Chapter 2

History and Evolution of EIA

2.1 History of EIA

Environmental law helps in securing and protecting natural resources as well as improving the environment in which people live. Environmental impact assessment (EIA) helps evaluate development, effectiveness, and potential of environmental law. This is because the major stages in the development of environmental law – the growth of the guiding principles of integration, precaution, and sustainable development; the shift towards the use of less prescriptive, more flexible regulatory instruments; the creation of conditions for enhanced deliberation; and accommodation of the expansion of the scale of environmental concern in decision making – are all present in environmental assessment. Environmental Assessment provides a valuable viewpoint from which to evaluate the development, effectiveness, and potential of environmental law.

Environmental assessment is inherently interdisciplinary and provides an opportunity to examine how law is involved in the gathering, formulation, and presentation of scientific information on which political decisions are based. The role played by law in the resolution of conflicts between ‘greening’ of governance and political agendas is apparent. Thus, environmental assessment provides a lesson in legal environmental protection. Environmental assessment represents the aim of introducing standards, region, and environmental principle into decision making which is often obscure and economically motivated.

Environmental assessment describes a process of predicting the likely effects of a proposed project, policy, plan or programme on the environment prior to decision is being made about whether the project should proceed.

Environmental impact has a long history in the United Kingdom. For example, an ancient writ of *ad quod damnum*\(^1\) provided a means of examining public works such as land drainage and channel dredging (carried by individual undertakers or adventurers with a licence from the crown). Whenever a person planned to build a public works such as sea wall, he had to bring an action *ad quod damnum* to know

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what damage it would cause to the king and others. In this respect the crown represented public interest. When the writ was issued, a jury was called and was asked to determine the nature of such damage. Rudimentary notice was also had to be given to others affected. The practice of the *ad quod damnum* writ of the thirteenth and fourteenth centuries suggests a very early type of environmental assessment was exercised by the crown. The impulses for modern forms environmental assessment are all present – precaution, balance between competing interests, procedural fairness – as well as some of the guiding ideas of contemporary environmental thought as such valuing nature, defining public benefit, and empowering and engaging the public via citizen juries. There are also parallels in terms of the writ’s main mechanism, the compensation for the loss of a natural resource, and the attempts on the part of modern economists to evaluate the value of such resources using compensation as a hypothetical measure.

It is possible to overstate the similarities between the *ad quod damnum* writ and modern environmental assessment procedures. In particular, perceptions of what is potentially harmful development have changed greatly over time; for example historic concerns about land drainage seem remarkably concrete compared to the uncertainties of many modern environmental concerns. Nevertheless it is worth taking into account of Bosselman’s observations as quoted by Holder2 on the writ, particularly considering its parallels to modern environmental assessment procedures:

“practice under the writ of *ad quod damnum* seems to have provided flexible procedure by which development could be allowed to proceed on condition that the developer pay damages to persons who would suffer economic loss …” The writ was not designed to prevent changes to wetlands but to ensure that the changes were consist with public interest.

### 2.2 Environmental assessment

Environment assessment helps in examining the relationship between law, environmental governance, and the regulation of decision-making. The related evolution of a body of environmental law is particularly important. Environmental law has grown as a discipline with its own professional apparatus. The establishment of environmental law as a settled legal discipline is in part recognition of potential

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2 Op. cit. p. 4
role of law in the anticipation and regulation of the repercussions of human activities on the environment. The great expansion of models of environmental assessment is a clear expression of this because, very simply, environmental assessment forces explicit consideration of the effects of such activities. By doing this, environmental assessment provides a procedural framework for decision making but, formally at least, it does not regulate the substance of the decision – the outcome. This may be considered its essential or defining characteristic. Environmental assessment also provides opportunities for a broad constituency of people and groups to become informed and to a limited extent engage in the decision making process. Law contributes to these functions by setting the limits of discretion (as to when to conduct an assessment, according to the likelihood of significant environment), offering opportunities for involvement by interested groups, and specifying the manner in which information ascertained in the assessment process is to be used in decision making.

Environmental assessment allows for an exchange of information between government, industry, environmentalists, and the public. An important example of this is the enhanced responsibility of the developer or proponent conferred by the environmental assessment process to provide information on which a decision is based (also monitoring continuing impacts and identify areas for improving conduct) and thereby shape in some manner the outcome of that decision. This suggests some formally combining of the roles of the consenting authority and the developer in environmental assessment.

According to Holder\(^3\) the combination of characteristics of environmental assessment and law exemplifies many of the key strains attributed to new forms of governance, including enhanced opportunities for participation in decision making, interaction between government and non-governmental bodies, and blurring of the traditional division between public regulation of environmental problems, and the role of private actors.

Environmental assessment is therefore well placed as an analytical tool to examine aspects of the relationship between law, environmental governance, and the regulation of decision making. Although impact assessment is one of the major innovations in

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\(^3\) Ibid, p. 6
policy making and administration of the twentieth century, it has received little
attention from political or policy theorists, who have tended to underestimate and
misread its power, complexity, and subtlety. That environmental assessment has
received so little attention from theorists is remarkable because of its high profile
within environmental law, representing as it does the high point of development of an
integrated and interdisciplinary approach, and because of the sheer quantity of case
law now being generated on the subject. Much of this is the bread and butter of legal
practice before the courts in the United Kingdom and before the European Court of
Justice.

Decisions about how and where we live and work, how we travel, what landscapes we
see, and the effect of all these issues on the state of our health are supported or refuted
by information derived from the environmental assessment process, much of which is
not subject to legal scrutiny. Of course, the framework for environmental assessment
is legally determined, and is frequently subject to legal depute, but what takes place
within the environmental assessment process, and what type of knowledge is fed into
decision making, has not been subject of sustained legal and critical scrutiny.

Environmental assessment is highly material to the outcome of a decision. Environmental assessment operates as an indirect, abstract form of legal control because of its inherently procedural nature. Environmental assessment engages the developer or proponent of a project in the decision making process and may be used to express or pursue particular interests or values of the final decision. Contrary to understanding, environmental assessment is not entirely procedural. It has substantive consequences. Suggesting that the procedural-substantive dichotomy is not so clear as has been supposed.

The pluralist nature of the environmental statement process, in terms of the range and
the roles of the participants, the sites in which it operates, the discipline that it draws
upon have influenced the methodology of this research. In a legal work, particular
attention has to be to the environmental statement and representations made about this
by interested parties and statutory consultees. The overall environmental assessment
is conducted by the consenting or governing authority, but this is based on upon the
environmental statement produced by the developer or the proponent of the policy.
The environmental statement is said to be the ‘centre of gravity’ or the ‘cornerstone’
of the environmental assessment regime.
The provision of information on the likely significant effects of a project or on the environment in the form of an environmental statement is the central legal requirement of environmental assessment regimes. The nature of this information is multidisciplinary - natural science, geography, engineering, and sociology all play an important part. The environmental statement or report is normally written by a number of experts working in different fields, and overseen by an environmental consultant. The environmental statement is a product of the system in which two or more sources of authority coexist in the environmental assessment process and also contribute to it, creating a necessary focal point for interdisciplinary inquiry. In spite of the opportunities for interdisciplinarity, the bulk of information included within the environmental statement is quantitative and describes the extrapolation of baseline data using models. It may be noted that this type of information is a prediction, frequently presented as fact. In contrast, qualitative judgements included in an environmental statement are usually derived from limited participation requirements. Such judgements - values, local opinion, perceptions - may be marginalized according to the criteria which appear to be objective, such as compliance with the existing hierarchy of laws, resulting in the possible devaluation of ‘non-expert’ opinion. This is because impacts which can be measured tend to receive more weight making than less tangible (though no less important) non-quantifiable information.

A broadly drawn concept of 'environmental assessment' is a mechanism for regulating decision making having environmental effects on land use, pollution control, habitat protection, and policy making. An essential characteristic of environmental assessment is that it does not sanction a particular outcome; and therefore the question of what contribution the environmental information has made to a final decision is difficult to determine. The only way of evaluating the contribution of environmental assessment is to study the decision making processes, through analysis of cases and other legal and planning texts, and discussions with those involved in making decisions. However, this question can best be answered by studying how law deals with and, most importantly, sanctions environmental changes through environmental assessment. This is not to ignore the question of the difference that environmental assessment law has made to environmental protection but rather, through empirical analysis, to consider the ways in which environmental assessment
shaped by law provides certain conditions, or expectations for decision making. Environmental assessment can play a huge role in ‘greening’ of governance.

2.3 Legal Framework of EIA

According to Sands, "Council Directive 85/337/EEC on the environment was the first international instrument to provide details on the nature and scope of environmental assessment, its use, and participation rights in the process. Despite the limitations which have become apparent since it entered into force in July 1988, the Directive has served as a model for subsequent legal instruments, from which practical experience in implementation can be discerned. The Directive was adopted unanimously by the EEC member states and requires them to comply with the Directive by 3 July 1988." Wastewater treatment plants are included in Annex II of this Directive. This means that they are subject to assessment where Member States consider them to have a significant effect on environment.

In 1997, the Directive was significantly amended by Council Directive by 97/11/EC, which member states were required to bring into force by March 1999. In 1999, the Commission published guidance on the assessment of indirect and cumulative impacts, and two years on the screening and scoping of projects. Also, in 2001, the EU adopted Directive 2001/42/EC on the assessment effects of certain plans and programmes on the environment.

Unlike the European Union, in India, EIA started in 1976-77 when the Planning Commission asked the Dept. of Science and Technology to examine the river-valley projects from environmental angle. This was subsequently extended to cover those projects, which required approval of Public Investment Board. Till 1994, environmental clearance from the central government was an administrative decision and lacked legislative support.

On 27 January 1994, the Union ministry of Environment and Forests (MoEF), Government of India, under the Environmental Protection Act 1986, promulgated EIA notification making Environmental Clearance mandatory for expansion or modernization of any activity or for setting up new projects listed I Schedule I of the notification. Since then there have been 12 amendments made in EIA notification of 1994.

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Today, environmental clearance from central government is required for 32 categories of developmental projects, like mining, thermal power plants, river valley, infrastructure, etc. However, for many projects EIA is not needed. Certain activities under the Coastal Regulation Zone Act, 1991 also require similar clearance. Additionally, donor agencies operating in India like the World Bank and the ADB have a different set of requirements for giving environmental clearance to projects that are funded by them.

The bywords of environmental law are integration, precaution, participation, prevention, proceduralization, and sustainability. These have, recently, been attributed to environmental assessment. Environmental assessment has evolved as a means to give effect to the concept of sustainable development.

2.4 Definition and Scope of EIA

2.4.1 Definition of EIA

The United States’ National Environmental Act (NEPA)\(^5\) defines EIA as a “systematic interdisciplinary approach which will ensure the integrated use of the natural and social sciences ad the environmental design arts in planning and decision making which may have impact on man’s environment.”

A well developed and balanced definition explains environmental assessment as a process for identifying the likely consequences for the biological, geological, and physical environment and human health and welfare of implementing particular activities, policies, and plans, particularly arising from the participation of those likely to be affected, and for conveying this information to those responsible for sanctioning the proposal at a stage when it can materially affect their decision, or their ongoing regulation. This definition recognizes environmental assessment to be a process with several stages – negotiation, participation, and monitoring. The description of the social effects of environmental assessment also recognizes that qualitative as well as quantitative data may be used to assess the likely significance of impacts and that value judgments are (and should be) engaged in identifying and predicting impacts.

The comprehensive definition of the term environment in EIA as adopted by New Zealand is very broad as it includes “ecosystems and their constituent parts, including

\(^5\) S. 102 (A) of the National Environmental Policy Act (NEPA) of 1969, as amended
people and communities, and all natural and physical resources; and amenity values
together with relevant social, economic, aesthetic and cultural conditions”.6

‘Impact’ means the environmental consequences of a particular activity compared
with what might otherwise have occurred. An impact may be both spatial and
temporal as well as positive or negative in environmental terms. The term impact may
include indirect impact. Also indirect impacts should be made as obvious as direct
effect by the environmental assessment process.

2.4.2 Nature of EIA

The EIA process should supply decision makers with an indication of the likely
environmental consequences. Properly used, EIA should lead to informed decisions
about potentially significant actions, and to positive benefits to both the developer as
well as to the population at large. EIA is thus an anticipatory, participative,
environmental tool, of which the EIA report is only one part. Appropriately
employed, EIA is a key integrative element in environmental protection policy, but
only one element in that policy. Because EIA is part of a wider approach to
environmental protection, it is influenced by the system of which it is an element.
Generally, the more committed a jurisdiction is to environmental policy, the more
influence EIA will have over decision making within that jurisdiction.

EIA is not just a procedure or, for that matter, just a science. Its nature is
dichotomous, rather like the duality of matter. As Kennedy as quoted by Wood7 has
put it, EIA is both science and art, hard and soft:

- EIA as ‘science’ or planning tool has to, do with the methodologies and
techniques for identifying, predicting, and evaluating the environmental
impacts associated with particular development actions.

- EIA is ‘art’ or procedure for decision making. It has to do with those
mechanisms for ensuring an environmental analysis of such actions and
influencing the decision making process.

There six categories of implicit models used in the EIA literature. One of these, the
‘information processing model’, assumes that the key to better decision making is the

6 Section 2 of New Zealand’s Resource Management Act 1991
availability of high-quality information. This model, which is the most commonly used in the contemporary EIA literature, tends to underplay, or even disregard, the influence of politics in the decision making process of which EIA forms a part.

The political nature of the decision making context of EIA is inescapable. It cannot be assumed that the provision of high-quality environmental information by itself will lead to decisions that are consistently 'environmentally friendly'. It is increasingly acknowledged that the information generated by the EIA process is considered within a political decision making arena and is therefore influenced by its norms and values as well as by its procedures. Any changes to the decision making process that results from EIA will be changes made as a consequence of the evolution of the values and perspectives held by elected decision makers and their advisors or as a result of successful public intervention.

It should be emphasized that EIA is not a procedure for preventing actions with significant environmental impacts from being implemented, although in certain circumstances this could be the appropriate outcome of the process. Rather, the intention is that actions are authorized in full knowledge of their environmental consequences. Because EIA takes place in a political context, it is therefore inevitable that economic, social or political factors will outweigh environmental factors in many cases. This is why the mitigation of environmental impacts is so central to EIA: decisions on proposals in which the environmental effects have palpably been ameliorated are much easier to make and justify than those in which mitigation has not been achieved.

2.4.3 Diffusion

California was the first of the American states to introduce EIA. International attention was soon being directed to EIA as a result of several celebrated legal cases in the US which clarified NEPA’s significance. The ramifications of NEPA came to be accepted at a time of unprecedented interest in the environment occasioned by the UN Conference on the Environment in Stockholm in 1972. The problems of rapidly growing development, pollution, and destruction of the natural environment that NEPA was intended to address were perceived as universal. The rigorous project-by-project evaluation of significant impacts inherent in EIA was seized upon as a

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8 Ibid., p. 4
solution to many of these environmental problems by many jurisdictions, and elements of the US EIA process. Most were, however, cautious about importing NEPA style litigation with EIA and made strenuous efforts to avoid doing so.

Diffusion of EIA took place throughout the developed and developing countries and EIA is now practised in more than 100 countries. Several international agencies have involved themselves with EIA. In 1974 the Organization for Economic Cooperation and Development (OECD) recommended that member governments adopt EIA procedures and methods and, more recently, that they use EIA in the process of granting aid to developing countries. In 1985, the Council of European Communities adopted a directive that required member states to implement formal EIA procedure by 1988. These procedures were strengthened by a further directive that came into effect in 1999.

In 1989, the World Bank ruled that EIA for major projects should normally be undertaken by the borrower country under the Bank’s supervision. The World Bank in 1999 updated its guidance on EIA. The United Nations Environmental Programme (UNEP) also made recommendations to member states regarding the establishment of EIA procedures and established goals and principles for EIA. It subsequently issued guidance on EIA in developing countries (UNEP 1988). The 1992 Earth Summit provided momentum to these developments. Principle 17 of the Rio Declaration stated that: Environmental Impact Assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.

2.5 The EIA Process

The EIA process emanating from NEPA and subsequently diffused around the world can be represented as a series of iterative steps. The stages of an EIA process depend upon the requirement of the country or donor. However, most EIA processes have a common structure and the application of the main stages is a basic standard of good practice.

The EIA consists of eight stages. Each stage is equally important in determining overall performance of the project. The eight steps of the EIA are briefly described hereunder:
• **Screening:** First stage of EIA, which determines whether the proposed project, requires an EIA and if it requires EIAs, then the level of assessment required.

• **Scoping:** This stage identifies the key issues and impact that should be further investigated. This stage also defines the boundary and time of the study.

• **Impact Analysis:** This stage of EIA identifies and predicts likely environmental and social impact of the proposed project and evaluates the significance. The health impact assessment could be included in the social impact assessment.

• **Mitigation:** This step in EIA recommends the actions to reduce and avoid the potential adverse environmental consequences of development activities.

• **Reporting:** This stage presents the results of EIA in a form of a report to the decision-making body and other interested parties.

• **Review of EIA:** It examines the adequacy and effectiveness of the EIA report and provides information necessary for decision-making.

• **Decision-making:** It decides whether the project is rejected, approved or needs further change.

• **Post-monitoring:** This stage comes into play once the project is commissioned. It checks whether the impacts of the project do not exceed the legal standards and implementation of the mitigation measures. The Generalised process flow chart is shown in Figure 2.1

Most of these steps require a decision to be taken quite apart from the proposal decision. As shown in Figure 2.1 the EIA process is cyclical. Consultation and public participation should be important inputs at each stage in the EIA process. Also, the mitigation of environmental impacts should take place at each step in the process. Every step in the EIA process, as shown in Figure 2.1, is not included in every EIA system. Essential elements of an effective EIA system should be tailored to individual national circumstances.
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2.6 Effectiveness of EIA System

Wandesforde-Smith as quoted by Wood⁹ has summarized EIA effectiveness as under:

- EIA effectiveness is associated with changing political regimes and with the changing level of support for the EIA process among courts, chief executives, and senior agency managers that this implies. The way an EIA process is formally structured and the structure taps informal incentives for administrative behaviour are equally clearly, important variables. Kennedy as quoted by Wood¹⁰ has concluded the question as to which EIA procedure works as follows:

- Generally speaking, however, it would appear that EIA works best when ... there is a specific legal requirement for its application, where an environmental impact statement is prepared, and where authorities are accountable for taking its results into consideration in decision making. In addition, for EIA to be successfully integrated in the project planning process it would appear that procedure for screening, scoping, external review and public participation.

2.7 Evaluation of Effectiveness of EIA System

The evaluation of EIA system effectiveness is necessary in order to enhance the understanding of the process, and ultimately improve its performance. Sadler as quoted by Wood¹¹ has suggested that there should be three different components of an effectiveness review of the EIA process as given in table 2.1.

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⁹ Op. cit. p 8  
¹⁰ Op. cit. p 9  
Table 2.1  
Effectiveness review of the EIA process

<table>
<thead>
<tr>
<th>Procedural</th>
<th>does EIA process conform to established provisions and principles?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substantive</td>
<td>does EIA process achieve the objectives set, e.g. support well-informed decision making and result in environmental protection?</td>
</tr>
<tr>
<td>Transactive</td>
<td>does the EIA process deliver these outcome[s] at least cost in the minimum time possible, i.e. is it effective and efficient?</td>
</tr>
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</table>

This evaluative framework could be constructed by analyzing the extent to which various principles are met by the EIA system. The most rigorous evaluative framework designed by Gibson as quoted by Wood\textsuperscript{12} is based on the following eight interdependent principles for evaluating EIA processes:

- An effective environmental assessment process must encourage an integrated approach to the broad range of environmental considerations and be dedicated to achieving and maintaining local, national and global sustainability
- Assessment requirements must apply clearly and automatically to planning and decision making on all undertakings that may have environmentally significant effects and implications for sustainability within or outside the legislating jurisdiction
- Environmental assessment decision making must be aimed at identifying best options, rather than merely acceptable proposals. It must therefore require critical examination of purposes and comparative evaluations of alternatives
- Assessment requirements must be established in law and must be specific, mandatory and enforceable
- Assessment work and decision making must be open, participative and fair
- Terms and conditions of approvals must be enforceable, and approvals must be followed by monitoring of effects and enforcement of compliance in implementation

\textsuperscript{12} Op. cit. p.10
The environmental assessment process must be designed to facilitate efficient implementation.

The process must include provisions for linking assessment work into a larger regime including the setting of overall biophysical and socio-economic objectives and the management and regulation of existing as well as proposed new activities.

In 1996, Sadler as quoted by Wood\textsuperscript{13} advanced a number of interdependent principles governing the design and development of effective EIA processes are:

- clear mandate and provisions
- explicit goals and objectives
- uniform, consistent application
- appropriate level of assessment
- relevant scope of consideration
- flexible, problem solving approach
- open, facilitative procedures
- necessary support and guidance
- best practice standards
- efficient, predictable implementation
- decision oriented
- related to condition setting
- follow-up and feedback inbuilt mechanism
- cost-effective outcomes.

Wood\textsuperscript{14} has proposed EIA system evaluation criteria which are shorthand versions of principles for EIA, these have considerable advantage in terms of brevity and clarity.

\textit{The criteria are as under:}

- is the EIA system based on clear and specific legal provisions?

\textsuperscript{13} Op. cit. p.11
\textsuperscript{14} Op. cit. p.12
must the relevant environmental impacts of all significant actions be assessed?

must evidence of the consideration, by the proponent, of the environmental impacts of reasonable alternative actions be demonstrated in the EIA process?

must screening of actions for environmental significance take place?

must scooping of the environmental impacts of actions take place and specific guidelines be produced?

must EIA reports meet prescribed content requirements and do checks to prevent the release of inadequate EIA report exist?

must EIA reports be public reviewed and the proponent respond to the points raised?

must the findings of the EIA report and the review be a central determinant of the actions?

must monitoring of action impacts be undertaken and is it linked to the earlier stages of the EIA process?

must the mitigation of action impacts be considered at the various stages of EIA process?

must the consultation and participation take place prior to, and following EIA report publication?

must the EIA system be monitored and, if necessary, be amended to incorporate feedback from experience?

are the discernible environmental benefits of the EIA system believed to outweigh its financial costs and time requirement?

does the EIA system apply to significant programmes, plans and policies as well as to projects?

2.8 Comparative Review of EIA Systems

The general aim of this study is compare EIA systems in India and Germany. Every EIA system is unique and each is a product of a particular set of legal, administrative, and political circumstances. A comparison of these two systems has to achieve three objectives.
Explanatory: When EIA process and the stages in EIA procedures are placed in their international context, it becomes possible to explain their nature much more clearly than by studying the system in a single jurisdiction.

Analysis: It is known fact that some EIA systems work better than others. And step-by-step comparative analysis helps in identifying those factors which are essential to the success of the EIA process. Such analysis also provides understanding of the practice in any particular system.

The third objective stems from the first two. Lundquist as quoted by Wood\textsuperscript{15} has stated "comparative studies of national approaches to solving environmental problems have often led to valuable and practical suggestions to improve the effectiveness of the national processes examined"

It is the endeavour of this comparative study to achieve such a goal.

The approach adopted in this study is similar to the following principles for undertaking EIA effectiveness evaluations:

- take a systematic approach, placing EA in the overall context of the decision-making process and the forces bearing on practice and performance
- specify performance criteria, measures, and indicators for evaluating the overall effectiveness of EA and its operational characteristics
- adopt a multiple-perspective approach, canvassing views of participants to gain a full appreciation of process effectiveness
- recognize that participant judgments of success are relative and vary with role, affiliation, values and experience
- as far as possible, corroborate and cross-reference these views with data and information from project files, inspection reports, effects monitoring and environmental auditing
- qualify the issues and challenges by comparison to accepted standards of good practice (e.g. complex problem relatively poorly/well handled in the circumstances)

\textsuperscript{15} Op. cit. p.13
• when drawing conclusions, focus on the 'art of the possible', contrasting what was accomplished with what could be achieved realistically
• identify cost-effective improvements that can implemented immediately, as well as longer-term structural changes that appear necessary (e.g. to law, procedure and methods).

2.9 The Characteristic of Legal Form

2.9.1 Prediction

The central characteristic of the legal forms of environmental assessment is the requirement that a prediction be made about the likely significant effects (both positive and negative) of a project, plan or pieces of legislation. The prediction of environmental effects is required only in the circumstances defined by law, usually in the form of thresholds, which to some extent reduce the discretion available to the decision maker as to whether an assessment should be conducted or not. As can be seen from the environmental effects contained in the EC EIA Directive, these threshold values are vague; therefore techniques like environmental modelling are used to predict the likely effects and thus provide an apparently acceptable for decision making. The hallowed preventive and possibly precautionary qualities of environment assessment flow from this requirement. It is, however, inevitable that uncertainty enters the assessment process because are accurate futuristic interpretation of data to provide prediction is difficult. In short, environmental assessment deals "with events which have not occurred, may not occur, and whose chance of occurrence may be changed by the very statement that they may occur." From a legal perspective there is also circularity about the general requirement because an assessment of sorts must be made as to the likely effects of the policy or development prior to the assessment is formally conducted. The necessary predictive quality of the decision whether to conduct assessment is the first place is possibly the central conundrum of environmental assessment.

The tension between objectivity and subjectivity in the collection and interpretation of information emerges from the legal requirement that a prediction must be made of the likely environmental effects of change in physical circumstances brought about by land development, policy, or legislation. A disconnection emerges between the apparent objectivity of the prediction of environmental effects, which forms the basis
of the environmental assessment process in pursuance of an idea of ecological rationality, and the real nature of environmental assessment steeped in subjective opinion. Subjectivity is also referred to positively, in the sense of the attribution of meaning and value to statistics. The main question is whether the different forms of participation described in contemporary theories are capable of substantially reducing the reliance upon apparently objective or quantitative knowledge in environmental assessment. This involves evaluating the contribution and possible complicity of law in the presentation of information as an objective evaluation of the likely environmental change, or risk, to flow from a development on policy or legislation.

Environmental assessment law performs the important function of objectifying information ascertained in the environmental assessment process sanctioned by the fulfilment of quite limited participation requirements. The important question is when (at what stage) the public should be engaged, but also the effectiveness of this participation in terms of outcomes of decision making.

2.9.2 Significance

Prediction, whether at the stage of deciding whether an assessment should be conducted, or at the stage at which the assessment is conducted, is directed towards judging the likely significance of the effects of a development, policy, plan or programme on the environment. This judgement is central to the entire environmental assessment, but is also highly subject to chance and variable, being dependent upon the effectiveness of mitigating measures, and the cumulative effect of development. The other question is what is the meaning of the significant environmental effects necessary to trigger the assessment process, and how the potential harm is measured. The issue of significance may be left to decision makers or may be better tied down to some legal standard, for example an existing environmental quality standard. It could also be linked with enhanced public participation.

The environmental assessment law operates as a legal framework for sanctioning development keeping in view the environmental consequences. It also plays a vital role in smoothening the hurdles of participative subjectivity.

2.9.3 Alternatives

A third characteristic of the general legal form of environmental assessment is the requirement to consider alternatives to the proposed project policy or legislation.
proposed. Environmental harm may be prevented or reduced by identifying possible alternative sites, design or technology at an early stage in the process, which really means to find the best environmental option for achieving the goal of proposed development.

2.9.4 Participation

The fourth general characteristic of environmental assessment is the legal requirement that expert and non-expert groups and affected individuals be provided with an opportunity to participate in the assessment process. The element of public participation may be considered to democratize development consent procedures by allowing conflicting views about the relevance and adequacy of environmental information to be expressed. The recent extension of participation requirements in environmental assessment by The European Commission Directive 2003/35/EC indicates a more general concern with environmental democracy. In most forms of assessment, though, degree of public participation is quite limited, typically granting the opportunity to be consulted or to scrutinize a developer's statement and make representations upon it. This leads to the problem that environmental assessment may be too reliant upon a group of scientific experts, and have little relevance to the public's perception of environmental harm. The European Commission Directive 2003/35/EC is designed to bolster existing participation requirements.

Related to the participation requirement is the characteristic that environmental assessment provides a forum for negotiation and bargaining about the design of the project, and mitigating measures to be taken, between interest groups and within and between agencies. The reality is that a combination of political resources and circumstances empowers some to negotiate and bargain more effectively than others in the environmental assessment process. It is a known fact that certain groups and individuals use environmental assessment as protest strategy who wish to highlight the environmental or other aspects of their case in an instrumental or popular manner, in order to secure delay of the project while gaining support for their cause through publicity.

2.9.5 Regulation of Decision Making

The fifth characteristic of environmental law is that environmental information from the assessment process (including that provided by the developer, as well as
representations made about this) must be taken into account before a consent is granted. This procedural requirement is the central control mechanism of environmental assessment. The decision maker, the determining authority, has availed of all information derived from the procedures, and takes this into account prior to reaching a decision. The basic legal form of environmental assessment offers a prime example of a procedural technique of environmental law.

This regulation is not a command and control-type regulation but it is what is now called as 'reinvented, 'smart' or more responsive regulation. This more flexible and coordinated legal form is a vital shift in environmental law which allows for negotiation and deliberation between government, industry, and the public, and makes room for innovation and creativity in decision making. Environmental assessment provides a long-range study of environmental regulation which encourages a critical evaluation of current reinvention efforts, particularly to redesign the role of government.

The procedural nature of environmental assessment means that the legal control of social action is indirect and abstract. However, several case studies demonstrate how the legal form of environmental assessment is capable of being highly material to the outcome of the decision. The emphasis on the procedure in description of this type of reflexive law lends itself to be capable of influencing material change, but in more selective and subtle way than more traditional mechanisms, and may consequently be more deft and respectful of social changes and diversity. There is a potential for the developers to use environmental assessment to shape the outcome of the decision, by the authorities, whether or not to grant development consent in a material and ultimately favourable, way.

2.10 An Initial Evaluation

Holder\textsuperscript{16} discusses two main theories developed for environmental assessment as a regulatory technique. First, environmental assessment may be regarded as a means of informing decision makers of the possible environmental consequences of a proposed project or action. It ensures that planners and developers have available to them relevant information and representations when making decision which may have adverse effects upon the environment (information theories). Second, culture theories

\textsuperscript{16} Op. cit. p.22
propose that environmental assessment inculcates environmental protection values among those taking decisions: "it brings changes in attitude toward the need for, and design, of a new development, and thereby contributes to the development of a new administrative logic". To this extent culture theories of environmental assessment comply with a basic idea of reflexive environmental law, the encouragement of internal self-critical reflection within institutions about their environmental performance.

2.10.1 Information Theories

Environmental assessment enables environmental considerations to be taken into account in decision-making processes, especially development consent system. It does this by forecasting likely impacts and identifying those areas most susceptible to adverse impacts. Environmental assessment may also allow values to be expressed which are difficult to quantify in substantive environmental standards: for example quality and value of landscape. In spite of the potential for environmental assessment to assist decision making by contributing environmental information, questions have arisen about the type and quality of information that might be obtained from the procedures and the use to which such information might be put.

Environmental assessment is a balancing act. The absence of clear, positive environmental standards means that the ultimate decision whether or not to proceed with the development project will depend on economic judgments and political perspectives, as well as environmental factors. It is expected that information about environmental effects will influence the decision making; however, its contribution to environmental protection by arresting environmentally harmful development is not enforceable in terms of the environmental assessment procedure (although the option of refusing development consent remains). Thus a negative environmental assessment will not ensure that the development consent will not be granted. On the other hand, a positive environmental assessment may work to secure development consent, because it would favour development.

Environmental assessment contributes to analytical rational planning. First, the reliance on scientific techniques in environmental assessment gives an air of neutrality to decision making in planning. While others consider that the use of

\[17\text{Ibid, p.23}\]
science by decision makers as essential to the effectiveness of environmental assessment. Secondly, the use of language of environmental discourse, especially 'public interest' terminology, contributes to the appearance of rationality. Also, some consider that environmental assessment incorporates an idea of public interest in decision making procedures, thus making the project appear more attractive.

Environmental statements refer to the visual quality of a project, the character of a local area, and collective practices such as the recreational and cultural opportunities created by the proposed project, and rely upon a liberal use of references to ecology, environment, and nature. These references may act to combine the positive meaning of the environment and nature with the proposed project in environmental statements and thereby lend legitimacy to it. There is distinct advantage of the environmental statement in cases in which environmental gains emanate from a project.

Compensating for the loss of environmental resources arising from a development may mollify concern that that the proposed development will adversely affect the environment. However, the interdependent and often irreplaceable properties of ecological systems should not be interchanged and compensated, which means things that are valued for their naturalness cannot be replaced by human-constructed environments.

A stress upon mitigation of harmful environmental impacts in environmental statements performs a function of securing environmental gain. Mitigation allows some environmental impacts to be considered as side-effects which may be minimized by the use of suitable techniques. Identifying mitigating measures leads to an expectation that environmental management will permit the development to proceed.

When environmental statements are compiled by the proposed developer or sponsoring agency there is a danger that they may become biased documents reflecting only the interests of the makers of the documents. The acceptance of a project may also be secured through public participation requirements in the environmental assessment process because differing views may be registered, even though decisions may still be taken with little regard to them. Environmental assessment process plays a key role in securing public support for the proposed
development project. It is essential that post-assessment monitoring is incorporated in the environmental assessment process, instead of producing ecological snapshot.

2.10.2 Cultural Theories\(^\text{18}\)

Cultural theories of environmental assessment suggest that environmental assessment instills environmental values amongst decision makers and participants, and indeed relies upon this for its effectiveness. These theories emphasize that environmental assessment is capable of reforming the culture of administrative decision making in planning authorities, government agencies, and environmental agencies by enhancing the administration's concern about environmental effects.

Environmental assessment may create awareness about which projects or policies are less environmentally harmful than others within an administration and even in wider community. Thus environmental assessment may import scientific norms and procedures into a political setting. The process of stimulating awareness is governed by informal social rules and expectations shared by those involved in the environmental assessment. This process of self-regulation makes environmental assessment appropriate in cases in which public authorities may cause or facilitate environmental damage, but where they are not subject to conventional regulatory systems.

The cultural importance of environmental assessment encourages a particular type of ecological rationality – rationality of a living systems an order of relationships among living systems and their environment.

Ecological rationality is quite different from technological, economic, social, legal, and political rationality.

Since environmental assessment forces explicit consideration of environmental concerns, it holds promise as a way of transmogrifying the administrative state from within – gradually and not entirely predictably – while remaking individual values and patterns of thinking and acting and, perhaps, while promoting “the preconditions for more substantial institutional innovation”.

The cultural role of environmental assessment is that, through public discussion and debate in an environmental assessment process, people move beyond strict self-

\(^{18}\) Ibid. p.27
interest, or administratively determined interests, to seeing their private or individual interests linked with other, shared interests, and thus make decisions based on common good. The environmental assessment provides a temporary forum in which individuals and groups can exchange their particular views and perspectives, from which longer-term, collective, environmental discourse can be generated. There is much optimistic thinking on this point. Common understandings of community and environmental needs can evolve through environmental impact assessments that include all interested people, giving them equal opportunities to participate, and the free and open exchange of information. Environmental impact assessment provides a forum to initiate social learning. Through the environmental impact assessment process, discourse can therefore assist in promoting community decisions and understanding and over time affect the values held by individuals as they are exposed to new experiences and benefits. Cultural theory also helps in gradual development type of “common law” of environmental assessment, in which a form of precedent operates by the accretion of knowledge by those involved in the process — developers, groups opposing development, environmental consultants, competent authorities, and environmental agencies.

There is a great degree of scepticism about the more elaborate claims of cultural theories of environmental assessment that the process contributes to changing the culture in which decisions are made and lead to social learning. Many think that political and economic realities mean that decision makers will continue to prioritize developmental interests when taking decisions, even though governed by environmental assessment procedures.

2.11 Summing Up

To sum up the discussion in this chapter, one can observe that EIA has emerged as an important legal tool that has significant implications of achievement of sustainable development in countries. It is a tool, which takes care of a wide range of issues related to environment, economic development as well as social well-being.