The 'No-alternative Scenario' in the Alternative Analysis of NEPA

Kalpana Murari

September, 2019

Abstract

Environmental impact assessment report or the EIS, a primary document that provides an assessment on the sustainability of a business or commercial activity, is most often overlooked for serious anomalies. Expected to preserve the environmental integrity of a nation, it is often incomplete and inaccurate leaving out details on viable alternatives including the 'no-action' alternative. The normative standards of an EIA report adopted by most of the developing nations calls for a review of impact assessment procedures and reaffirms the need for universal harmonization of procedures. The absence of sanctions for improper assessment of environmental impacts of commercial activities within a nation including extraction of natural resources for commercial purposes undermines the millennium goal of sustainable development and creating low-carbon economies and consequently failing to address climate change impacts. Natural resources are held in trust for the public by authorities who are expected to extend absolute right of access to genuine, verifiable and actionable information for the purpose of comment and review of any federal, state or private sponsored commercial activity including infrastructure building that may have environmental, economic, social and cultural impacts that requires oversight by an independent third party institution. Standardization and universal harmonization of norms for impact assessment, enforcement and compliance of such regulations by nations has to become a topic for debate at various academic levels to gain importance to manifest a change in the outlook and purpose of preparing an EIA report. The provision calling for a discussion of alternatives for a project or a project component so as to mitigate environmental consequences is mostly overlooked or rendered perfunctory by developing nations racing to meet their developmental goals. EIA reports, ultimately, aim at conserving and replenishing the reserves of natural resources of a nation and promoting a low-carbon economy through sustainable development. This paper will discuss EIA under the auspices of International law relating it to Sustainable Development. It emphasizes the significance of providing viable, feasible and prudent alternatives to and in large infrastructure projects that have severe to adverse enviro-social impacts including transboundary effects and how courts in the United States while hearing cases under the National Environmental Policy Act or NEPA have defined and refined the provision for alternative assessment deeming it as the 'heart of an EIS'.

Keywords: NEPA, EIA, Impact Assessment, Alternatives Assessment,

The 'No-alternative Scenario' in the Alternative Analysis of NEPA

Kalpana Murari

September, 2019

Alternatives Analysis, 'no-action' alternative, hydropower, mega dams.

1. Introduction

Climate change, scientifically proven to be emanating from anthropogenic causes, calls for scientific, regulatory mechanisms and legal reforms to mitigate its impacts. Relentless activists raise valid questions on the unsustainable business processes practiced by business conglomerates and multinational corporations as the world witnesses inexplicable and recurring incidents of natural disasters and tectonic shifts in weather patterns across the planet. Emerging economies tend to showcase their growing infrastructure as visible signs of economic progress without accounting for the natural capital infused in such businesses. Most often, developing nations tend to plan their infrastructure development within regions that present vibrant biodiversity alongside invaluable ecosystem services that protect naturally occurring water sources, forest cover and provide livelihoods for indigenous people. All nations are morally and ethically bound to review consumption patterns and energy needs of their citizens by attuning small-scale activities to reduce individual carbon footprints and implementing large-scale activities in a transparent and scientific manner. Developing nations need to offset their carbon emissions by considering alternatives to unsustainable infrastructure development practices and by including mitigation and adaptation measures in their Environmental Impact Assessment (EIA) reports as originally prescribed by the National Environmental Policy Act (NEPA).

2. Theory, Methodology and Basis for Research

The present paper sets out to study a few of EIA reports on hydroelectric projects in India made available to the public on the internet. It aims to analyse the consequences of the absence of alternatives for large-scale infrastructure projects, more specifically, hydroelectric projects and mega dams in India. It offers a discussion on precedents set by the courts in the United States of America under NEPA and their emphasis on complying with the provision for alternatives analysis. The paper opens up a discussion on the feasibility of applying judicial law-making principles established by the US Courts on the provision of alternative assessment within India's domestic legislation. It sets out to acclaim the significance of NEPA as a pioneering legislation in

environmental protection and natural resource conservation, deciphering in particular, the provision for alternative assessment as contemplated under the original statute.

The statutory mandate under NEPA calls upon agencies "to rigorously explore and objectively evaluate all reasonable alternatives, devoting substantial treatment to each alternative and review comparative merits, including the 'no action' alternative, and its application in the domestic legislation of emerging economies such as India. There is a clear nexus between economic development and environmental protection that cannot be side-stepped. Industries using energy from fossil fuels and hydropower remain beyond the scope of an international regulatory regime and continue to pose environmental risks to their nation.

The 1994 Energy Charter Treaty, a regional initiative, establishes a legal framework to promote long term co-operation in the energy field. It lays emphasis on state sovereignty and the need to exercise sovereign rights over energy resources in accordance with international law. It calls for commitment by parties to 'strive to minimize in an economically efficient manner harmful environmental impacts occurring either within or outside its area from all operations within the energy cycle in its area, in pursuit of sustainable development'. It requires parties to take into account all environmental considerations throughout the formulation and implementation of energy policies that more fully reflect environmental costs and benefits. The provisions of the Energy Charter Treaty and the subsequent International Energy Charter Treaty, 2015 reiterate the significance of assessing environmental impacts of all energy related projects by taking into consideration various alternatives before implementing large-scale infrastructure projects. In the light of the fact that India is not a party to the Charter, it is all the more relevant to assess the enviro-social impacts of all large-scale energy-related projects as per international standards. Hydroelectric power generating large mega dams are environmentally and geopolitically controversial. Mega dams in developing nations displace large rural communities, depriving them of their land and livelihoods with either nominal or nil compensation and rehabilitation.

To state an example, the project Grand Inga mega dam project on the Congo River, seemingly is expected to serve local communities steeped in energy poverty but power so generated is to cross borders and serve the interests of mining companies in South Africa. The government of Congo does not render

itself accountable to those displaced by the construction of the dam and has been facing legal and regulatory challenges from several entities over the implementation of this project.

3. Alternative Assessment as a precautionary measure.

The Precautionary Principle is the principle on which the provision for alternatives has been built to assess anthropogenic causes for environmental damage. It is the way forward to study major impacts on the global environment that can be attributed to human activities. It was first recognized as a central principle of international environmental policy under the 1992 Rio Declaration of the United Nations Conference on Environment and Development, which stated

> "To protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full certainty shall not be used as a reason for postponing cost effective measures to prevent environmental degradation"

Essentially, the principle is described as having two main components : "Preventive action in the face of uncertainty and reversing the burden of proof" The principle holds those risk takers to have an obligation to conduct risk analysis and ensure safety for those who might be affected by their decisions. The principle is a subtle form of enunciation for sustainable development

The recent form of exposition of the precautionary principle can be found in the *1998 Wingspread Statement,* where assessment of alternatives finds a place as an additional component and tool prescribed under the precautionary principle. The principle is about finding solutions to risks that arise from human activities through methods that identify, assess and implement alternatives to high-risk technology, raw materials and activities. Precautionary principles envisaged prevention of risk at source, helps avoid risk shifting, and attaining long-term environmental goals such as resource replenishment, maintaining the equilibrium of habitats and ecosystems, inducing innovation in safer, cleaner and environmentally sound technologies, products and processes. The principle has helped implement in certain industries that call for hazardous waste management and use of risky raw materials for their products that tend to contaminate its lifecycle.

In the present context, the precautionary principle is about innovation and finding environmentally-friendly solutions focusing on choices and opportunities to make the world a better place to live and leave for the next generation. Ultimately, the principle is about decision-making and options analysis by stakeholders and the government. One such example of making clear decisions to avoid risks by an enterprise is the one initiated by the Swedish construction company Skanska, which issued a list of chemicals that should be substituted in all projects they use. The details of such mandatory substitutes can be found at http://www.noharm.org. Alternatives and substitutes work best in favour of the environment when discussed and identified at the early stages of a project and before the commissioning of such projects. It is clear that no project can be allowed to continue if it does not meet the standards of scientific integrity at its inception.

The alternatives assessment is included in the legislation of environmental protection, but the enforcement and compliance of the provision in its truest form is yet to be achieved.

4. ***Jurisprudence of EIA under NEPA***

NEPA provided the internationally recognized *instrument of* EIA, that was subsequently implemented as a 'federal initiative' by many nations. NEPA, as a procedural provision, required all agencies to list the environmental impacts of all federal actions that significantly affect the quality of the human environment, which included private projects that require federal approval and prepare an Environmental Impact Statement or EIS. Such an extensive impact assessment of all projects is aimed at preserving ecosystem services for habitat management, preventing depletion of resources and restoring them where and when such depletion is unavoidable. The EIS is to include a 'purpose and need' statement for the proposed action and alternatives that include mitigation measures. Courts have held that a purpose and need statement will fail if it unreasonably narrows the agency's consideration of alternatives so that the outcome is preordained. The statement was designed to carry a description of the affected environment, and environmental consequences of each proposed and alternative actions, and determine all means to mitigate consequences emanating from the project or activity. The existence of reasonable and true but unexamined alternatives renders an EIS inadequate. The term 'reasonable' has been elaborated by the Court hearing *Cascade Bicycle Club v. Puget Sound Reg'l Council.* The underpinning concept behind the need for alternative

analysis is the "precautionary principle", a fundamental tenet under international environmental law. The 1982 United Nations World Charter for Nature apparently gave the first international recognition to the Precautionary Principle suggesting that when "potential adverse effects are not fully understood, the activities should not proceed."

Agencies determine impacts and other considerations by engaging in a process called *'scoping'* inviting comments on the scope of effects to be considered from an action by either a Federal, State, or local agency. The content of the environmental report that is to be prepared was to be defined at the 'scoping' stage. The scoping documents should identify significant and adverse transboundary impacts and outline the assessment to be carried out listing out alternatives, cumulative impacts, biodiversity and climate related impacts.

NEPA does not force federal agencies to select the most environment-friendly option, but courts have held that the agencies need to consider the impact of their actions on the environment leading to informed decision-making. NEPA's basic substantive policy directed federal agencies to alter their actions to account for the environment and environmental impacts of all activities that include construction of federal buildings, leasing of public lands for mining, cutting trees for timber and construction of dams across major rivers.

As is the case of all statutory provisions whose implementation circumvents the stringent scrutiny of regulatory authorities, NEPA's mandate "to rigorously explore and objectively evaluate all reasonable alternatives, devoting substantial treatment to each alternative and review comparative merits, including the alternative of no action" stands diluted in the half-hearted implementation of its provisions despite strictures from various federal courts and the International Court of Justice (ICJ). Nevertheless, it is important to note that presently, international law is lacking in universal standards for conducting an EIA and implementing the mandatory requirement for conducting an alternatives analysis. The Espoo Convention and the guidelines issued by the United Nations Environment Programme (UNEP) on EIA do not mandate or enforce alternative assessment and analysis within an EIA, creating a lacuna in customary international law.

The 'No-alternative Scenario' in the Alternative Analysis of NEPA

Kalpana Murari

September, 2019

Alternative analysis in EIA is designed to bring environmental and social considerations into the upstream stages of development planning, including site selection, design and implementation and the need to meet stated objectives of the project. The Council on Environmental Quality (CEQ) coordinates NEPA activities and its regulations serve as a benchmark for suggestions for reforms to the EIA procedure in India, while customary international law reinforces the need to enhance existing domestic legislation to match international norms of EIA practice.

Alternative assessment is a provision found in domestic legislations and international laws, but falling to disuse due to inappropriate implementation of the provision on the ground and rendering it statutorily redundant. There is no gainsaying that the objective served by alternative analysis is in the higher echelons of environment protection and natural resources management. The provision has the propensity to stand on its own in meeting the objectives of environment protection legislation, preventing depletion of natural resources and innovating for sustainable development. Presently, implementation of alternative assessment is mere tokenism, a blatant indication of failure by regulatory bodies to take definitive steps towards meeting the needs of future generations using natural resources management.

EIA as a statutory mandate is recognized in a substantial number of international conventions, protocols and agreements. Effectively, 191 members of the United Nations, either have national legislation for EIA or remain signatories to some form of legal instrument that promotes the use of EIA under international law. This reiterates the fact that EIA is a universally recognized instrument for environment and natural resources management, and therefore a well recognized concept of customary international law. In many nations, the prevailing practice of EIA is restricted to infrastructure projects taken up by federal authorities and not all nations have conceptualised EIA as a planning or development tool for sustainable development and building low-carbon economies.

Taken as an example for the purpose of studying the effectiveness of EIA as a general obligation under UNCLOS (The United Nations Convention on the Law of the Sea), the treaty enunciates "when States have reasonable grounds for believing that planned activities under their jurisdiction or control may cause substantial pollution of or cause significant and harmful changes to the marine environment." UNCLOS does not provide for minimum standards and

requirements that need to be applied uniformly in the conduct of EIA in Areas Beyond National Jurisdiction(ABNJ). New and emerging activities are being conducted deep sea with nil or limited monitoring on the irreversible impacts on marine environment. The absence of complete lack of assessment in the most scientific manner possible clearly highlights the imminent significance of evaluating alternatives in methods to conduct deep sea mining and other extractive activities in the ocean.

The option to develop and harmonize sector-wise or industry-wise standards to conduct EIA activities has not been explored till date although the early document of Kyoto Protocol called for a Sectoral CDM of the Clean Development Mechanism. Extractive industries involved in sea-bed mining, bioprospecting, laying of underwater cables etc., need close monitoring to protect marine ecosystems and preserve the overall food chain system. A recent research study claims that noise emanating from ships has resulted in the decline of certain species of marine mammals and fish variety.

The Convention on Biodiversity (CBD) has established voluntary guidelines for the consideration of biodiversity in environmental impact assessments and strategic environmental assessments (SEA) in marine and coastal areas that were adopted at the CBD Conference of Parties 11, Decision XI/18 on Marine and Coastal Diversity.

The World Bank's Operational Directive OD 4.01 on environmental assessment calls for, *inter alia,* systematic comparison of the proposed investment design, site, technology, and operational alternatives in terms of their potential environmental impacts. The bank in its EA Sourcebook update states "The "no-action" or "no-project" alternative should routinely be included in analysis of alternatives in EA. This involves projecting what is likely to occur if proposed investment projects are not undertaken. In evaluating the no-action alternative, it is important to take into account all probable public and private actions which are likely to occur in the absence of the project."

To impose stringent environmental norms on large-scale projects, the World Bank alongside the application of existing 'Safeguard Policies' on already approved projects, has, in August, 2016, adopted the "Environmental and Social Framework' (ESF) that would be applicable to all World Bank investment and project financing starting 1st of October, 2018. Similarly, the International Finance Corporation, in consultation with other banks developed Equator

Principles, that determine funding for large scale projects based on environmental performance standards.

The OECD group of nations have also pushed for stringent environmental norms by leveraging export credit lending by member countries, most often linked to major projects in emerging economies. These financial mechanisms by multilateral organizations have only helped in bringing more projects and nations under the overarching law of environment and natural resources. These mechanisms and the mandate to conduct environmental and social impact assessments prior to the submission of a project proposal for the purpose of funding reiterates the call for universally harmonized regulations on EIA.

Moving beyond mere biophysical nature of impacts, there is an inherent need to add specifics to details presented by the project proponent, that has enhanced the role of assessment procedures defining several other forms of assessments including the Cumulative Impact Assessment Social Impact Assessment, Sustainability Assessment and Strategic Environmental Assessment, gaining importance that aim at a holistic approach to large-scale infrastructure projects. Overall, impact assessment procedures have expanded borders leading to the evolution of regulatory impact assessment, human rights impact assessment based on climate ethics, impacts on cultural heritage and sustainable heritage and climate change impact assessment. Ultimately, EIA is an information generating and processing tool that aids in improving decision-making capabilities of authorities and project proponents. EIA internalizes the environmental externalities, while functioning as a tertiary financial tool to address any risk-taking by the project proponent and by those funding such projects while aiding in internalizing the externalities of environmental risks. Governments need to ensure the availability of accurate information on impacts so surveyed by project proponents and incentivise best practices of EIA making data so collated be made available for future use in the study of climate change impacts specific to the region that may assist in building low-carbon economies.

4. Judicial Law and the role of Agencies in determining Alternatives.

The International Court of Justice (ICJ) in the case of *Pulp Mills on the River Uruguay*, has mandated the use of EIA as an obligation of general international law, defining it as "a national procedure for evaluating the likely impact of a proposed activity on the environment." The decision mandated

individual countries take a precautionary approach in preparing environmental impact assessment reports when there are serious environmental risks. The term 'precautionary approach' calls for assessment of alternatives that may exist to serve as viable substitutes to project implementation as initially conceived by the project proponent in its proposal and without consideration of environmentally sound alternatives.

In *Sierra v.Marsh, 872 F2d 497 (1st Circuit, 1989),* the court held that NEPA's purpose is not to prevent environmental harm, but rather to avoid inadequate *ex ante* consideration. Courts apply the 'rule of reason' standard to determine whether the commission faithfully discharged its duties under NEPA when it evaluated alternatives to assess whether they are sufficient to permit a reasoned choice among the options. Courts have interpreted the provision for EIS as an aid to the decision making process, further stating that there was no need to address every conceivable effect or alternative to a proposed project. It needs to only include information sufficiently beneficial to the decision-making process that justifies the cost of its inclusion. The court, further extended the argument to state that impacts or alternatives which have insufficient causal relationship, likelihood, or reliability to influence decision makers and are remote or speculative may be excluded from an EIS.

Courts often observed that NEPA does not require agencies to elevate environmental consequences over other appropriate considerations, it requires only that the agency take a 'hard look' at the environmental consequences before taking a major action. On compliance of NEPA provisions, courts expect "agencies to provide an adequate discussion of growth-inducing impacts on EIS".

In *City of Ridgeland v National Park Service*, the court held:

"In assessing the adequacy of an EIS prepared pursuant to NEPA , the court considers three criteria:

a) whether the agency in good faith objectively has taken a hard look at the environmental consequences of a proposed action and alternatives.

b) whether the EIS provides detail sufficient to allow those who did not participate in its preparation to understand and consider the pertinent environmental influences involved.

c) whether the EIS explanation of alternatives is sufficient to permit a reasoned choice among different courses of action.

The 'No-alternative Scenario' in the Alternative Analysis of NEPA

Kalpana Murari

September, 2019

Judicial review of the sufficiency of stated project purpose is conducted under the 'hard look doctrine', which examines the statutory compliance of every EIS under scrutiny. In this context alternatives need to be in keeping with the purpose and need of the project and should pass the test of feasibility. On a bare reading of the CEQ regulations it is evident that they do not offer factors that go into finding whether an agency has adequately formulated the project purpose, leaving it to the courts to determine the efficacy of an EIS by applying "two-part test to properly analyse an EIS's stated project purpose when performing a 'hard look' review of how alternatives must be considered under NEPA: 1) a determination of whether there are any alternatives presented, followed by (2) an objective inquiry into the stated project purpose…..The objective inquiry is an impartial assessment of the stated purpose to determine whether the purpose needs to be more broadly defined to allow for the proper consideration of reasonable alternatives to the project. The Ninth Circuit has set a rule that an EIS lacking analysis of "viable alternatives" violates NEPA, reiterating that NEPA requires a thorough alternatives analysis for any proposed use of a natural resource.

When critical elements of the 'purpose and need' statement of the project are not met, at least to some minimum level, it leads to a "no-build" situation. Presently, there are no incentives for pursuing "non-structural" or "no-build" solutions. Despite non-structural alternatives that are environmentally sound and cost-effective, they are not taken into consideration because preliminary construction and preparatory work is already underway, and investments made prior to obtaining the final approval to the project based on EIA.

Effectively, the Ninth Circuit has created substantial legal precedents to re-emphasise NEPA's essential purpose of environmental conservation. It viewed NEPA as "a means to advance environmental protection, not the economic interests of those adversely affected by agency decisions." It made clear that agencies enjoy "considerable discretion" in defining the purpose and need of a project, but they may not define the project's objectives in terms so unreasonably narrow that only one alternative would accomplish the goals of the project. In *Citizens' Advocate Team v. US DOT (2004*) the court held "To comply with NEPA's mandate, an agency must provide an adequate discussion of growth inducing impacts in an EIS. This essentially calls for steps towards sustainable development where depletion of natural resources and negative impacts are prevented. The statement further underscores the need for

alternatives that help renew and preserve resources.

In *Kootenai Tribe of Idaho v. Veneman, 142 F. Supp. 2d at 1235 -36,* the Court relied on the Ninth Circuit ruling "an EIS lacking analysis of a viable but unexamined alternative renders an environmental impact statement inadequate." In *City of Angoon v.Hodel 803 F.2d 1016, 1021 9th Cir.1986,* it was held "A narrow statement of purpose and need allows an agency to consider only the alternatives that would accomplish that purpose and need, along with the required 'no-action' alternative."

Absence of alternatives in an EIA report merely restates the fact that project proponents continue to adopt and practice obsolete business methods and processes that have long been rejected by the public and assessing authorities. Under NEPA, a thorough analysis of alternatives could provide for energy conservation and energy efficiency while ensuring optimal utilisation of natural resources as a matter of resource efficiency. The decision-making process should be based on access to maximum and scientifically accurate information that is diverse in presenting alternatives, including the 'no-action' alternative that serves the greater good of the society that are seemingly larger than the project itself.

The "no-action" alternative serves as a useful benchmark that helps decision-makers under the environmental effects of the action alternatives. The Department of Energy (DOE) in its Recommendations for the Preparation of Environmental Assessments and Environmental Impact Statements states: "For proposed changes to an ongoing activity, "no action" can mean continuing with the present course of action with no changes. It can also mean discontinuing the present course of action by phasing-out operations in the near future. Pragmatically, it was concluded by some that there could exist two forms of the 'no-action' alternative, a) the continue alternative where there is no change to the current activity and b) the discontinue alternative which amounts to terminating ongoing programs or activities.

The other view on the 'no-action' alternative is that it is neither the continue alternative nor the discontinue alternative, but a set of 'minimum actions required for safe and secure management of resources.' Most often the 'discontinue' alternative does not stand a chance on a cost-benefit analysis with more environmental damage than the 'continue' alternative. The 'no-action' alternative is significant when assessing environmental and social impacts of

large-scale mega infrastructure projects in developing nations, where rehabilitation of displaced communities is more cumbersome, stifled by limited on-the-ground solutions. The absence of a 'no-action' alternative merely establishes the fact that the project proponent has promoted his commercial interests over environmental protection.

The breadth of the alternatives to be considered can certainly affect the desirability of the proposed action. The Ninth Circuit's discussion on alternatives analysis which stands:

> *"To be adequate, an environmental impact statement must consider every reasonable alternative....,,.An EIS is rendered inadequate by the existence of a viable but unexamined alternative..... furthermore, even if an alternative requires "legislative action", this fact "does not automatically justify excluding it from an EIS..... Thus, the range of alternatives considered must be sufficient to permit a reasoned choice. The Court did not require agencies to explore an unreasonably broad range of alternatives. Rather, the range "need not extend beyond those alternatives reasonably related to the purposes of the project."*

5. EIA in the Indian context

Statute represents "the will of the nation, expressed by the legislature expounded by Courts of Justice." The environmental legislation deems the state to protect its natural resources by implementing statutory provisions that aids in economic and social benefits and with highest regard for public welfare. It requires evaluation of better, feasible environmental options and effective solutions by working with nature, rather than against it, preserve ecosystem services by restoring natural flows instead of building dams across rivers, restoration of wetlands and building natural reservoirs. Every project granted approval from the Ministry and other related departments, have set conditions to fulfil as part of their project completion.

The regulatory regime in India pays little attention to the compliance of those conditions subsequent to the approval. There is no oversight over the implementation of the projects either by the government or by an independent third party. In matters relating to environment protection, citizens of a nation

must have a say in the manner in which projects are given approvals and way in which they are implemented. Environmental governance is only complete if compliance of rules and regulations is ensured and in some cases, enforced upon project developers. Presently, there is no real-time data available to the public on the number of projects granted approval, stages of completion, compliance of conditions and statutory regulations. As a first step towards environmental justice, honest and accurate data on large-scale projects should be made available for discussion, debate and reforms.

Developing countries are very often prone to mismanagement and environmental protection, climate change are pushed to the last in their political agenda to promote the myopic view of economic progress. "*Leaders from developing countries would rather sacrifice clean air and water, biodiversity and forests if they can turn them into profitable businesses and support short-term political agenda and medium-term economic benefits. (Winbourne.S)*

The EIA process in India does not specify the alternative assessment of 'no-action' and restricts itself to alternatives proposed by the proponent of the project and those that may be offered by other third parties. The absence of a no-action option is glaring as is the requirement to provide non-structural or green solutions for projects that have major impacts. Businesses are not interested in assessing alternatives after having obtained the approval to execute the project.

Presently, EIA practice in India is weak in its enforcement and compliance of natural resources law and, in many cases, the EIA report is a mere cut and paste job churned out as facsimile to help project proponents while misleading authorities into granting approvals. The present legislation in India on environment protection is bereft of norms to promote sustainable development and is insufficient to address climate change impacts, since it is not scientifically updated. Environment protection law needs to encompass science and any legislation to protect the panel must be overseen by scientists who can match legislation with recent research findings on climate and environmental science. The alternative assessment analysis is restricted to technology and site, but does not consider other factors including emission control, mitigation and adaptation, especially in the construction of large-scale dams where rehabilitation of large populations that have been displaced is not fulfilled from the perspective of human rights.

The 'No-alternative Scenario' in the Alternative Analysis of NEPA

Kalpana Murari

September, 2019

The EIA provision in India is a 'subordinate legislation' and is devoid of prescribing measures to tackle transboundary impacts of major infrastructure projects. EIA reports on construction of mega-dams across international rivers flowing through India do not discuss alternatives for meeting the demand side of energy, and in most cases completely exclude them. A recent example is the Pancheshwar Dam contemplated by India and Nepal on the Mahakali river, known as Sarada river in India, along the international boundary between the two countries. It has been stated that a transboundary impact assessment, as mandated under international law, has not been conducted till date. India's Expert Appraisal Committee on River Valley and Hydroelectric Projects, has set aside this requirement citing reasons of delay. The EIA legislation in India does not analyse the cumulative impacts of a project, downstream impacts of dams and procedurally lacks transparency when it concerns public participation and development of alternatives. The types of alternatives for large-scale infrastructure projects should necessarily include alternatives on functionality, siting of the projects, size, design and materials, time schedule for preliminary preparation, construction, commissioning and operation and options for decommissioning, mitigation and finally the prospects for a 'no-action' alternative.

Transboundary projects such as mega dams across international rivers create challenges for the usual EIA procedures since it involves more than two countries with varying legal frameworks with many nations staying out of the Espoo Convention. A transboundary EIA should be carried out before the decision to authorise projects is taken. In such cases, multilateral cooperation is therefore required as a norm. This fluidity of situation calls for harmonization of EIA procedures applicable to all projects and all nations in uniformity. India as a nation sharing major rivers with its neighbouring countries and as a global leader among developing nations needs to revisit and revise its legislation for transboundary damage and mitigate climate change impacts while developing its impact assessment procedures to meet international standards.

The ICJ as early as 1941, in the *Trail Smelter Arbitration* case first mentioned the 'no-harm' rule by imposing a duty upon the States to prevent significant transboundary harm and harm to the global commons. The principle was founded on 'good-neighbourliness' and respecting the sovereignty rights of states. The court re-emphasized on the 'no-harm rule' as a principle of customary international law in its advisory opinion on the *Legality of the Threat*

or Use of Nuclear Weapons and subsequently the rule has found a place in various environmental agreements establishing it as a norm in customary international law and binding on all states to prevent transboundary damage. The application of 'no-harm rule' has the veracity to address climate change impacts and negative externalities of experimenting various forms of geo-engineering processes. The evolution of the no-harm rule finally led to establishing the substantive obligation on the part of the States to prevent harm, imposing upon them a duty to conduct due diligence to prevent significant transboundary harm and harm to the global commons. Subsequent to the *Certain Activities* case, the ICJ enhanced the role of states to improve the preventative capacity of the no-harm rule by informing themselves through an EIA report that ensures a risk analysis of all activities conducted within their boundaries that may cause significant transboundary harm. Presently, the no-harm rule bears a lot of significance in preventing transboundary harm, but lacks clarity on the substantive obligation of conducting due diligence in the execution of infrastructure projects that tend to affect more than one nation. The ICJ has held that states have a customary duty and positive obligation to conduct an EIA for activities that pose a risk of significant transboundary harm and that it is necessary to satisfy the duty of due diligence.

Due diligence as a concept is predominantly used in human rights violations. It is at the core of *United Nations Guiding Principles on Business and Human Rights.* It is a two pronged concept where the first relates to processes that help 'manage business risks' and the second relates to the 'standard of conduct required to discharge an obligation'. In the present context, due diligence refers to the way states carry on with their developmental projects and how ethical is their mode of discharging obligation to conduct alternatives analysis, prevent transboundary harm and harm to the global commons. Due diligence in international law "functions primarily as a standard of conduct that defines and circumscribes the responsibility of a state in relation to the conduct of third parties. Alternative assessment is one such provision of law that States need to ensure is complied with not just as a matter of the environment but also seen to comply with human rights norms, especially the inevitable displacement of large swathes of population and submergence of huge tracts of land.

In the *Case of the S.S.Lotus* before the Permanent Court of International Justice in 1927, the court observed that "it is well settled that a State is bound to use due diligence to prevent the commission within its dominions of criminal acts against another nation or its people." However, international environmental

law posits that states are not strictly liable for transboundary environmental damage, bringing in ambiguity in defining liability against states that do cause harm to a neighbouring nation without having fulfilled the substantive obligation to conduct due diligence before taking up a project. "It imposes an external, objective standard of conduct to take reasonable precaution to prevent, or to respond to, certain types of harm specified by the rule in question. Due diligence, essentially, refers to "a level of judgement, care, prudence and determination that a State would reasonably be expected to do under particular circumstances." It is one principle that the State should consider before undertaking such activities under its jurisdiction and control to prevent harm to other States.

6. The Human rights issue of SIA

In India, Social Impact Assessment or the SIA is yet to gain significance despite prominent agitations for rehabilitation of displaced communities of the Sardar Sarovar Dam on the Narmada River. The dam was commissioned in the year 1987 when the Environment Protection Act, 1986 was still in its infancy and awareness relating to SIA was nonexistent. Despite these agitations and numerous litigation before the Supreme Court of India, the SIA was not taken up in all its earnestness. It is this lack of clear roadmap for rehabilitation of communities that have been displaced has caused disdain between successive governments and is being used as a forum to settle political scores. A well prepared SIA document prepared in line with the international law and principles on human rights can help resolve the long pending issues relating to the dam.

The International Association of Impact Assessment proffered the guidelines for assessing social impacts of projects in the title "International Principles for Social Impact Assessment" promulgating a new understanding of SIA and is meant to serve as a tool to develop national guidelines in consultation with a range of stakeholders and users in their own countries.

SIA includes the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment.

The focus of concern of SIA is a proactive stance to development and better development outcomes, not just the identification or amelioration of negative or unintended outcomes. It contributes to the process of adaptive management of policies, programs, plans and projects, and therefore needs to inform the design and operation of the planned intervention. SIA ensures that "development maximises its benefits minimizes its costs, especially those costs borne by people (including those in other places and in the future).....By identifying impacts in advance: (1) better decisions can be made about which interventions should proceed and how they should proceed; and (2) mitigation measures can be implemented to minimize the harm and maximize the benefits from a specific planned intervention or related activity."

SIA, *inter alia*, comprises of the activities that "identifies interested and affected people; collects baseline data or social profiling to allow evaluation and audit of the impact assessment process and the planned intervention itself; identifies activities that are likely to cause impacts as a form of scoping procedure; assists in site selection; recommends mitigation measures; contributes to skill development and capacity building in the community."

In all, a SIA document prevents human rights violations by protecting individual property rights, recommending mitigation and compensation mechanisms by concentrating on negative impacts and all issues that affect people, directly or indirectly.

7. EIA and Sustainable Development

Sustainability assessment can be simply defined as any process that directs decision-making towards sustainability *(Bond and Morrison-Saunders 2011)* Referred to as the third generation impact assessment, following EIA and Strategic Environmental Assessment (SEA). Sustainability assessment, essentially, is about natural resource management to attain resource efficiency through ethical decision-making.

The ICJ in its 2010 judgement in the Pulp Mills case observed that:

> *"it may now be considered a requirement under general international law to undertake an environmental impact assessment where there is a risk that the proposed industrial activity may have a*

> *significant adverse impact in a transboundary context, in particular on a shared resource. Moreover, due diligence, and the duty of vigilance and prevention that it implies, would not be considered to have been exercised, if a party planning works liable to affect the regime of the river or the quality of its waters did not undertake an environmental impact assessment on the potential effects of such works" (at para 204)*

This finding treats transboundary EIA as a distinct and free-standing obligation under international law, reflecting Principle 17 of the RIO Declaration on Environment and Development, the Espoo Convention, and Article 7 of the ILC draft articles on transboundary harm. The Court has now confirmed that in appropriate circumstances, an EIA must be carried out prior to the implementation of a project that is likely to cause significant transboundary harm. (para 205). It may be pertinent to note that the exact process involving the exercise of conducting an impact assessment is not set out in any international instrument. The Court concluded that a satisfactory EIA need not show that there will be no risk of environmental harm but should state that the necessary information about the project's likely impact. Further, in its judgement, the Court noted that it is for each State to determine its domestic legislation or in the authorization process for the project, the specific content of the environmental impact assessment required in each case, having regard to the nature and magnitude of the proposed development and its likely adverse impact on the environment as well as the need to exercise due diligence in conducting such an assessment." (para 205)

International law requires at a minimum that an EIA assess possible effects on people, property and the environment of other states likely to be affected and when such an assessment is not provided for under the national law, it amounts to breach of such an obligation by the State towards the international community.

EIA needs to consider ecosystem services, habitat management with suggestions for restoration activities alongside alternatives and mitigation measures. EIA reports need to assess 'vulnerability', which, in the present context is defined as the degree to which a system is susceptible to, or unable to cope with, the adverse effects of climate change, including climate variability and extremes (IPCC 2001), identifying options for enhancing adaptive capacity, which essentially, is the ability of a system to adjust to climate change, including variability and extremes, to moderate potential damages, to take

advantage of opportunities or to cope with the consequences (IPCC 2001).

The Environment Protection Agency (EPA) of the United States of America is considering the adoption of a 'sustainability assessment and management' process that would follow all the classic steps in the existing impact assessment process with an emphasis on, inter alia, analysis of alternative options that includes an integrated evaluation of the social, environmental, and economic consequences and evaluate the long-term consequences of alternatives in addition to more immediate ones. The National Resources Council released a report titled 'Green Book, 2011 to be used by the EPA to implement sustainability by setting sustainability objectives, goals, indicators and metrics as basis for the evaluation and monitoring of the agency's progress towards sustainable development.

8. Climate Ethics in Alternative Analysis

The jurisprudence on climate change is evolving as is the consideration of analyses and the method and form in which NEPA attempts to address climate change impacts. In 2010, CEQ issued the Draft Guidance stating that GHG impacts are relevant to NEPA analysis and that agencies should consider GHG impacts when complying with NEPA procedures, soliciting comments as to how GHG impacts should be considered in federal actions involving federal land and resource management decisions. It relied on the minimum threshold of emissions that must be reported under the Clean Air Act, since CEQ suggests that a qualitative and quantitative assessment may be relevant to decision makers and the public. CEQ further states that GHGs are a global problem resulting from many sources, each causing "relatively small additions" and EISs and EIAs prepared by federal agencies should "reflect this in global context and be realistic, focusing on ensuring that useful information is provided." Ultimately, it is CEQ's demand that agencies set spatial and temporal limits to their GHG consideration and "focus on aspects of climate change that may lead to changes in the impacts, sustainability, vulnerability and design of the proposed action."

CEQ, further guides the agencies to quantify direct and cumulative emissions over the life of the project, discuss measures to reduce GHG emissions, including consideration of reasonable alternatives; and discuss the qualitative impact of GHG emissions on climate change. CEQ further guides agencies to depend on scientific accuracy rather than wasting resources on highly

speculative effects of GHG emissions. CEQ calls upon agencies to examine energy use for the purpose of energy efficiency and energy conservation and explore mitigation opportunities of each of the alternatives presented by the project proponent.

Critics of the draft guidance issued by CEQ state that it does not list instances in which climate change could be considered and that it is up to individual agencies. It sets no threshold amount at which cumulative emissions trigger consideration in an EIS or EIA; instead, CEQ allows each individual agency to make its own determination of when cumulative GHG emissions must be addressed under NEPA. The Draft guidance does not give NEPA a meaningful role in combating climate change, but is rather ambiguous in stating that although climate change should be considered in EISs and EAs, it limits such analysis to the most direct sources of GHG emissions. For example, the emissions of cement based construction of mega dams and the impact of concrete on the environment. In relation to climate change, every project proposal should provide for reasonable alternatives that promote energy conservation and aid in quantitative reduction of emissions and carbon capture methods.

As the lodestar for litigation in environmental protection, the Ninth Circuit sets a high bar for climate change considerations under NEPA. In *Center for Biological Diversity v. National Highway Traffic Safety Administration,* the Court held that the impact of GHG emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct. The Court stated that "the fact that 'climate change is largely a global phenomenon that includes actions that are outside of the agency's control.....does not release the agency from the duty of assessing the effects of its actions on global warming." The Court chose to act proactively by conducting judicial review of EIS in a more stringent manner, setting a precedent that even where a project will reduce GHG emissions, its EIS may still be inadequate for failing to consider further reductions. As a far-sighted decision, the Ninth Circuit set a precedent when it affirmed that *0.2%* decrease in emissions is significant.

The requirement to incorporate climate change objectives within an EIA has not yet evolved both legally and ethically. Preparation of EIA attracts principles of natural justice in the sense that it involves 'procedural fairness' that calls for unbiased discharge of duties by federal authorities. For natural justice to prevail,

all relevant information to be used in the final decision-making should be placed before all stakeholders including third-party stakeholders who can state that they have a legitimate expectation on the outcome of the decision so made, and establish that it could affect them in a particular way. In the present context, all information relating to the alternatives, its discussion and the manner of its incorporation and preparation in the EIA statement is given prerogative. Decision makers tend to improve the quality of their decisions when good alternatives are presented for consideration.

Primarily, a certain level of ignorance of climate relevant factors within individual EIAs impedes the preparation of an EIA report that can help us attain climate protection eventually. EIA, as a tool that can address climate change objectives can bridge the gap between scientific knowledge and informed decision-making at the project-initiation level. OECD claims EIA could be an efficient tool to "climate proof" projects by including climate change indicators that pass the scientific rigour, predicting and evaluating GHG emissions and project's contribution to global emissions.

According to the International Association for Impact Assessment (IAIA) and the Institute of Environmental Assessment (IEA) the following objectives meet the entry point criteria for adaptation to climate change:

> *a) To ensure that environmental considerations are explicitly addressed and incorporated into the development decision making process:*
>
> *b) To anticipate and avoid, minimize or offset the adverse significant biophysical, social and other relevant effects of development proposals;*
>
> *c) To protect the productivity and capacity of natural systems and the ecological processes which maintain their functions; and*
>
> *d) To promote development that is sustainable and optimizes resource use and management opportunities"*

The OECD suggested that project proponents can conduct climate change screening at the stage of deciding project need and justification with a Strategic Environmental Assessment and conduct scoping procedure that includes climate change risk and adaptation options risk assessment that determines climate variables and elements of the project. During scoping, climate change

mitigation and adaptation issues and opportunities should be considered alongside each other to maximise integration in project design. The Institute claims that current knowledge will not allow a quantified prediction of the effects of climate change on every environmental receptor to be assessed; as such, where qualitative assessments are used they should be robust, transparent and justifiable. Where the EIA identifies impacts likely to be generated as a consequence of predicted changes in the climate their significance should be evaluated based on a combination of :

a) Scenarios: an impact's likelihood under a range of climate scenarios;
b) Vulnerability: a receptor's vulnerability to existing climatic variations; and
c) Resilience: a receptor's ability to absorb such disturbance and continue to function.

Where the EIA identifies that the likely consequences of climate change pose significant risk to a project's ability to effectively function in the future, the assessment should aim to ensure the costs of not adapting are properly considered in the design process.

On the issue of EIA mitigation, the Institute states that it must be designed to increase the resilience of the project, or wider environmental receptors, to climate change should focus on increasing its capacity to absorb climate related shocks. EIA Mitigation, compensation, enhancement and monitoring related to a project's predicted in-combination impacts with climate change should be set out in a draft Environmental Management Plan (EMP). The draft EMP should form part of the EIS and should also include information on measures needed to ensure the project's own resilience to climate changes is delivered.

On a bare reading of all literature available on the subject, it is evident that existing laws and regulations on EIA do not provide a threshold limit for GHG emissions that could trigger the need for assessment of a project on climatic factors. Disaster risk implications, flooding, extent of displacement of communities that results in large-scale poverty due to erosion of livelihoods need to be part of the environmental report prepared for mega dams and must be custom-made to meet the specifics of the project. Ultimately, a complete assessment of a project's cumulative effect on the society and environment should be carried out for the sake of environmental justice.

The 'No-alternative Scenario' in the Alternative Analysis of NEPA

Kalpana Murari

September, 2019

The World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) in its various reports has reiterated the need to comply with ethical principles for climate change adaptation which, *inter alia,* includes the principles of avoiding harm in the context of climate change; the principles of fairness in complying with statutory obligations to meet demands and claims of the underprivileged or disadvantaged communities and the principle of environmental sustainability that calls for biodiversity protection and maintaining the ecological integrity of ecosystems through adaptation programs. Under NEPA, these principles are expounded in the provision that calls for alternatives.

In this context, NEPA, does not actually impose a substantive duty on agencies to mitigate adverse environmental effects or to include in an EIS a fully developed mitigation plan that can eventually address climate change, although the language of CEQ regulations is to be construed thus. In *Robertson v.Methow Valley Citizens Council, 490 U.S.332, 109, S.Ct.1835,* the court held "The fundamental distinction, however, between a requirement that mitigation be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated, on the one hand, and a substantive requirement that a complete mitigation plan be actually formulated and adopted, on the other."

An effective climate policy will require a combination of mitigation and adaptation policies as part of alternatives assessment in the EIA study. Benefits of adaptation far outweigh the economic costs of including them in our impact study and implementing them at the ground level. Adaptation, a process or set of initiatives and measures to reduce the vulnerability of humans to climate change impacts and consolidate adaptive capacity of vulnerable communities. Effectively, adaptation programs included within domestic legislation prevent transboundary damage, exchange environmentally sound technologies.

It is the process of adjustment in natural and human systems against actual or expected climate stimuli or their effects, which moderates harm or exploits beneficial opportunities (IPCC 2001). The Institute of Environmental Management & Assessment (IEMA) lists out principles on considering adaptation in EIA, with principles on climate change mitigation and EIA. Any project requiring EIA is vulnerable to a changing climate, as are the communities and environment it poses a risk to; EIA should therefore consider the potential resilience, both to the anticipated negative impacts and positive opportunities of climate change. A guidance manual at Adaptation Protocol and

guidelines.

EIA prepared with additional inputs and outcomes using more information relating to climate change and biodiversity, helps remove conflicts between humans and consequences of economic progress while enhancing interaction between mitigation and adaptation programs.

9. Alternatives to Hydropower

Hydropower, considered to be a renewable form of energy provides about 16.3% of the world's electricity, is not renewable in its true form since it tends to destroy habitats for fish, resulting in the extinction of certain species, while disrupting downstream activities.

Dams are constructed using concrete that are large carbon emitters as per recent research claims. Dam-building is an energy and emissions-intensive process that can result in adverse environmental impacts on riverine ecosystems and the population that depend on rivers for livelihoods. The activity involves land clearing including deforestation, flooding and submergence, displacement of large rural populations. Mega dams result in increasing GHG emissions from reservoirs and decaying biomass from flooded land, adverse changes to hydrological structure of a region, degraded quality of water, negative implications that arise from downstream activities including power generation, which collectively presents negative climatic effects. Research claims that reservoir emissions in the form of methane in tropical climates could be very high. These factors cannot be mitigated if the provision for alternatives assessment and analysis is not implemented in its truest form when mega dams are to be built. Global hydropower capacity is predicted to expand up to 77 percent by 2040 by way of numerous dams that are likely to lead to habitats and biodiversity destruction.

As an example, Africa, a continent with an abundance of natural resources, is becoming the most important destination for investments from countries like China and European nations. Energy demand in the continent is anticipated to triple by the year 2030. Researchers recommend that African nations circumvent grid-based energy infrastructure and move towards solar and wind energy to protect their reserves of natural resources in order to contribute to the fight against climate change and promote sustainable development across the

continent.

Most often details relating to the size of the area that may be submerged due to flooding, accurate list of flora and fauna species that are threatened, the increasing possibility of extinction of some species in the region, methane emissions by biomass decay are either not mentioned or misleading the public to promote the project for commercial gains or meeting energy demands in unsustainable manner. Rigorous assessment of social and environmental impacts consumes a lot of resources and is most often compromised for the commercial and economic interests of a nation. There is substantial literature and academic inputs on the unsustainability of large mega-dams across the Amazon, the Congo, and the Mekong. It is important to invest in research and development of innovative technologies that can substitute hydropower generation, for e.g., the "instream turbine technology" that can produce steady base power. New small turbine technologies have been developed to harness base power and are low on maintenance, ecologically safe. Smart Hydropower has commercialized instream turbines worldwide with an aim to reduce negative impacts of large hydropower dams. These options are viable alternatives for hydropower projects in developing nations that promote a 'no-action' alternative.

A significant and important research paper on the veracity of claims on hydropower's ability to empower nations and its contribution to sustainability was examined at length on a comparative basis using 30 years of data and a research design that called for inputs from OPEC nations, major hydropower countries, and the rest of the nations. The conclusions are hereby summarised for the purpose of brevity:

> *"The possible benefits of hydroelectricity - improved energy access, economic development, positive spillover effects, reduced carbon emissions - are real, but all too frequently, they are constrained. Although dams ostensibly are championed for their economies of scale and ability to bring about industrialization, our comparative assessment of different reference classes of countries suggest the major investments in hydropower do not result in gains greater than those made by OPEC and non-hydro countries. This finding potentially undermines the belief that supplying electricity via hydroelectric dams ought to be viewed primarily as a means to achieving economic development….. the real consequences of dams*

> *in an absolute sense, detailing the incidence of their cost overruns or the severity and impacts of the increased poverty they impose on a population…. in some cases the benefits of hydroelectric dams outweigh their costs, though these benefits may occur in urban areas far removed from the dam itself….World Bank's support for large-scale hydropower as an aid in international development may be founded on mistaken assumptions regarding the long-range costs of given projects. Our data suggest that energy and sustainable development programs must better recognize the complexity of possible tradeoffs when investing in hydropower and better recognize, perhaps compensate, potential losers. Final conclusion ...hydropower will likely remain a contested energy option for years to come, given the pronounced tradeoffs intrinsic to its adoption..While our results suggest that hydropower dams help in decarbonizing national economies,at least insofar as per capita carbon dioxide emissions fall, such a low carbon pathway comes at a cost in terms of economic and sociopolitical dilemmas. .....which nations build dams, who benefits from them, and who suffers their costs - who wins and loses - must remain a central part of examining the promise - and peril - of hydropower..(Sovacool, Walter 2019).*

10. Conclusions

The European Parliament has set an example by initiating steps to harmonize EIA standards by amending its Directive 2011/92/EU through Directive 2014/52/EU that, *inter alia,*

> *"harmonized the principles for the environmental impact assessment of projects by introducing minimum requirements, with regard to the type of projects subject to assessment,.....*

The EU developed a Green Infrastructure Strategy and was adopted in the year 2013. Green Infrastructure (GI) is a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services such as water purification, air quality, space for recreation, climate mitigation and adaptation through natural solutions or green solutions. GI aims at promoting investments in green infrastructure.

The 'No-alternative Scenario' in the Alternative Analysis of NEPA

Kalpana Murari

September, 2019

Alternatives assessment, essentially, converts environmental policies into solutions-based policies that are holistic and integrated, designed to prevent environmental risks at the very source. Compliance of the provision avoids risk shifting, establishing far-reaching long-term environmental goals by adopting safer and cleaner forms of production systems and product range. New alternatives, invariably reject problematic activities forcing authorities to look for greener and environment-friendly options to meet the demands of economic development.

Scholars have called for substantial changes in domestic legislation and policy to institutionalize alternatives assessment, removing obstacles to its implementation. Policies and procedures should be devised in a way to ensure that the process of assessing alternatives results in its absolute implementation. Alternatives assessment should not only include already existing alternatives, it should open up avenues for generating better alternatives that are scientifically advanced, encapsulating concepts of energy efficiency, resource efficiency while accounting for natural capital.

A paradigm shift in the discourse on alternative analysis is essential at a time when there is inadequate compliance of the provision domestically and internationally. Alternatives are a form of avoidance or a state of "no action" where an impact can be totally avoided preserving a resource in its natural state of existence. A bare perusal of some of the environmental impact statements prepared for major infrastructure projects in India, specifically in the construction of mega dams across international rivers, reveals that this aspect has been completely ignored amounting to negligence on the part of the state, which holds reserves of natural resources as a trustee and is expected to protect it on behalf of its citizens.

References:

1. *Aagaard, T. S. (2012). A Functional Approach to Risks and Uncertainties Under NEPA. Mich. J. Envtl. & Admin. L., 1, 87.*
2. *Amended EU Directive on EIA (Last Accessed on 24.06.2019)*
3. *An Article on Mongabay website discussing World's dams.*
4. *Barral, V. Sustainable Development in International Law: Nature and*

Operation of an Evolutive Legal Norm'(2012). European Journal of International Law, 23, 377

5. *Blumm, M. C., & Mosman, K. (2012). The Overlooked Role of the National Environmental Policy Act in Protecting the Western Environment: NEPA in the Ninth Circuit. Wash. J. Envtl. L. & Pol'y, 2, 193.*
6. *Bonnitcha, J., & McCorquodale, R. (2017). The Concept of 'Due Diligence' in the UN Guiding Principles on Business and Human Rights. European Journal of International Law, 28(3), 899-919*
7. *Craik, N. (2008). The international law of environmental impact assessment: process, substance and integration (Vol. 58). Cambridge University Press.*
8. *Czarnezki, J. J. (2003). Defining the Project Purposes under NEPA: Promoting Consideration of Viable EIS Alternatives. U. Chi. L. Rev., 70, 599.*
9. *Draft EIA for Tidong Project, Himachal Pradesh (Last Accessed on 25.06.2019)*
10. *EU Law: Better results through better application (Last Accessed on 24.06.2019)*
11. *EU Strategy on Green Infrastructure .*
12. *Environmental Common Approaches for Export Credit Lending by OECD.*
13. *Equator Principles for funding large-scale projects.*
14. *Final Report on International Study on Effectiveness of Environmental Impact Assessment*
15. *González, A., Thérivel, R., Fry, J., & Foley, W. (2015). Developing and Assessing Alternatives in Strategic Environmental Assessment.*
16. *Impact of Ocean Noise Pollution on Marine Biodiversity*
17. *Vanclay, F. (2003). International principles for social impact assessment. Impact assessment and project appraisal, 21(1), 5-12.*
18. *Jordan III, R. E. (1973). Alternatives Under NEPA: Toward an Accommodation. Ecology LQ, 3, 705.*
19. *Johnston, C. N., Funk, W. F., & Flatt, V. B. (2007). Legal protection of the environment. West Group.*
20. *Longueville, A., Whitten, P., & Carlman, I. (2015). Can We Get "Alternatives Analysis Redux" Please?. In Impact Assessment in the Digital Era, 35th Annual Conference of the International Association for Impact Assessment.*
21. *McCold, L. N., & Saulsbury, J. W. (1998). Defining the no-action*

alternative for national environmental policy act analyses of continuing actions. Environmental Impact Assessment Review, 18(1), 15-37.

22. *Moran, E. F., Lopez, M. C., Moore, N., Müller, N., & Hyndman, D. W. (2018). Sustainable hydropower in the 21st century. Proceedings of the National Academy of Sciences, 115(47), 11891-11898. (https://doi.org/10.1073/pnas.1809426115)*
23. *Morgan, R. K. (2012). Environmental impact assessment: the state of the art. Impact Assessment and Project Appraisal, 30(1), 5-14.*
24. *Morrison-Saunders, A., & Early, G. (2008). What is necessary to ensure natural justice in environmental impact assessment decision-making?. Impact Assessment and Project Appraisal, 26(1), 29-42.*
25. *Nakthan Hydroelectric project, Kullu District, Himachal Pradesh (Last accessed on 25.06.2019)*
26. *Paliwal, R. (2006). EIA practice in India and its evaluation using SWOT analysis. Environmental impact assessment review, 26(5), 492-510.*
27. *Rajvanshi, A. (1996). Assessed impacts of the proposed Bodhghat Hydroelectric project. UNEP EIA training manual, United Nations Environmental Programme, Geneva.*
28. *Sovacool, B. K., & Walter, G. (2019). Internationalizing the political economy of hydroelectricity: security, development and sustainability in hydropower states. Review of International Political Economy, 26(1), 49-79.(Last Accessed on 27.06.2019)*
29. *Shukla, P., Dhar, S., Pathak, M., Mahadevia, D., & Garg, A. (2015). Pathways to deep decarbonization in India.*
30. *Smart Hydro Power Solutions for Better Alternatives (Last accessed on 25.06.2019)*
31. *Steinemann, A. (2001). Improving alternatives for environmental impact assessment. Environmental Impact Assessment Review, 21(1), 3-21.*
32. *The Ninth Circuit Court Addresses NEPA's Goldilocks Problem: How many Alternatives are just enough? (Last Accessed on 25.06.2019)*
33. *Warner, J., Jomantas, S., Jones, E., Ansari, M., & De Vries, L. (2019). The Fantasy of the Grand Inga Hydroelectric Project on the River Congo. Water, 11(3), 407.*
34. *Wase, A. M. (2012). Climate Change Impacts and NEPA: Overcoming the Remote and Speculative Defense. Md. L. Rev., 72, 967.*
35. *World Bank's Operational Directive O.D.4.01on EIA (Last Accessed on 24.06.2019)*
36. *Winbourne, S. (2002). Corruption and the Environment. Management systems international and USAID, Washington.*

37. Guardian newspaper's Concrete Week (Last accessed on 16.10.2019)
38. Social Impact Assessment of Projects by IAIA (Last Accessed on 16.10.2019.