

A dark, atmospheric forest scene with a path leading towards a bright light at the end of the tunnel. The trees are tall and thin, with bare branches, and the ground is covered in dry leaves and grass. The overall mood is mysterious and ethereal.

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## SOIL EROSION CONTROL: LEGAL OUTLOOK

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### **Abstract**

*Environmental degradation has various forms, due to the emergence of technology and artificial creation, exploitation of natural resources has been increasing in a while from past decades. Coping with such degradation isn't easy; at times, it has a disastrous outrage on the entire biodiversity. One such phenomenon of degradation due to development and progress is soil erosion which affects the fertility of the soil and degrades its natural efficiency. Legislative steps have an important role to play in the prevention of such soil erosion from any region. Indian law and policymakers effectively understand the need for the prevention of such environmental degradation for helping various individuals of different sectors whose livelihood and course of employment are highly dependent on the fertility of soil to a larger extent. The exploitation of natural resources is a disgrace to humanity and has disastrous effects. In real life, many legal disputes have stood for the protection of environmental resources. Specific central and state legislation is equipped for the prevention of soil erosion and other exploitation. In this study, the agenda is to have a thorough examination of such legal disputes that were upheld for the protection of soil erosion.*

Keywords: soil erosion, natural resources, erosion control, legislative steps, legal disputes.

### **I. INTRODUCTION**

Soil is one of the important factors for which appropriate management is most important to

ensure the continued existence of life on the planet. In addition to physical support and other life-sustaining systems, soil provides food, fuel, fodder, and shelter. However, there has been a continuous depletion of soil resources due to various desertification processes such as soil erosion, large-scale deforestation, reckless mining activities, overgrazing, general mismanagement, improper utilization, and so on. Such processes degrade and deteriorate the soil, limiting farm production and productivity. The formation of one inch of topsoil by nature takes 600-1000 years, but due to incorrect use and a lack of conservation, the same quantity of soil is rapidly eroded in just a few rainstorm events. As a result, with a negative impact on 31% of the state's total geographic area, water erosion has emerged as the single most detrimental element in the deterioration of productive land<sup>260</sup>. As a result, erosion depletes organic matter and plant nutrients, clogs reservoirs, and riverbeds, reducing the ability to irrigate land and generate electricity, and causes floods in plains and valleys that harm crops, animals, habitation, communication, and other factors. It does, however, have a negative impact on agricultural output, forest cover, and water availability for both drinking and irrigation, as well as disrupting the ecological balance. Soil is a mixture of a variety of minerals, these minerals quickly get affected by degradation, and the soil loses its quality. Soil erosion has been interconnected with many other factors, the effect of air pollution and acidic rain has eroded effect on the entire dimension of soil erosion and its exploitation has become corrosive. Environmental scientists believe that soil erosion is completely dangerous to the computation future extent of such exploitation would result in prolonged famine. Famine could majorly affect a large number of disastrous situations that will cause acute malnutrition and death from starvation and diseases. In India the essence of such signficatory features in relation

<sup>260</sup> "Soil and Water Conservation : Soil and Water Conservation Department ..." [https://www.megsoil.gov.in/why\\_cons.html](https://www.megsoil.gov.in/why_cons.html).

to the enhancement of such laws concerning soil erosion control at a very great altitude. The preliminary question concerning soil erosion control is whether effective legal legislations are present for safeguarding soil resources. the scope of soil erosion is so massive, in India because of a huge amount of construction, dependence on manufacturing, increasing industrialization, mining of minerals, and increasing deadly overuse of groundwater. In India, a variety of soils are found Alluvial soil, Black soil, red soil, Lateritic soils, arid and desert soils, Mountain soils, Alkaline and saline soils, and Peaty soils.

## **II. SOIL CONVERSATION AND LEGAL AUTHORITIES**

Soil conversation is an agenda to reverse the status of the downtrodden condition of soil through soil erosion and preserve the soil by sustainable steps. Ministry of Agriculture and Farmers Welfare Department of Agriculture and Farmers Welfare provides soil health cards to farmers this Soil Health Card is used to assess the current state of soil health and when used over time, to determine changes in soil health that are influenced by land management. A Soil Health Card displays soil health indicators as well as descriptive terms. The indicators are typically based on farmers' practical experience and knowledge of local natural resources. The card lists soil health indicators that can be assessed without the use of technical or laboratory equipment. The government of India provides each state with a calibre website to effectively present data concerning soil health and management. The governance of soil conversation is widely spread, among common citizens, and the government has made innumerable portals to check details concerning the schemes for such conversation. One such initiative Bhumi Geoportal was launched with the goal of systematically developing, organizing, and deploying soil information by compiling geo-referenced soil and allied resources databases in the Geographic Information System (GIS). It provides a knowledge gateway for users to

visualize, access, and query soil data, as well as disseminate land resource information. The benefit of creating such a Geo-portal is that it eliminates redundancies and duplication of efforts while enforcing consistency, standards, and sharable protocols to build a cross-domain soil knowledge base for effective utilization of the country's limited natural resources. The NBSS Geo-user portal's interface allows for the visualization of various point, line, and polygon thematic layers on soil and land resources. More than 29% of India's total landmass, or 96.4 million hectares, has deteriorated. The renewed emphasis on sustainable agriculture has reawakened interest in soil health. Early scientists, farmers, and gardeners recognized the significance of soil quality and organic matter in soil productivity. Scientists recognized the importance of soil organic matter, including living organisms in the soil, as early as the 17th century. John Evelyn observed that by adding organic residues, their fertility could be maintained.<sup>261</sup> Charles Darwin, the great natural scientist of the nineteenth century who developed the modern theory of evolution, studied and wrote about the importance of earthworms to nutrient cycling and soil fertility.

Various schemes have been taken under consideration for the appraisal of soil conversation in India, these scheme enables various measures to come into action and governance some of them are the Watershed development project in shifting cultivation area (WDPSCA), NABARD Loan -soil and water scheme, Rashtriya Krishi yojana and soil health card scheme. Under the Integrated Watershed Management Programme (IWMP), the Department of Land Resources sanctioned 8214 watershed development projects in 28 States (except Goa) [from 2009-10 to 2014-15] (now 27 States and two Union Territories of Jammu and Kashmir and Ladakh) covering an area of approximately 39.07 million hectares, primarily for the development of rainfed portions of net

<sup>261</sup> "Soil health key to food security, biodiversity," 18 Feb. 2023, <https://www.thehansindia.com/hans/opinion/news-analysis/soil-health-key-to-food-security-biodiversity-783660>.

cultivated area and culturable wastelands). The IWMP was renamed the Watershed Development Component of the Pradhan Mantri Krishi Sinchayee Yojana in 2015-16. (WDC-PMKSY)<sup>262</sup>. These schemes provide a juncture that could help to retail the ongoing venture for the proper ethical use and production of the conditioned outcomes that leads to the overall development of the soil and its management.

Section 13(1)(a)(vi) of The River Boards Act, 1956 states that promotion of afforestation and control of soil erosion by advising the Governments interested in any matter concerning the regulation or development of any specified inter-State River or river valley within its area of operation. Every Indian state adopts its own law to cope with soil erosion on the basis of the nature of the type of soil erosion. Soil erosion is caused due to various activities may be deforestation, rainfall, climate change, floods, wildfires, and farming practices that cause soil erosion and destructive human construction.

In the madras high court in the case of The Government Of Tamil Nadu vs Tata Tea Limited W.A.No.1361 of 2001<sup>263</sup> was contented

"It is the state's responsibility to take all necessary efforts to protect the forest and avoid soil erosion. The government is required by Article 48-A of the Indian Constitution to protect the forest from deforestation. According to Article 51-A(g), everyone has a fundamental obligation to protect and improve the natural environment".

The State must put the National Forest Policies into practice, and while doing so, all the topics mentioned in the National Forest Policy will have to be treated under the heading "Forest." The National Forest Policy, which was established in 1988<sup>264</sup>, lists stopping soil erosion and

<sup>262</sup> "Steps to reduce Dependency on Monsoon - Press Information Bureau." 07 Feb. 2020, <https://pib.gov.in/PressReleasePage.aspx?PRID=1602380>.

<sup>263</sup> The Government Of Tamil Nadu vs Tata Tea Limited; MHC, W.A.No.1361 of 2001

<sup>264</sup> "National Forest Policy, 1988: An overview of how Indian forestry became ...." 07 Nov. 2020, <https://eco-intelligent.com/2020/11/07/national-forest-policy-1988/>.

denudation in catchment areas or reserves lakes, and reservoirs, preservation of soil, and water conservation as some of its major objectives. The environment is related to the preservation of forest soil. It was further argued that the State had the authority to enact the Act under the heading "Forest" in accordance with Entry 17-A of List III.

At the micro level, certain legislation provides soil protection through the local authorities such as panchayat. Village and rural India are highly dependent on agriculture and such right to proper management of their natural resources is given to them. According to Section 166(1) of the Kerala Panchayat Raj Act, it is the responsibility of the village panchayat to fulfill the needs of the panchayat area with regard to the items listed in the third schedule. The third program includes a variety of activities. Soil protection is one of the agricultural responsibilities that the Panchayat is tasked with performing under its sector-specific mandate. It is argued that the Panchayat alone has the authority to handle the soil deposit in its region because it relies on this function<sup>265</sup>.

### III. THE IMPORTANCE OF SOIL CONVERSATION

Sustainable development requires a thorough understanding of soil conversation since it offers a plethora of resources and opportunities for the benefit of humanity. Millions of different species and microorganisms can be found in just a little amount of soil, all of which contribute to maintaining the environment and sustaining future generations. Understanding the dialogue between soils and plants can help us make better use of these priceless resources and build a more sustainable environment for everyone.

In M.C. Mehta v. Kamal Nath (2000) 6 SCC 213, it was decided that any alteration to the soil, water, or other elements of the basic environment that are essential for life would be

<sup>265</sup> Shynymol vs State Of Kerala WP(C).No. 15022 of 2012

a danger to life as defined by Article 21 of the Constitution<sup>266</sup>.

the State must put the National Forest Policy into practice, and while doing so, all the topics mentioned in the National Forest Policy will have to be treated under the heading Forest. The main objectives of the National Forests Policy, 1988, deal with stopping soil erosion and denudation in the catchment areas or reserves lakes, and reservoirs, and prevention of soil and water conservation as one of its major objectives. The environment is related to the preservation of forest soil<sup>267</sup>.

The impacts of environmental protection and subsistence on soil preservation, ecological balance, and other related matters are directly impacted by current laws. This is why it is essential for agencies charged with enforcing these regulations to strictly interpret them in order to protect the nation's resources. Such an interpretation necessitates a stringent approach when carrying out law enforcement activities in order to preserve forest habitats and natural areas.<sup>268</sup>

The Indian Constitution states that it is the fundamental responsibility of every citizen to protect the country's Natural resources. This includes taking any necessary steps in order to confiscate illegally purchased or cut trees since failing to do so could result in a loss of forests and their valuable natural resources. The confiscatory clauses within India's Forest Conservation Act must be strictly interpreted in order for this purpose to be achieved, as failure would have serious consequences for forestry and nature conservation soil is one of the major resources that are entirely dependent on forest lands.<sup>269</sup>

Soil conservation includes afforestation, organic farming, bio composting, and other sustainable environmental development which protects the natural environment of our country.

#### IV. LEGAL DIMENSION OF FACTORS OF SOIL EROSION

Proper soil erosion control is important for two reasons: first, in order to protect India's environment; and second, as it has been noted throughout several legal disputes surrounding this issue, proper soil erosion control can be instrumental in preventing environmental degradation. To discuss these points specifically, we will look at a few factors that are related to soil degradation in India and its impact on environmental issues.

Rainfall increases the likelihood of soil erosion substantially. Because the eroded soil is so close to the river, the odds of it entering the river are extremely high, and this activity is responsible for raising the level of the river bed, which has various other important geological effects<sup>270</sup>.

Constructions without sufficient environmental assessment cause landslides, diminish lake capacity and increase soil erosion. The town of Nainital can neither longer support the construction. The lake's water level has dropped as a result of building, and groundwater recharging has been hampered, affecting the soil health of the region<sup>271</sup>. When there are tidal regimes or storm surges, mangroves help to stabilize the soil on mudflats and prevent erosion. These are salt-tolerant plants or shrubs that root in the water and grow there. Ecosystem services provided by mangroves include crucial flood protection in coastal locations as well as an economic gain for the area. Concrete building along the coast alters its geological properties and permanently harms the mangrove ecology.<sup>272</sup>

Cattle trample the soil as a result of overgrazing, harming the roots of the plants. It is clearly mentioned in In the report submitted by Prof.Dr.Priya Davidar that, Heavy cattle significantly increase soil erosion, and if they are

<sup>266</sup> M.C. Mehta v. Kamal Nath (2000) 6 SCC 213,

<sup>267</sup> T.N Godavarman Thirumulkpad v. Union of India, 1997 (3) SCC 312 (II)

<sup>268</sup> *In Baby v. The Forest Range Officer (1986 (2) ILR Kerala 57)*

<sup>269</sup> *Divisional Forest Officer v. Balakrishnan (1986 KLT S.N 61 page 38)*

<sup>270</sup> Rajiv Savara V. Darrameks Hotels & Developers Pvt. Ltd. and Ors., 2016 NGTR (1) PB 621

<sup>271</sup> Dr. Ajaya Singh Rawat v. Union of India, (1995) 3 SCC 266.

<sup>272</sup> Kapico Kerala Resorts Pvt. Ltd. vs. State of Kerala & Ors

supported in strength, the negative effects are multiplied. This causes the concentration of roots at the surface level, which prevents the roots from storing resources, leaving bare lands where further vegetative growth is hampered<sup>273</sup>.

A framework for mining operations that is efficient, addresses all environmental concerns, develops a long-term rational and sustainable use of the natural resource base, and includes a bio-assessment process. Sand mining, it should be emphasized, may have a negative impact on biodiversity since it will create a loss of habitat that will affect different species, flora, and fauna. It may also destabilize the soil structure of river banks and frequently results in isolated islands

Deforestation would result in soil erosion, which would gridlock rivers and streams. The long-term interests of the agricultural community would be harmed by this. It is certainly true that irresponsible deforestation may have very negative effects<sup>274</sup>.

It is important to understand that before any steps are taken toward construction or deforestation, a proper environmental impact assessment must be conducted. The environment has the ability to outpace the productivity of soil, but by taking measures in regard to protecting soil it will be possible for development projects to proceed without negatively impacting the environment.

#### V. CONCLUSION

the general study, explains that biostatistics that regulates the fertility of the land and examines the prevention of soil erosion must work effectively. The rules and regulations without proper execution couldn't ever be proved effective. The central and state properly regulate the laws in relation to soil conversation. The over-exploitation of the land through construction, chemicals, fertilizers, deforestation, and other forms of direct harm

could lead to famine drought, floods, and other unseen natural disasters. The laws, policies, and enactment regulate environmental protection on a larger scale it is necessary to entitle the environmental concerning issues that well efficiently affect the entire status of environmental protection. It is necessary to understand the major dynamics in relation to the overall growth of the proper utilization of the soil. The concept of environmental law enforcement is essential for the upliftment of various cooperative steps involved during soil erosion control. The manifest situation of the agricultural industry has been much more prone to this massive outbreak of increasing soil erosion in India. the engagement of the government must be more on protecting the natural resources and it shall safeguard India from the disastrous effect of nature. It is necessary for proper vegetation that sufficient cultivable soil or land is available. There are various mechanisms to enrich land fertility and it is believed that an effective evolutionary mechanism can be undertaken for proper enrichment of such work associative with environmental protection and upgradation. The following essence could be concluded with the appropriate redressal of self-evolutionary principles of natural laws, that dictates, the protection of natural resources and sustainable development is the essence for protection of future outlook. The legal arena discussed various real-life disputes that common individual faces on a daily basis. The substantial evidence concerning the entire cases and policies in relation to the protection of natural resources. the correlated preventive laws that direct the aspects of control of soil erosion from India have been deliberated. Overall, it is necessary for an hour to stop the over-exploitation of natural resources and proper environmental assessment must be taken before any outsourcing.

<sup>273</sup> G.Thirumurugan @ Theeran ... vs Union Of India W.P.(MD)No.8466 of 2020

<sup>274</sup> Kerala v. Gwalior Rayon Silk Mfg. (Wvg.) Co. Ltd. (1973) 2 SCC 713 , (1974) 1 SCR 671