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# Integrated Approaches to Environmental Management: A Comprehensive Review of Strategies

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## ABSTRACT

*Environmental management and its relationship to human growth are both going through major changes right now. Although the idea of “sustainable development” is being discussed more and more in society, but there is still a great deal of confusion about what it is and how to attain it. Diverse beliefs about how people and nature interact are embedded in these altering tactics. There is a need to take this into consideration that environmental management initiatives at all levels, ranging from private initiatives to government-led programs on a national and worldwide basis are taking place to tackle down such challenges. It is evident that addressing environmental challenges requires a multi-faceted approach, where individuals play a pivotal role through their everyday choices and behaviors, while at the national level too governments are beginning to understand the need of eco-friendly legislation, green technologies, and sustainable practices. The paper explores various dimensions of how the progression of environmental management taking into place through integrated approach. This paper revolves around the comprehensive study of review of strategies for environmental management from ground level to global level.*

**Keywords:** *Environmental management, eco-friendly, strategies, progress, challenges.*

## I. INTRODUCTION

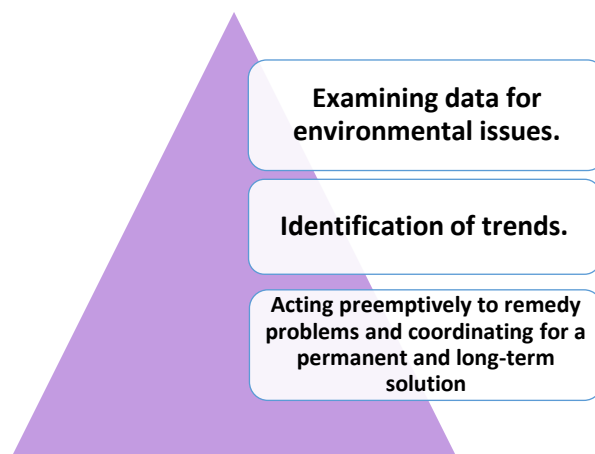
An environmental management system is a set of procedures and protocols that aim to establish, monitor, and report on environmental policies, with the objective of conservation of the health of the planet for future generations and protection of all the living species. This system is commonly employed by businesses as a strategy for creating, implementing, and evaluating on organization’s environmental policies, and its use has become increasingly popular as consumers have shown a growing interest in eco-friendly products and services. (Gupta 1995).

A technological revolution, vast industrialization, the growth of transportation networks, unforeseen urban development, and the unchecked exploitation of natural resources have all

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degrade the ecological balance of our world. As a result, the relationship between people and their environment has gotten worse, endangering the stability of ecosystems. (Cooley 1991) However, if people actively support initiatives like conservation, regeneration, and the preservation of the natural environment, this relationship can be brought back to a state of harmony.



**Figure 1: Environment Management**

Environmental management includes the control of terrestrial, marine, and atmospheric conditions and addresses urgent problems including deforestation and the increase in global temperatures. It evaluates the carbon footprints and look for strategies to lessen the permanent harm caused by human activity. Environmental management is conceived as a systematic approach to minimize waste and ensure adherence to environmental regulations. Its purpose is to tackle environmental concerns, both direct and indirect, that are negatively impacting the planet. It focuses on identifying effective solutions to environmental crisis and preventing ecological catastrophes. Additionally, environmental management explores potential sources of renewable energy to avoid the depletion of fossil fuels. The main objective of this paper is to analyze the steps taken for environmental management not only by authorities but also by the individuals& business entities at global level to create an eco-friendly environment.

## **II. NATURE OF ENVIRONMENTAL MANAGEMENT**

Environmental management is a strategy for sustainable resource care that seamlessly combine ecology, policy creation, strategic planning, and social advancement. It plays a pivotal and indispensable role in a nation's development emphasizing the paramount importance of taking a proactive assessment approach before implementing any actions (Weingarten 2012).

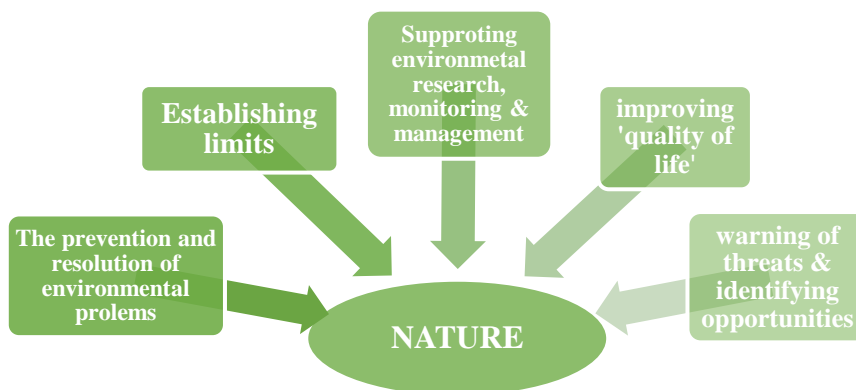
The views of individuals are changing along with the times. Businesses used to be primarily concerned with the sales and profits. However, there has been a rise in concern in recent years

over the ecological effects of commercial activities as well as the depletion and threat to natural resources.

People are now more likely to support businesses or groups that follow environmental stewardship principles as environmental awareness among the general public has increased. The majority of businesses are implementing effective environmental management programs focused at resource and environmental protection in order to match this altering mindset.

To protect our environment, environmental management is essential. Customers, staff, clients, stakeholders and investors increasingly demand that companies run their operations in a way that minimizes any negative environmental consequences. (Dorney, 1989)

Therefore, the nature of environmental management can be understood by the following flowchart:



*Figure 2: Nature of Environmental Management*

### III. STEPS TAKEN FOR ENVIRONMENTAL MANAGEMENT

To ensure that environmental management keeps pace with the escalating environmental challenges, proactive measures must be implemented. These actions can be classified into four key categories:

- 1) **At Individual level:** Individuals taking the initiatives to make environmentally conscious choices in their daily lives following their customs and practices.
- 2) **Within Business Entities:** Corporations adopting eco-friendly practices and prioritizing sustainability in their operations.
- 3) **Through Legal Institutions:** Legal bodies establishing and enforcing regulations that promote environmental protection.
- 4) **Through International Bodies:** Governments, both at the national and international levels, bear a crucial responsibility in shaping environmental policies and agreements.

In the upcoming paper, we will look into into these steps and assess their impacts and contributions on the environment.

**(A) At Individual Level:**

Undoubtedly, India is the nation of immense diversity, boasting a vast population that cherishes a rich tapestry of traditions and customs, often expressed through vibrant festivals. These celebrations are not merely occasions for merriment but also they play a crucial role in environmental stewardship across various regions of the country. Here are a few notable examples:

a. Sarhul (Jharkhand):



Figure 3: People celebrating Sarhul festival  
Source: [cm.jharkhand.gov](http://cm.jharkhand.gov)

Sarhul is a significant festival celebrated mainly across the tribal state of Jharkhand situated in Central India. During Sarhul, which is translated as “tree worship” in the local tribal language, participants offer prayers to the trees, signaling the start of the local New Year. The Oraon, Munda, and ho tribes in the state are the ones that celebrate it the most. (Nigam, 2022).

b. Maiti (Uttarakhand):



Figure 4: Couple performing Maiti Ritual  
Source: [cm.uttarakhand.gov](http://cm.uttarakhand.gov)

"Maiti" is an emotional environmental movement. It has taken the form of a campaign in the Chamoli district of the region. "Maiti" refers to the planting of fruit-bearing plants by the bride and groom during their wedding. The word "Maiti" means maternal home, where a girl lives

with her parents from birth until marriage. When she gets married, she takes with her the sweet memories of the planted tree as a part of her maternal home along with the bittersweet memories of farewell. Along with the emotional movement, this campaign for environmental conservation can play a crucial role in addressing several serious environmental issues worldwide.(Rawat, 2020)

c. Kua Pujan:



Figure 5: Ladies performing Kua Pujan  
(Source: uponline.com)

Worshipping water sources such as wells or other locations where there is presence of water sources is known as Kua Pujan. The puja is carried out during wedding rituals or when a child is born. (News, 2019)

These old-aged customs and festivals offer persuasive proof of the strong bond that exists between humans and their natural resources- a bond so strong that they worship them as sacred deities. Similar to this reverence, there are several traditions and occasions celebrated all around the country playing a pivotal role in fostering environmental consciousness.

**Not only in India but also at a global level, there are numerous communities that are taking initiative at the individual level by performing various rituals and festivities to promote environmental protection. Here are few notable examples of such tribe & communities:**

d. Maori Tribe (New Zealand):

In a groundbreaking development this year, a local *Maori tribe in New Zealand's North Island* achieved a 140-year-old victory in gaining recognition of their rivers as an ancestor *the Whanganui River*, which is the country's third-largest, has now been granted a new legal status. This means that if the river is harmed in any way, such as through water degradation, the new law will treat the harm to the river as equivalent to harm inflicted on a real person (United Nations Environment Programs, n.d.).



**Figure 6: Maori Tribe of New Zealand's North Island Source: lifegate.com**

In Maoridom, the belief system that shapes *Maori culture*, humans are regarded as equals and interconnected with the land, sea, and rivers. This concept is encapsulated in the Maori term '*Kaitiakitanga*', which signifies the responsibility of guarding and preserving the environment to show respect for ancestors and to ensure its protection for future generations.

e. Waorani Tribal Group (Amazonian Region Of Ecuador):

*Nemonte Nenquimo*, a member of the *Waorani tribal community*, grew up in the lush rainforests of Ecuador, instilling in her a deep reverence for the rich flora and fauna of her land. The Waorani territory, spreading over 2.5 million acres, is home to a remarkable 800 species of animals and birds, many of which are on the brink of extinction. Furthermore, this forest serves as a natural apothecary, yielding plants with medicinal properties capable of treating a wide range of ailments, from wounds to snakebites. Among the Waorani's contributions is the discovery of curare, a plant extract traditionally used for crafting poison darts, which has been transformed into a widely used muscle relaxant in the field of anesthesia.

Beyond its status as one of the most bio-diverse regions on the planet, the Amazon rainforest plays a crucial role in generating more than 20% of the world's oxygen. Tropical forests also serve as vital tools in mitigating climate change by acting as massive carbon sinks, absorbing and storing excess CO<sub>2</sub> from the atmosphere. Currently, these forests house approximately 250 billion tons of carbon, although their capacity is dwindling as they are continuously depleted, as indicated by a March 2020 study (Reporter, 2020).

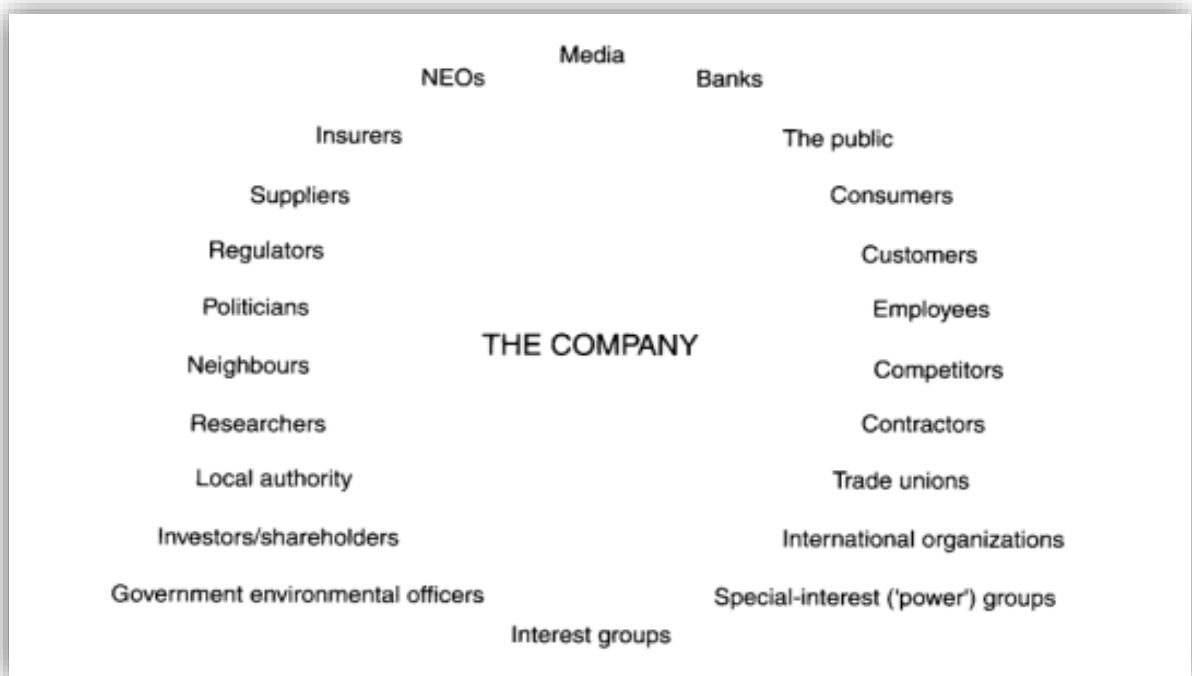
Exploring further, we'll look into the many tactics used by *different business entities* to promote environmental stewardship.

**(B) Within Business Entities:**

A business engages with a diverse array of entities. (Figure 6) Currently, the primary focus lies in pleasing investors and shareholders (Klassen and McLaughlin, 1996:119). The execution of environmental management, however, necessitates taking into account a wider range of

interested parties, including the general public, spectators, personnel, onlookers, consumers, and both local and global ecosystem. Environmental management needs to be aligning its goals with the company's day-to-day operations (Seldner and Cottrel, 1994). The responsibilities of a business environmental manager encompass:

- Spreading awareness among employees by educating them regarding environmental issues;
- bring up-to-date management on applicable environmental regulation, laws and issues;
- to make sure that the waste management is satisfactory;
- Is necessary, rectifying prior errors.



**Figure 7: Corporate environmental management: the parties involved**  
**Source: Partly based on Royston (1978a:7)**

Klassen & McLaughlin (1996) noted: ‘ the long-term goal of environmental management is to move forward... considering environmental aspects in an integrated fashion in product design, the entire manufacturing process, marketing, product delivery and use, consumer service, and post-consumer product disposition.’

Therefore, different strategies used to encourage environmental management in business. Here are a few of them:



a. Green Marketing:

By the early 1980s, certain businesses and governmental organizations has realized that maintaining a positive environmental image could enhance their media manipulation and potentially creating unique marketing advantage (Charter, 1992; Coddington, 1993; Peattie, 1995). Some manufactures have benefitted from this awareness by producing genuinely improved products. For example, they developed refrigerators that consume less electricity, are free from CFC leaks, and are more recyclable.

For instance, they may sell products like sun block creams and sunglasses to cater to individuals worried about increased UV radiation. Notably, AEG reportedly experienced a 30% boost in sales in a stagnant market by promoting its eco-friendly features through a marketing campaign.

In the United States during the 1980s, McDonald's conducted an environmental audit and subsequently transitioned from using plastic packaging filled with CFCs to more environmentally friendly cardboard. This change not only improved their public image but also proved to be a cost-effective decision (Elkington and Hailes, 1988).

b. Eco Labelling:

The practice of marking products as environmentally friendly, known as Eco-labelling, has been adopted in numerous countries, including Canada, the USA, Germany, and Sweden (Figure 7). Typically, an impartial agency assesses the product in comparison to similar items to determine if it has a lower environmental impact, without necessarily involving formal eco-auditing.

Germany, a pioneer in this area, introduced Eco-labeling as early as 1978 through its Blaue Engel system, overseen by a panel of experts under the Federal Environment Ministry (Hemmelskamp and Brockmann, 1997). This system grants the privilege of displaying a designated mark on product packaging or in advertisements. It serves as a means to influence consumer behavior, aiding them in recognizing the environmental implications of products and motivating manufactures to diminish the ecological footprint of their goods.

Eco-labeling focuses on evaluating the environmental impact and conveying this information to consumers or middlemen. Often, it concentrates on the product itself and doesn't necessarily address the production or distribution processes. Consequently, a product labeled as 'environmentally friendly' may originate from a factory that generates pollution or pose disposal challenges after use. Consequently, there's a requirement for standardization and monitoring of Eco-labeling practices.

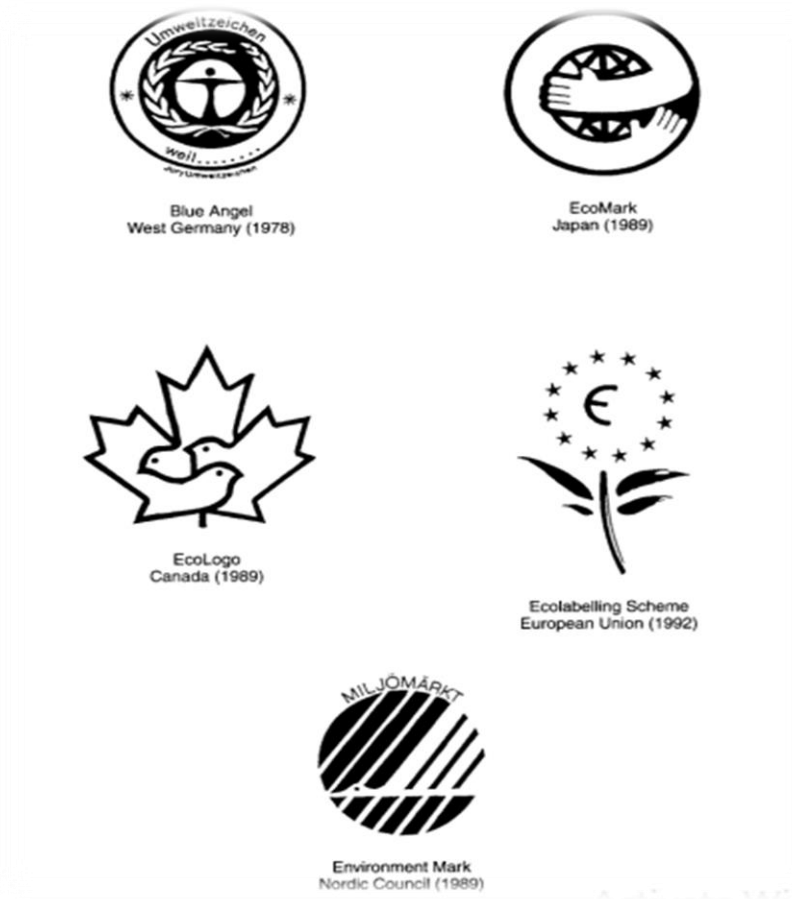


Figure 8: Eco Labels

c. Total Quality Environmental Management (TQEM) :

*Total Quality Environmental Management* denotes to business management practices that reduce or check environmental pollution achieved through ‘Total Quality Management’ techniques (Thompson, 1993).

The mitigation of environmental pollution cannot be achieved solely through the dedicated efforts of an individual; it requires a collective community approach to elevate environmental standards. Consequently, businesses can collectively achieve environmental enhancements by working together within their industry and collaborating with regulators, offering an alternative to strict regulatory control. An approach known as ‘Total Quality Environmental Management’ has been suggested as an Alliance Framework (Ode & Pratt, 1995).

It targets to offer assertion of obedience to benchmarks and policies by a well-thought-out management system with respect to suitable environmental strategies, the fulfillment of correct environmental objectives by making and regularly updating an Environmental Policy Statement (Willig, 1994).

Few examples of companies following Total Quality Environmental Management (TQEM)

around the globe are as follows (Gilbert, 1992):

- i. Ford Motor Company
- ii. Phillip Semi-Conductor
- iii. SGL Carbon
- iv. Motorola
- v. Toyota Motor Company

**(C) Through Legal Institutions:**

Environmental management and law are closely intertwined, serving as a means to ensure people's adherence to regulations, fostering sustainability, and effectively overseeing environmental concerns. Numerous countries have actively engaged in formulating environmental laws, with noteworthy examples including Sweden, The Netherlands, the USA, Canada, Australia, India and New Zealand. Furthermore, it's important to recognize that the origins of environmental legislation are deeply rooted in history. Centuries ago, Indian rulers initiated measures to control hunting and forest felling, while in the UK, local pollution control laws are established as far as back as the twelfth century AD. Moreover, the UK enacted nationally enforces pollution control legislation like the Alkali Act in 1863, more than a century ago.

Primarily, environmental management is upheld through two main principles embedded in environmental legislations as follows:

- 1.) Precautionary Principle: In 1998, a consensus statement defined the precautionary principle as follows:

“When an activity poses potential threats to human health or the environment, precautionary steps should be implemented, even if certain cause-and-effect relationships lack full scientific confirmation.”

The statement further outlined four fundamental elements of the principle, which encompass taking practical measures in situations of uncertainty, placing the onus of proof on those advocating for an activity, examining a broad spectrum of alternatives to potentially harmful actions, and enhancing public engagement in the decision-making process (Kriebel, 2001).

- 2.) Polluter Pays Principle: The Polluter-Pays Principle isn't about compensating for pollution-related harm, and it doesn't solely entail the polluter covering the expenses of pollution prevention. Rather, it signifies that the polluter should bear the costs of

pollution prevention and control measures as determined by public authorities. These measures can encompass prevention, restoration, or a combination of both. If a country decides that, in addition to controlling pollution costs, polluters should also compensate those harmed by residual pollution (when public authorities' actions don't entirely ban pollution); it doesn't contradict the Polluter-pays Principle. However, this additional measure isn't mandated by the principle itself. In essence, the Polluter-Pays Principle doesn't inherently require the full internalization of pollution costs (O, 2008).

**Several significant agreements and legislative acts enacted by parliaments and governing bodies in various countries are established to ensure the implementation of environmental management practices within their respective nations.**

Some of them are as follows:

SR. NO.	COUNTRY	• MAJOR STATUTUES
I.	Egypt	<ul style="list-style-type: none"> <li>• Egyptian Law 102 of 1983, for Nature Protectorates</li> <li>• Concerning the Protection of Nile River and Water Channels Law 48/1982</li> <li>• Concerning Discharge of Liquid Wastes Law 93/1962</li> </ul>
II.	Kenya	<ul style="list-style-type: none"> <li>• Environmental Management and Co-ordination (Controlled Substances) Regulations,2007</li> <li>• Kenya's Environment Management and Coordination Act, 1999</li> <li>• Environmental Management and Co-ordination (Wetlands, Riverbanks. Lake Shores and Sea Shore Management) Regulations 2009</li> </ul>
III.	China	<ul style="list-style-type: none"> <li>• Law of the People's Republic of China on Water and soil Conservation</li> <li>• Laws on Marine Environment Protection 1983</li> <li>• Marine Environmental Protection Law of the People's Republic of China 1983</li> </ul>

IV.	India	<ul style="list-style-type: none"> <li>• Environment (Protection) Act, 1986</li> <li>• National Green Tribunal Act, 2010</li> <li>• Wildlife Protection Act of 1972</li> <li>• Biological Diversity Act, 2002</li> </ul>
V.	Japan	<ul style="list-style-type: none"> <li>• Law concerning the Conservation and Sustainable Use of Biological Diversity through Regulation on the Use of Living Modified Organisms, 2004</li> <li>• Law Concerning Special Measures against Dioxins</li> <li>• NOx Law (Japan)</li> <li>• Vibration Regulation Law</li> </ul>
VI.	Kyrgyzstan	<ul style="list-style-type: none"> <li>• Law on Biosphere Areas in Kyrgyz Republic, 1999</li> </ul>
VII.	Singapore	<ul style="list-style-type: none"> <li>• Environmental Protection and Management Act (Cap 94A)</li> <li>• Wildlife Act (Cap. 351) aimed at protecting named species of plant, animal and fungi in Singapore</li> </ul>
VIII.	United Kingdom	<ul style="list-style-type: none"> <li>• Flood and Water Management Act 2010</li> <li>• Water Minimization Act 1998</li> </ul>

#### **(D) Through International Bodies:**

International law regulates interactions among sovereign nations; it has no direct bearing on people or national legal systems. Encouraging a sovereign state to both sign and uphold a treaty or similar agreement can be challenging. Therefore, the effectiveness of international law often relies heavily on voluntary commitments made by nations and international organizations. If diplomatic efforts fail, there are alternatives available such as creating an International Joint Commission or taking the matter to the International Court of Justice in The Hague.

Some of the agreements made internationally are:

1. The 1992 UN Conference on Environment and Development (also known as Earth Summit)

It was held in the Rio De Aneroid, Brazil in 1992 in order to check the ability of the international legal and political order to arrive at an accord for the good of the whole world. Agreements

made at the Earth Summit, 1992 are:

- Rio Declaration on Environment and development
  - Framework Convention on Climate Change
  - Convention on Biological Diversity
  - Declaration on Forest
  - Agenda 21
  - Global Environmental Facility
2. Selection of treaties, agreements, etc., relating to Environmental Management are:
- Internationally shared resources: In 1972, an agreement between USA and Canada signed the Great Lakes Trans-boundary Agreement for the comprehensive management of the Great Lake's water quality.
  - 1946 International Convention for the Regulation of Whaling
  - Trans boundary pollution
  - Controls on global warming
  - Ozone damage control
  - The Law of the sea.
3. International Journals which publish articles on law and environmental management:
- Environmental Policy and Law
  - Ecology Law Quarterly
  - Ocean & Coastal Management
  - Journal of Environmental Law
  - Land Management and Environmental Law Report.

#### **IV. CONCLUSION**

In conclusion, this review paper has given a thorough summary of environmental management initiatives at all levels, ranging from private initiatives to government-led programs on a national and worldwide basis. It is evident that addressing environmental challenges requires a multi-faceted approach, where individuals play a pivotal role through their everyday choices and behaviors, while at the national level too; governments are beginning to understand the

need of eco-friendly legislation, green technologies, and sustainable practices. To address global environmental concerns, international collaboration and agreements among governments are essential. It is essential that these initiatives keep developing going forward, with a focus on collaboration, education, and awareness to make sure better future.

### **(A) Recommendations and suggestions**

In light of the research findings on environmental management involving individuals and authorities at national and international levels, the following recommendations and suggestions need to be taken into consideration for environmental management and its practical implementation:

1. **Education and Awareness:** Stress the value of environmental education in order to raise public knowledge and comprehension of environmental challenges at all societal levels, from schools to community outreach initiatives.
2. **Individual Actions:** By boosting and incentivize individuals to adopt eco-friendly practices for reducing individual carbon footprints and conserving resources.
3. **Authorities and National Governance:** By developing environmental laws and regulations that protect natural ecosystems, wildlife, and biodiversity.
4. **Research and Innovations:** By allocating resources for supporting technologies in clean energy, waste management, and practices, with a focus on solutions that reduce environmental impact.
5. **Monitoring and Reporting:** By developing comprehensive monitoring systems to track progress and environmental indicators on both national and international scales. To publish regular reports and data to inform the public and policymakers about the state of environment.

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