these communities are themselves demonstrably understanding and dealing with complexities.

Keeping in mind the principles of open data and open knowledge it has been suggested to provide maximum data and information in the public domain and support a two-way flow of data between source and stakeholders. This requires the involvement of unconventional players such as illustrators; graphic artists and communicators in the communication process who can help innovate in the field of visualization of data and information to make it comprehensible for even the illiterate.

Bringing traditional knowledge from communities to policy

Though there is widespread agreement to the existence of Traditional Knowledge, there have been questions about the validity of the knowledge and whether they can act as a basis for policy decisions. There are numerous innovations by communities that require horizontal networking so that they can be fed into the policy making process and to policy makers themselves. Traditional knowledge has been seen as non-formal, experiential knowledge that stands as a counterpart to formal scientific knowledge and it tends to give a sense that it is a timeless, unchanging repository of knowledge held by elders.

Communities that have been surviving in extreme conditions understand and know the constraints of the region and their experiences should be integrated in the action plans and programmes implemented by the various stakeholders. Local inhabitants have a lot of information and knowledge that has not been documented. It is important to utilize this knowledge before it is lost in a changing societal background.

On investigating further, it is revealed that traditional knowledge is also knowledge gained out of experience and an outcome of living in a certain place and dealing with situations. It is by nature very dynamic as it is a result of constant reinterpretation of the world and how it has changed. It may not provide answers to problems in scientific fields, queries of causation, effects and outcomes as it is constantly recalibrating and so it may also not have responses to a lot of new technologies being introduced.

Traditional knowledge exists and needs to be recognised, but many such institutions may not be equitable or gender inclusive despite existing since ages and may even be corruptible in today's era. It should be kept in mind that there are both types of community actions – those that are conserving and those that are violating environmental laws or at least benefiting from the ecosystem services if these were developed - and we need to identify and promote the set that is doing good work.

Combined knowledge into policy formulation

Often, policy dialogues occur in silos and different groups are asked for their feedback separately in the absence of an exchange between them. It is important to gather information from different stakeholders through dialogue to help them understand each other's perspectives and issues with the other party that they may not have an opportunity to understand otherwise.

Industry must be more voluntarily compliant to regulation and one of the ways by which this is possible is when more information is available on legal implications of violations that the industry may commit. That would mobilize urban groups as partners to put pressure on industry to comply with regulations.

Even scientists and policy makers do not speak the same language – either intentionally or unintentionally - and it is then left to the social scientists to translate scientific messaging for the comprehension of public with little resources at their disposal. While we are trying to find a common language for everybody to come together on various environmental governance issues, it should also be recognized that there is value in diversity and effort to try

to understand the other person's point of view. The science behind environmental governance has been prone to a lot of misinformation, misrepresentation, manipulation and loss in translation. The gaps have been identified as a lack in clarity of communication of underlying assumptions, a lack of incentive to communicate effectively to the public, and a lack of feedback loops from the public back to the scientific community. The challenge to scientific communication is looking at micro-experiences and overcoming the differences between the nature of media that are used and at the same time maintain objectivity. Overcoming these gaps is extremely important to sensitize, educate and create awareness which in turn will lead to better enforcement of regulation either through penalization or through better voluntary compliance.

Credibility of science

Questions have been raised about the credibility of both, the kind of science propagated and the people propagating it. Also, the existence of different epistemic communities within government bodies and scientific institutions has resulted in a lack of consensus about the science for environmental governance. The privatization of public research within an increasingly influential neo-liberal global order has further raised questions of legitimacy.

A better understanding is needed of the influence and implications of the pressures that are now increasingly exerted by supranational organization(s) upon policy-making at the national level. The new global order has resulted in greater centralization of environment regulatory policy. There has also been an increase in the number of standardized policies and trade routines and these have begun to affect state sovereignty.

Notwithstanding this, however, increasingly centralized and standardized policies have been implemented for environmental management across the country without keeping in mind the specific conditions of the ecosystems under consideration. Inappropriate policies based on inadequate information and the neglect of traditional institutions caused depletion of natural resources: especially of water, forests and minerals. There are deficiencies in the data available. While formulating policies there is a need to keep in mind the diversity within regions and uneven demographic trends that lead to variations in developmental trends. There is a need for methodical use of trans-disciplinary approaches in research and management.

Regulatory frameworks for environmental governance and strengthening current institutions at national, sub national and local levels

The current institutional arrangements for environmental governance in India are extensive with legal and regulatory support to achieve the goal of environmental protection. However, there are numerous challenges to environmental governance arising from the institutional framework - such as high transaction costs of seeking information and conducting negotiations; a lack of monitoring and compliance with rules; regulatory issues of compensation; and objective decision making from a societal point of view.

These challenges highlight the fact that our governance framework has failed to recognize the inter-linkages between social and ecological systems. Most times, policies and institutions have taken a one-sided view which has resulted in either ecological failure or socio-economic injustice. It is important to understand that institutions and policies do not exist in isolation and it is only through synergies between different kinds of institutions that we can reduce conflicts. The current processes and tools lack the very important feedback loops and review processes making them unaccountable and almost impossible to measure progress.

Multi-level governance

The last couple of decades have seen an increasing role of government institutions in implementation of policies and programmes as compared to a greater role for community in management of natural resources in the past. This has created a dependence on government for provision of basic services and natural resource management thus detaching the community from its erstwhile responsibilities. At the same time, there is a lack of appropriate multi-disciplinary agencies at the district levels that may take up sustainable development issues in an integrated manner. Only institutions situated at multiple levels will be able to re-conceptualize and use natural resources for the larger public good. Not only do they need to be at different levels of official governance such as national, state and local, but cut across different sectors: academic, corporate, government, NGOs, etc. in order to work in accordance with the principle of sustainability. The development of environmental stewardship cannot be done with a top down approach directed from a central government institution but needs a multi-level multi-actor framework. Along with participation from various stakeholders that are involved in the development of the region, institutions must

also focus on ensuring participation of vulnerable groups and stakeholders that have been ignored in the past.

The local level institutions in India are not empowered to look at issues of environmental governance because of information and knowledge gaps that can now be filled through the use of technological solutions. There are numerous advantages of new information technology solutions—low cost, open source, having already established a proof of concept, and more reliable with the increase of internet connectivity. Despite these advantages, such tools have not been institutionalized to assist the multiple levels of government.

Innovations in the field of information technology can assist multi-level governance, yet there is no substitute for development of social capital at the grassroots and active avoidance of centralism in decision making for environmental issues. One of the main points on the agenda for institutional arrangements and policies for strengthening environmental governance is the empowerment of decision makers at the federal, state, and local levels through the sharing of knowledge and appropriate devolution of statutory power and authority. In order to introduce innovative practices that would contribute to sustainable development, it is extremely important to create relevant capacity at the village and district levels. The institutions at the local level must develop multidisciplinary expertise and develop processes that promote planning at the village level with community participation in decision making processes.

Along with appropriate use of technological solutions to generate the right kind of information, it also needs to feed into the existing decision making process and it is useful if it is open for public to access, comment and question decisions makers. Technological innovations can play an important role in ensuring transparency by introducing automatic setups for monitoring and compliance but voluntary compliance and responsibility towards environmental compliance also needs to be instilled in stakeholders.

The functions of environmental governance includes not only matters of law and governmental regulation, but also a considerable degree of local community self-regulation that is enriched and supported through the dissemination of good practices. It also requires local bodies to be given greater legal authority to resolve issues at the grassroots level. Multi-stakeholder platforms involving local communities, Non-Governmental Organizations (NGOs) and Civil Society Organizations (CSOs) ensure higher participation from women, marginalized sections of society and particularly the vulnerable in the planning processes. Competent, credible and professional organizations exist within civil society, but to be involved in ensuring

compliance to environmental regulations there is a need for an open platform for their participation in the process.

Instruments for environmental protection

From June 2014 to April 2015, the government gave environmental clearances to 187 projects which include mining (coal and other minerals), infrastructure, industrial (including those sited in coastal areas) and thermal projects.

The Environmental Impact Assessment (EIA) process is rife with imperfections and challenges to its appropriate implementation. Requirements for public hearing have been diluted in order to fast track clearances – three such notifications were issued in 2014 in May, July and September. The EIA process does little to increase the participation of affected people in project areas or to increase their capacities to resettle and relocate to better areas. Public hearings, when conducted, are usually conducted in local language and are a day long process. When the Expert Appraisal Committee (EAC) is considering more than 10 projects in each meeting, it is doubtful if the public hearing recordings are taken into consideration during the decision making process. EIA reports made by consultants are often a copy and paste job from past project reports without actual analysis of the extent of impacts from projects under consideration. Expert committees mostly interact with consultants and not with affected people and the process has been blamed to be one sided.

The focus of the reform of EIA has been on the clearance process rather than continuous monitoring and compliance – especially at the state level. The NDA government after taking office in May 2014 directed the Ministry of Environment and Forests (MoEF) to make amendments to the clearance processes under the Environmental Impact Assessment Notification. Some categories of projects now require environmental clearances while the specifics of some categories have been changed. Environmental clearances have been done away with for industries inside Special Economic Zones, ports and National Investment and Manufacturing Zones. The Expert Appraisal Committees' powers have been limited and it is not able to ask for additional studies on the location of projects once preliminary terms of reference for environmental impact have been finalized and standard prescriptions committed.

In case industries change production processes, they would not be required to undergo environmental clearances again as long as industry certifies to maintaining same levels of pollution which would be certified by third party agencies. Baseline data monitoring for environmental impact assessment has been reduced from 3 months to 30 days. Fresh forest clearance would not be required for

additional expansion of projects that have already received forest clearance and preliminary surveys in parks and sanctuaries by state officials would hold as long as no trees were cut. Projects that secured clearance under Coastal Regulation Zone Notification (CRZ) 1991 need not secure clearance under 2011 notification.

Agencies responsible for implementing the EIA and ensuring compliance to it are understaffed; have access to limited resources and to some extent lack the authority to take action or are undermined when taking action by other arms of the government. This has been demonstrated numerous times with regard to the Coastal Regulation Zone Notification. The State Coastal Zone Management Authorities (SCZMAs) have a combined total strength of 153 personnel across 9 states and 4 union territories and 8000km long coastline. Many states still do not have District Level Coastal Committees in place and representation from fishing communities is largely missing. Until the 2011 CRZ notification, there was no financial mechanism to cover the costs of the Coastal Zone Management Authorities (CZMA) and the authorities would charge scrutiny fees and assessment fees or get resources through grants from MoEF. Most of the time of CZMAs would be employed in project appraisal which left little time for enforcement, monitoring, identifying and taking action on violations and conservation. The workings of CZMA have demonstrated conflict of interest with members of the authority – who are from government departments – facilitating the clearing of projects for their own departments.

The lack of resources and the deluge of project applications for clearance imply that the SCZMA members rarely visit the sites for projects and violations are also not dealt with appropriately. The states have also not formulated the Coastal Zone Management Plans (CZMPs) according to the new notification which would define priorities for development on the coast. For CZMP formulation, authorized agencies are required to mark the High Tide Line (HTL) and Low Tide Line (LTL) and core zones of the coast – which in the scenario of paucity of reliable data and verifications on ground has become a long drawn process. This has led to discrepancies with projects being cleared according to one notification but violating the other notification.

While the notification has outlined the kind of projects that can be cleared, the actions in case of violations are not clearly defined and the states have resorted to different measures such as demolition or cutting of water or electricity supply or notice of violation and penalty. The SCZMAs don't interact with each other to set uniform actions for

violations and most often harsh actions are not taken as they require involvement of different departments or institutions which rarely happens. As has been commented by former SCZMA members, the SCZMA is reduced to a committee with little or no power, because all actions are to be taken by the municipality and collectorate at district level and state departments and the reality is a result of what is worked out between these entities rather than SCZMA directions.

Traditional rights and customary laws have been dealt with subjectively in the implementation of the notification as have geographical limitations – such as sand dunes, rivers, number of houses in a particular area, areas of outstanding natural beauty - which were defined loosely. The authorities' classification was often in contradiction with land use classifications of the revenue or town planning departments.

An enabling regulatory framework

Environmental governance in India has been based on institutions without powers and means to implement their mandate or on institutions with unclear mandates and immeasurable objectives. Successful environmental governance requires that governance architecture and instruments are aligned with the nature of the subject when it comes to regulation. The biophysical characteristics of the resource have a direct bearing on the kind of policies and governance system and our governance systems have not been able to capture these biophysical characteristics and their social and cultural relationships. Policy making has been influenced by interests and economic agendas rather than being evidence based and the reason for this has been the lack of information and supporting regulatory framework to gather meaningful information.

Functioning of ecosystems is complex and their interaction with social and economic systems forms the basis of civilization. Our governance framework for this interaction does not address the whole picture due to our limited understanding of any of the three spheres - environment, society, economy. The basis for this governance framework are the laws and the definitions on which regulatory action is taken and the lack of clarity in the interplay of definitions, processes, actions and outcomes greatly weakens this framework.

One of the ways of reconciling the gaps is shifting from the existing administrative boundaries to ecologically sensitive boundaries. Such an ecosystem approach would encourage more active local participation and have a better social outcome. All outcomes would further need

to be evaluated on a regular basis and made part of the feedback mechanism informing policy formulation. A systematic method of planning, monitoring, and evaluation of outcomes requires an enabling regulatory framework. Threshold and baselines have to be established to track the ecological changes that may periodically occur. There is a need for regular environmental audits with an integrated approach towards sustainable development. In terms of damage assessment, too, local bodies are better placed; however, community participation has tended to be rather passive so far.

The financial systems/ arrangements, too, would need to be suitably reorganized to meet the specificities of the ecological region. For this purpose, a strong grassroots management structure is needed to arrest the rapid loss of power and capacity that traditional institutions have recently experienced. The village level institutions for governance in the country need to be empowered with regard to resource management and not just dependent on a few motivated individuals.

In terms of resource management, there are institutions at the two ends of the spectrum – national and state institutions and local institutions that directly interface with the natural resource. The middle level or the meso scale institutions are absent and most often conflicts or impacts are manifested at that level.

New models of co-management have resulted in experiments such as water user associations though experience has shown that these have not been successful. The group once formed is overpowered by government departments due to inherently unequal power arrangements. Independent regulators and privatization have also been suggested to separate resource management from political and executive control, but it is important to define their boundaries as well as measures to ensure their independence.

Federal and state relations

Environmental policymaking is also challenged by policy disconnects between state and federal governments, center-state policy disconnects, slow pace of governance reform, and reluctance to devolve power. In the last two-three decades, coalition politics has made it difficult for central government to have state governments implement environmental laws as intended. Despite constitutional amendments, governments continue to be reluctant to devolve power in practice. There is an urgent need to address the disconnect between federal environmental policies and the eco-systems that they are formulated for.

This can be overcome by reducing the knowledge gap and the technology gap along with the policy gap.

The Bhartiya Janta Party (BJP) led National Democratic Alliance (NDA) government replaced the Planning commission of India with Niti Aayog (National Institution for Transforming India) with the mandate of formulating national agenda, strategic and technical advice on policy and socio economic matters. The aim is also to introduce mechanisms for village and sub national processes and aggregate these up nationally rather than the other way around. The Niti Aayog has been set up through a Union Cabinet Resolution like the Planning Commission was set up in 1950. The move is to indicate a shift in ideology and policy practice to provide states and sub national units (such as the Gram Panchayats in the future) with more autonomy on strategy and governance.

The planning commission pioneered the 5 year plan approach with designing national level policies that would be implemented at the state level. It was however mostly seen as a body of experts that would direct policy at times without consultation or addressing the concerns of the states. The new body Niti Aayog has state Chief Ministers and Lt. Governors of Union Territories as its governing council members and is not meant to disburse funds as the planning commission would in the past.

Despite introducing this as a move towards cooperative federalism, there have been worries with regard to the actual functioning of the body. States with big national programs underway have highlighted concerns of financial flows in the absence of the planning commission. States with Schedule V and VI areas that have had different financial dispensation mechanisms have also been vary of the new body.

The Aayog puts planning for development squarely into the state's court with the state government devising an annual plan and the central government filling the assistance gap not met by the state itself. On one hand, it is a big step towards decentralized governance; however, on the other hand, it will still take several years of planning to set the plan processes in the states and ensure at the same time that these plans undergo sufficient public scrutiny and actually embody state and national priorities.

In the context of environmental governance, experience has highlighted the need of national level and the same time regional and ecosystem level vision and policies. It is yet to be seen whether Niti Aayog will move states and the country towards a narrow path of development or towards a broader framework that has sustainability at its heart.

Environment as a subject is not mentioned in any list for centre and state domains. Forests are in the concurrent list with environmental protection is enshrined in the constitution both as a directive principle and as duty of the citizens. In this effort to preserve environment of which forest is an integral part, the relationship between state and centre takes various forms. The Indian forest act did not talk about jurisdiction of centre and state but since land is a state subject, in the context of forests, these substantial areas belong to state. In the first 35-40 years of independence preservation of forests and maintaining forest cover became increasingly difficult and this led to the Forest Conservation act. This act stipulates that even the forest land that belongs to the state cannot be diverted for other uses except with the permission of the government of India. Compensatory afforestation is an integral part of diversion and has become an interesting instrument leading to a regime for compensatory afforestation. There have been suggestions that the authority that manages compensatory afforestation should be an independent agency like a registered society organization which runs outside the purview of the government. On the other hand, there are views that such large sums of money- as are calculated on the basis of net present value (NPV) of forests and earmarked for compensatory afforestation - should not be kept outside the control of public spending as forest land has been diverted and the NPV and compensatory afforestation amount has been collected to make up for the loss of a public asset that has been diverted for non-forest purposes. The question still remains as to who exactly would take up the task of compensatory afforestation most effectively.

Demarcation of Eco Sensitive Zones (ESZ) has also seen disagreement between centre and state. The concept of eco sensitive zones came into force with the MoEF order to states to demarcate eco sensitive areas around national parks and wildlife sanctuaries and in case of inaction, 10 kilometres around the protected areas would be delineated as ESZ. States on the other hand wanting to exploit resources in these areas deemed ecologically sensitive were reluctant to demarcate these areas. In the last one year that about 200 ESZ have been approved and have been notified for consultation after a long drawn process.

The institutional arrangements between state and federal institutions have not been able to facilitate the outcomes in favour of environmental protection, and the opposite has resulted over the years. Putting aside the lists for central, state and concurrent subjects, there is

still not much clarity on what would be a workable model to ensure environmental protection along with economic development that the states are aiming for and ensure that eco system specificities are given importance in policy making.

Role of judiciary in environmental governance

Judicial intervention and most notably the processes of Public Interest Litigations (PILs), have played an important role in the evolution of our stance on environmental issues particularly when the executive and legislature has lacked in upholding the rule of law. Cases like the Godavarman case, the Samata case and the MC Mehta case have been instrumental in the evolution of India's environmental governance framework. However the judiciary is not an administrative body and while the judiciary can establish the ethical and legal stance on issues, actual action and implementation still remains out of its domain. The judiciary's role stops at identifying problems and gaps in the functioning of the executive and the legislature – as a check on the two – rather than take up the task of solving the problem completely on its own and through its own devices.

The National Green Tribunal (NGT) and similar judicial institutions in 41 countries are creating new precedents in legal thinking on environmental issues. But recently, the issue of judicial overreach has come into light with the judiciary substituting its wisdom for that of the legislature or executive, especially when there is a distinction between matters of law – that can stay only in the purview of the judiciary – and matters of policy – that are supposed to remain in the purview of the executive and the legislature.

It has also been felt that specialized courts have moved environmental issues away from being public affairs. Within the judiciary, the operationality of the National Green Tribunal (NGT) has also had certain loopholes. This creates top heavy structures of decision making and depreciates the powers of the NGT and lower courts to consider environmental issues as seen in the appeals to the Supreme Court against several mining bans directed by the NGT. The NGT model of a centralized and specialized court for environmental issues also faces geographical limitations due to inaccessibility for a majority of people which was the mainstay of the 24 high courts across the country addressing these cases before. The NGT has decided on 35 cases in 2011, 91 cases in 2012 and 154 cases in 2013 and some of them have been landmark decisions. But, as stated above, it has undermined the judicial capability to deal with environmental and social justice issues at the grassroots level (Raj, 2014).

Assimilating stakeholder interests

There are various perspectives on decision making for environmental governance and it is interesting to note whose perspective is being accepted and whose is being rejected. Environmental governance most regularly faces the challenge of defining who is a stakeholder and quite often pre-decided notions exist of actors that have participated in the process of governance. While these notions are based on available information and what is visible, these might not be based on a wholesome view of the processes and undercurrents in the area, region or system and it becomes important to ascertain the diversity of the views between stakeholders and among groups themselves. For example, land ownership may not be the most appropriate basis for ascertaining environmental governance pathways as there are more stakeholders with no ownership of land or resources. This is most prevalent in the case of migrating populations such as landless labourers, tillers and communities dependent on common property resources.

Who, then, can be defined as a stakeholder and when does one become one? Typically, stakeholders are defined and engaged with when an external entity enters and decides on an intervention that may affect the current inhabitants of the area which is a reductionist approach of aggregating interests. The identification of stakeholders, especially when done in a public forum and over a period of time, brings forward complex issues like power relations and associations. This is one of the factors that may restrain certain stakeholders or groups from participating. Perhaps this can be overcome by not limiting identification and interaction with stakeholders to when there is a need for consensus building or conflict resolution in case of a project, activity or scheme. Instead, making it an on-going process at the planning stage and decision making stages would also help in dealing with the consequences that may arise subsequently.

After the identification of stakeholders, the next challenge is seeking representation from all the stakeholders and reaching an acceptable decision through a process of negotiation. There cannot be a standardized approach to participation and consensus building because stakeholders respond differently to projects for different purposes such as implementation of a scheme, conservation activity or acquisition for industrial or other expansion. Most discussions at the local level (especially for EIA public hearings) are limited to local issues or environmental issues but final decisions are (more often than not) based on national interests and it is assumed that the local community cannot understand these issues. This is a differentiation in the way information is shared during the participatory and

decision making processes. It is important to recognize particular interests that may shape decisions at every level of the process.

Understanding developmental aspirations

Environmental governance in India can be seen as trying to balance positions between different sets of attitudes, informed by varied experiences and influenced by information flows from our history, culture, geography and numerous other disciplines. It can also be seen from the broad framework of environmental justice, which brings the issues of equity to the centre stage. In a country where inequalities exist because of class, caste, ethnicity, gender, religion and economic conditions, there is a need for discussion on the underpinnings of the development model adopted so as to ensure equitable outcomes.

The question of developmental aspirations arises when there is a better understanding of who is really agitating and responding to certain aspects of the benefit sharing mechanism, that may not have the same results for all groups of stakeholders. In some situations, there may also be a need to understand and communicate the associated risks which may have an impact on the negotiation process.

Within the economic growth paradigm, the nature of investment is changing with a bigger role for the private sector and new arrangements through joint ventures and international financial institutions taking the place of large public sector entities. Different stakeholder opinions have been articulated for the utilization of natural resources. The private sector has pursued its agenda of profit maximization through resource exploitation; the urban communities have expressed their demands for products and services which are provided for by business; the rural communities are changing their way of life aspiring to better standards of living and shifting into roles that no longer demand them to be custodians of the environment; and the tribal communities facing constant pressures to their traditional way of life are demanding their traditional rights to environmental resources that are sought by other stakeholders.

Interacting with all these stakeholders, the government and its various levels are facing the challenge of following an ethical, socially acceptable and economically stimulating course of action. This has created numerous conflicts between ministries – on promoting projects that are ‘important’ to the economy and stalling clearances on the basis of environmental damage and lack of remedial action. The contested nature of the balance between environment and development has created disagreements even within the Ministry of Environment and Forests on the governance

of sensitive ecosystems. This was most apparent in the treatment and later rejection of the recommendations of the Western Ghats Ecology Expert Panel (WGEEP), which was replaced by the less nuanced recommendations of a High Level Working Group (HLWG).

The varied stakeholder interests in the country points to the changing nature of the concept of development with a static nature of its economic indicators. This begs the question – how are the actors and institutions to decide on a viable course of action for sustainable development in a closed system, with limited resources, and ever increasing environmental pressures?

In provisioning basic requirements of a certain quality of life today, there is environmental degradation and pollution – electricity, water supply, waste disposal, food production and processing etc. – and while people may oppose environmental degradation, they do want these services, preferably at no cost to themselves. The costs of degradation have to be met to maintain natural capital that support civilization but what is not acceptable is that someone consumes or avails benefits from ecosystem services while someone else bears the cost of it.

The current trends of urbanization are resulting in enormous challenges of waste disposal. Not only highly dense large cities but even smaller cities and rural areas are facing a waste disposal problem. Non-biodegradable waste materials have found their way even in far flung areas with little permanent population and the problem is particularly difficult to address in rapidly growing towns that do not have the technical capacity to address such issues.

Towards an agenda for Environmental Governance

Ecological systems are a complex mix of several attributes and components. This complexity, coupled with the existence of a range of stakeholders and their interrelationship amongst each other, requires varied approaches in decision and policy making. The role of sub-national governments in environmental governance is being recognized, both globally and nationally. However, the discourse on environmental decentralisation is still very much ingrained in the structural assignment of powers across administrative, political or legislative hierarchy. The role of different stakeholders and different perspectives on the ground needs to be internalised within the environmental decision making and governance initiatives of countries. The role of ‘environmental governance’ in the context of sustainable development has to be discussed at three levels:

- engaging with multiple viewpoints and outcomes;
- observing sustainability rules;
- embracing “knowledge” as a supplement to “science” in environmental policy making and regimes (Jasanoff & Martello, 2004).

There is need for a greater policy harmonization and coordination across and between levels of government as also across sectors and agents. Distributed governance is of essence in a country as complex as India and requires a stronger interaction among state and non-state actors; strengthening major groups’ involvement. If we wish to map the constituencies of environmental governance there are politicians, bureaucrats, judiciary, media, social networks’ online communities, citizenry and communities or civil society. Governance would arise from the network of conversations that happen between all of them and the consensus derived from this network of conversations and not just any two players.

There are different cognitive frameworks existing in our country – there is one that sees nature and ecosystems as resources to be exploited and there is another that sees all beings coexisting in a revered landscape. But these may not be mutually exclusive cognitive frameworks and the people who believe the latter themselves trade off emotions or connections with ecosystem resources – trees, rivers, mountains etc. – with how these can be put to use. Not only people, communities and villages go through such exercises and environmentalists don’t always recognize this cognitive framework. The question is whether such a conversation is possible where opposing cognitive and normative frameworks are allowed to coexist and play a role in decision making.

Environmental decision-making and debates although emanating from a multi-layered structure, often reflect the concerns that are perceived as important by the urbanised population. While attempts have been made in past to understand perceptions and attitudes towards environment issues, these have remained limited to metropolitan cities neglecting other urban areas (including peri-urban areas) and rural areas. Through these environmental governance dialogues, this gap in identification, articulation and validation of issues at a more local level was addressed. The multi stakeholder dialogues should move beyond the usual hubs of power, policy and centralized governance and since environmental issues are not bound by political boundaries, the conversations have to be organized keeping in mind the agro-climatic diversity in India.

In the existing paradigm, scientists produce scientific facts within their silo and then relay it to social scientists

to take into their silo who then simplify for people to interpret and understand. This is neither favourable to the environment, nor to the education system. In the context of complex ecosystems, scientists need to take human behaviour and institutional behaviour into account and social scientists need to use science and its inputs in bridging the gap between the stakeholders. At the same time, media and judiciary need to be involved in policy conversations. There are doubts as to who can be called a stakeholder and how is power distributed among them but unless there is a legal mandate, the government machinery and civil society/academia will remain on parallel tracks but never meeting.

The big growth years of India (between 1991 and 2007) did not see a corresponding growth in employment and this is not a demographic issue of India alone. Growth has been capital intensive which has replaced labour in the economy and this trend is likely to continue. Tertiary sector employment has added another advantage of lower risk which has resulted in people and communities moving away from primary sector occupations. On one hand, communities are leaving their roles of environmental stewardship to move to the tertiary sector while on the other hand, there is rampant resource capture leading to alienation of people from community owned resources. Unless society can provide livelihoods without employment, it will be challenging to conserve ecosystems. Countries are going to have more young and educated people who won't find gainful employment and at the same time with current paradigms of economic development, they will also be

removed from their community, their natural environment and traditions. Welfare capitalism itself has to find a solution for this without which we are likely to face the invasion of people into ecosystems like deserts, forests, beaches.

Perspectives of gender equality and social inequities have not been addressed fully – neither in the agenda for environmental governance nor in the agenda for economic development – and these have a role to play in how things pan out. These are not only to be recognized within the framework but perspectives that address the inequality also need to be mainstreamed into the governance processes.

There is a tendency to relegate all environment related responsibility to the government and citizens themselves only accept a small portion of responsibility that too governed in large part by economic self-interest. It is true that uptake of responsibilities by the government towards maintaining the health of the environment is inevitable – due to ownership arrangements, reach, resources or legitimacy issues with respect to certain environment domains – but at a certain point in time, this situation progresses to one with citizens alienated from community resources or sub-par efficiency in natural resource management or social injustice or in the worst case scenario, capture of political agenda coupled with little or no accountability. Environment is everybody's business and it cannot be left to a single or small group of stakeholders. Environmental governance must be a result of mindful stewardship from every stakeholder.

References

- Baker, S., Kousis, M., Richardson, D., & Young, S. (Eds.). (1997). *The Politics of Sustainable Development*. London: Routledge.
- Fergus, A., & Rowney, J. (2005, August). Sustainable Development: Lost Meaning and Opportunity. *Journal of Business Ethics*, 60(1), 17-27.
- Jasanoff, S., & Martello, M. L. (2004). *Earthly politics: local and global in environmental governance*. Cambridge: The MIT Press.
- Lemos, M. C., & Agrawal, A. (2006). Environmental Governance. *Annual Review of Environment and Resources*, 297-325.
- Meenawat, H. (2013, October). Aggregating Ideas for Environmental Governance in India. *Green Growth and Development Quarterly*.
- Menon, M., Kapoor, M., Venkatram, P., Kohli, K., & Kaur, S. (2015). *CZMAs and Coastal Environments: Two decades of regulating land use change on India's Coastline*. CPR-Namati.
- Osterblom, H., Gardmark, A., Bergstrom, L., Muller-Karulis, B., Folke, C., Lindegren, M., et al. (2010). Making the ecosystem approach operational - Can regime shifts in ecological and governance systems facilitate the transition? *Marine Policy*, 1290-1299.
- Ostrom, E. (1996). Crossing the Great Divide: Coproduction, Synergy, and Development. *World Development*, 24(6), 1073-1087.
- Paavola, J. (2007). Institutions and Environmental Governance: A reconceptualization. *Ecological Economics*, 93-103.
- Raj, K. (2014). Decentralising Environmental Justice. *Economic and Political Weekly*.
- TERI and KAS. (2012). Dialogue on Environmental Governance for Sustainable Development: The case of Mountain Ecosystems.

- TERI and KAS. (2013). Dialogue on Environmental Governance for Sustainable Development: The case of Coastal and Marine ecosystems.
- TERI and KAS. (2013). Dialogue on Environmental Governance for Sustainable Development: The case of Desert ecosystems.
- TERI and KAS. (2014). Dialogue on Environmental Governance for Sustainable Development: The Case of Plateaus and Hills.
- UNEP. (2013). *Embedding the Environment in Sustainable Development Goals. UNEP Post 2015 Discussion Paper I*. Nairobi: United Nations Environment Programme.
- UNFCCC. (n.d.). *Intended Nationally Determined Contributions (INDCs)*. Retrieved April 10, 2015, from United Nations Framework Convention on Climate Change: http://unfccc.int/focus/indc_portal/items/8766.php
- Young, O. (2003). Environmental Governance: The Role of Institutions in Causing and Confronting Environmental Problems. *International Environmental Agreements: Politics, Law and Economics*, 377-393.

