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Assessment of cultural resources and their associated practices focusing on agricultural water sustainability in present environmental conditions

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Abstract

Cultural resources, recognized as the fourth pillar of sustainable development, are integral to the holistic development of society and place. These resources include art and literature, as well as lifestyles, ways of living, value systems, traditions, and beliefs. Resources and activities directly or indirectly associated with culture have a holistic impact on society. Many of these resources become embedded in our culture, and their regular use contributes to the protection of environmental conditions. This paper discussed various cultural resources and their associated practices. People's engagement with cultural resources is often reflected in their practices of worshiping nature, which can form the basis for the emergence of a faith-related environmental ethic. Agricultural water sustainability, which is deeply connected to cultural practices, plays a crucial role in maintaining the balance between resource use and environmental preservation. Finding highlighted that sustainable water management in agriculture ensures that the cultural practices linked to these resources are not only preserved but also adapted to contemporary environmental challenges. The study identified issues related to specific resources, which had led to their depletion and the decline of associated practices. The findings suggested that the degradation of environmental conditions is linked to the depletion of cultural resources, a concern that needs to be addressed. By identifying and addressing these issues in advance, we could preserve the resources sustainably for the future.

Keywords: Cultural Resources; Traditional Practices; Sustainable Development; Agricultural-Water

1. Introduction

Environmental deterioration caused by development activities is a global phenomenon and not unique to India. Rapid industrialization, increasing urbanization, intensified cultivation, and other development activities, combined with escalating biological pressures, have significantly impacted India's environmental condition (Kaur and Pandey, 2021). Key environmental concerns include deforestation, land resource degradation, air and water pollution, threats to natural resources such as wildlife and fisheries, and urbanization issues like slums, sanitation, and pollution (Gebre and Gebremedhin, 2019). Human and animal pressures have led to substantial deforestation, resulting in soil erosion and sedimentation, which diminish the economic lifespan of reservoirs, hydroelectric facilities, and irrigation systems (Gunawat et al., 2022; Butler, 2019). In certain regions, water and air pollution have reached critical levels. According to the Millennium Project, India loses \$80 billion annually, or nearly 6% of its GDP, due to environmental degradation, with more than half of this loss attributable to air pollution (Nath, 2019). The groundwater table decreases by approximately 1 meter annually in many regions of India (Bera et al., 2022). First, this paper discussed the initiatives taken up and work done by concerned authorities at global level w.r.t. Sustainable Development. In the continuation, it has been also talking about the role of culture in sustainability and how culture becomes the fourth pillar of sustainable development (Bâlc, 2018). The paper touched upon the environmental challenges at global level in context of Air, Water and Land issues. There is a close and important relationship between culture and environment (Reginato and Guerreiro, 2013). An attempt has been made to explain that relationship with some examples in this paper.

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Various cultural resources and their activities are examined in this study. People's attitudes toward cultural resources are reflected in their ways of worshipping nature, which can serve as the foundation for the emergence of a faith-based environmental ethic (Piccardo and Canepa, 2021). Some concerns relating to the specific resource have been highlighted in the study, which leads to its depletion and associated activities. According to the findings, environmental degradation is somehow linked to the depletion of cultural resources, which must be addressed (Chu and Karr, 2017). This study focuses solely on the concerns, causes, and any initiatives undertaken by the relevant authorities in relation to the specific resource and knowledge related with it.

2. Sustainable Development

In this timeline, people are surrounded by new technology and diverse lifestyles. By comparing the past with the present, it is easy to identify and relate to these changes through available literature and resources (Piwowar-Sulej, 2022). The pace in the development activities reaches its higher peak. The development isn't reflected only through roads and buildings; it also talks to maintaining a balance between social, economical and environmental needs of society. Sustainable development is also described by the 1987 Bruntland Commission Report. Earlier the concept was focused on three broad areas of concern that are social, environment and economics (Fish et al., 2016). Over time, the structure of sustainable development, traditionally represented by three concentric circles encompassing Economy, Environment, and Social Inclusion, no longer reflects all dimensions of global societies. Economic and social development always acts together. Equal distribution of resources and the ability of the environment to renew at the same time is not compromised. Over time, it was observed that economic considerations predominated in decision-making, while environmental considerations were often sidelined, and social concerns became intertwined with other factors (Mundetia et al., 2023; Axelsson et al., 2013). It was found that these three dimensions were not enough to work out on the complex situation of society. The matter rose at global level, and it was identified that to achieve sustainable development through these three dimensions are not enough all alone (Einhorn et al., 2024).

In 2015, 195 nations agreed with the United Nations to work for a sustainable future for all with 17 identified goals and accomplished the same by 2030 with the involvement of various stakeholders. Agenda 2030 consists of 17 goals, associated with 169 targets and some indicators (Hsieh and Yeh, 2024). It was observed that the term culture was used 4 times as individual in three goals as Goal 4-Quality Education, Goal 8-Decent Work and Economic Growth and Goal 12-Sustainable Consumption and Production (Leal Filho et al., 2020). As per 2021 SDGs report by United Nations, for the first time in 20 years, the poverty rate globally rose at extreme level due to the COVID19 from 119 to 124 million people. India aims to achieve the UN-SDGs in the areas of health, energy and infrastructure, according to NITI Aayog's latest SDG India Index and Environmental Development, which measures the country's social and economic pace (Chopra et al., 2022). According to the NITI Aayog, India's overall score for all SDGs has risen from 60 to 66 in 2021 since 2019. This is due to national improvements in "clean water and sanitation" and "affordable and clean energy" respectively (NITI Aayog, 2022).

2.1. Cultural as Fourth Pillar of Sustainable Development

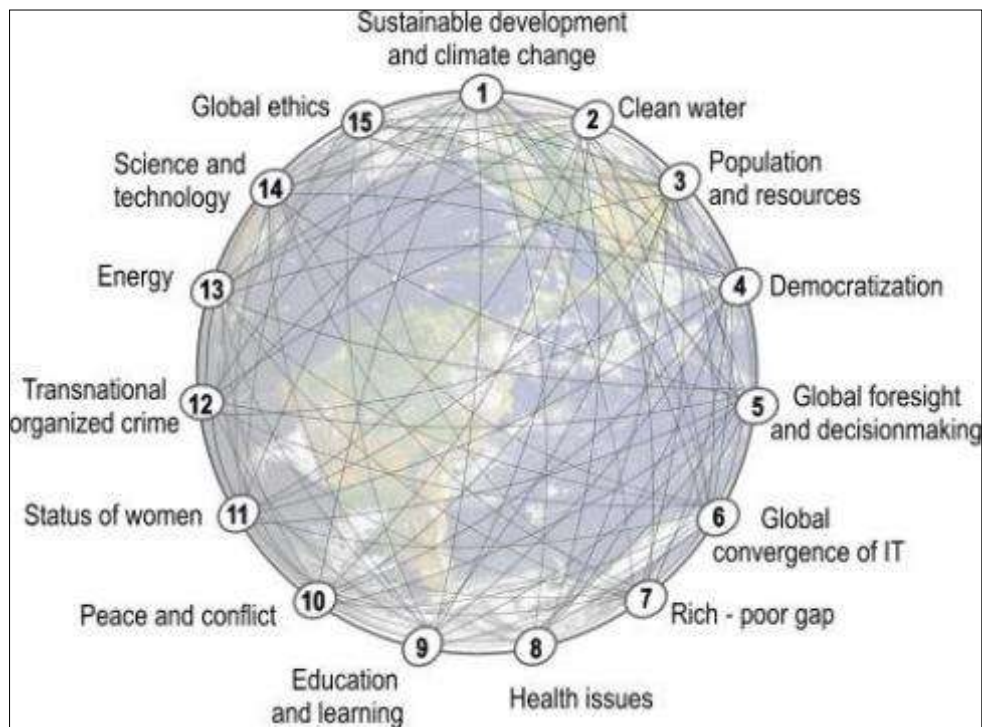
A new phase of sustainable development has emerged where culture is integrated into the system and plays a significant role. Friberg and Hettne (1985: 220) redefined sustainable development to include Cultural Identity (the social unit of development is a culturally defined community, and the development of this community is rooted in its specific values and institutions), Self-Reliance (each community relies primarily on its own strength and resources), Social Justice (the development effort should prioritize those most in need), and Ecological Balance (the resources of the biosphere are utilized with full awareness of the potential of local ecosystems as well as the global and local limits imposed on present and future generations) (Shi et al., 2019). Hawkes, 2001 advocates for the development of a 'cultural framework' alongside social, environmental, and economic tools to evaluate all public policies.

On November 17, 2010, during the World Summit of Local and Regional Leaders—3rd World Congress of UCLG held in Mexico City—the Executive Bureau of the United Cities and Local Governments (UCLG) formally endorsed the Policy Statement entitled "Culture is the Fourth Pillar of Sustainable Development." This document discussed the development of cultural policies and inclusion of cultural dimension in all public policies. Addition of culture as fourth pillar of sustainable development changed the overall scenario to observe and analyse the sustainable development (Tsara et al., 2024). Culture as new dimension act as tool for the development sectors like tourism/pilgrimage, heritage, cultural industries, crafts, art & architecture, etc. and inclusion in the public polices related education, economy, science, science, environment, international cooperation, etc. opens the broad way to see the sustainable development (Zheng et al., 2021). Countries have various pathways to pursue economic growth that can mitigate negative environmental impacts while ensuring equity and social justice within the achievable growth parameters. Recognizing culture as a component of sustainable development enables the integration of human rights, including the right to the city, into local governance

within the global framework. This integration fosters increased participation and accountability (Vasseur et al., 2017). Diverse perspectives arise from this approach, potentially enhancing societal benefits and improving the feasibility of achieving prosperity and well-being (Mensah, 2019).

2.2. Environmental Challenges at Global Level

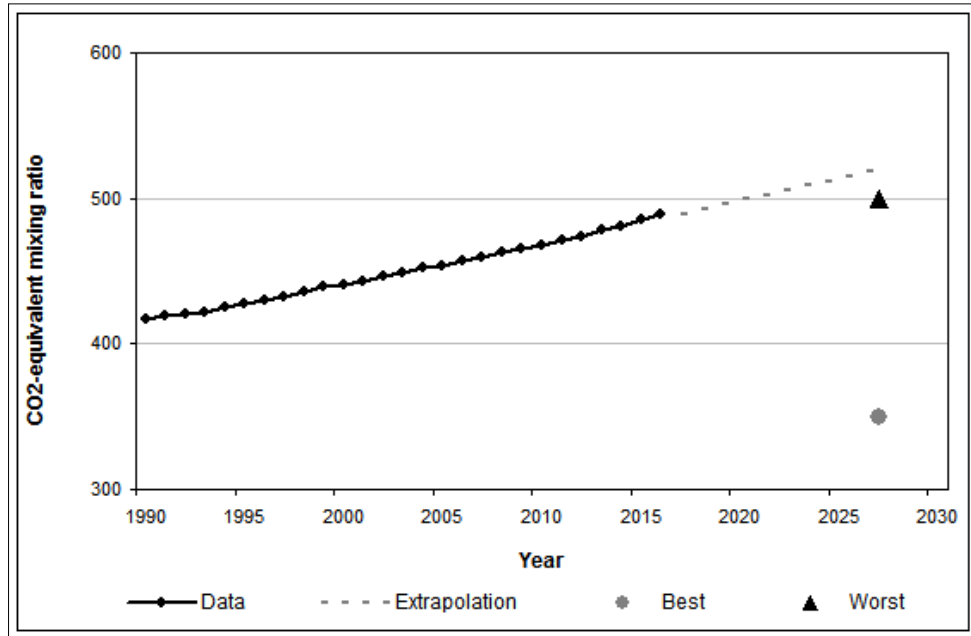
Our planet is facing a critical emergency, as evidenced by alarming signs that demand our immediate attention. The rate of climate warming is accelerating beyond the capacity of both humans and natural systems to adapt, leading to significant habitat loss and endangering approximately 1 million species with extinction (Abbass et al., 2022; Sharma et al., 2018). Additionally, pollution continues to contaminate our air, land, and water. Our lifestyle is responsible for two-thirds of global greenhouse gas emissions, and research indicates that adopting sustainable lifestyles and behaviors could reduce these emissions by 40-70% by 2050. The Millennium Project, a think tank associated with the American Council for the United Nations University, has identified 15 Global Challenges (Figure 1) to evaluate both global and local prospects for humanity (Moallemi et al., 2020).



Source:- Weiskopf et al., 2020

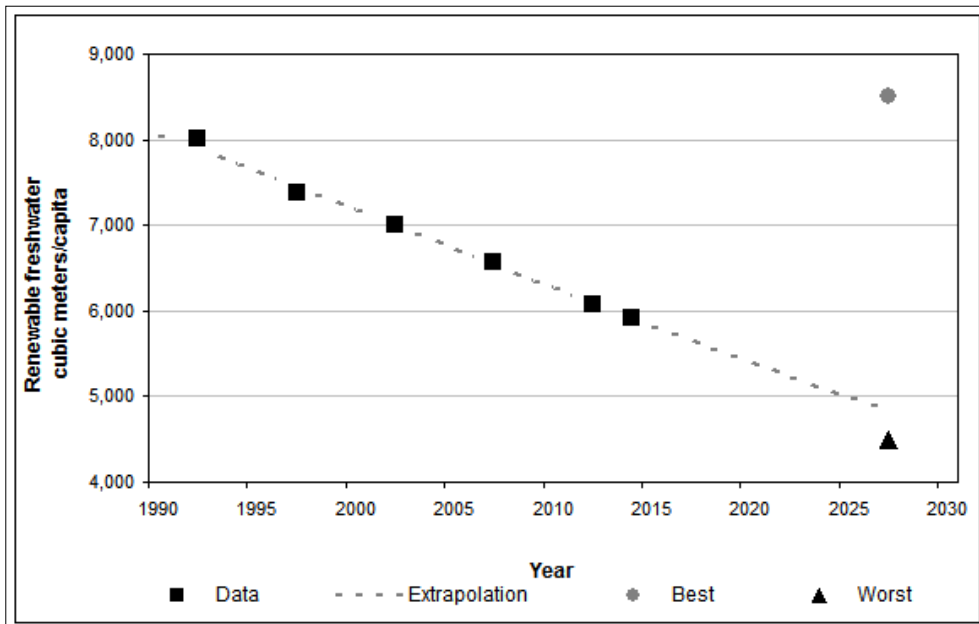
Figure 1 Fifteen global challenges of sustainable development and climate change as identified by the Millennium Project

The 2022 IPCC report concludes that global warming is not limited to a 1.5 °C (2.7 °F) rise unless annual greenhouse gas emissions are halved by 2030. Emissions have been reduced by 6-7% due to the Covid recession, but emissions in 2022 are expected to be higher than in 2019, as a result, there are no plans to reach net zero emissions by 2050 (Zhao et al., 2022). According to NASA, global temperatures have increased by 0.94°C (1.7°F) since 1880, while sea levels have risen by 8-9 inches during the same period. The 2021 IPCC report projects that, if current trends persist, global average temperatures could increase by 2.1 to 3.5°C (3.78 to 6.3°F) by 2100 (Sharma et al., 2022; Aryal et al., 2020). The Millennium Project reports that India incurs annual economic losses of \$80 billion, equivalent to nearly 6% of its GDP, due to environmental degradation, with over half of this damage attributed to air pollution. Particulate matter pollution is estimated to reduce the life expectancy of 660 million residents in affected Indian cities by 3.2 years. There is a need for a better understanding of the impact of deforestation on the climate of South and Southeast Asia (Adla et al., 2022).



Source: Novelli et al., 1992

Figure 2 Observed and extrapolated CO₂-equivalent mixing ratios from 1990 to 2025



Source: World Bank, 2024

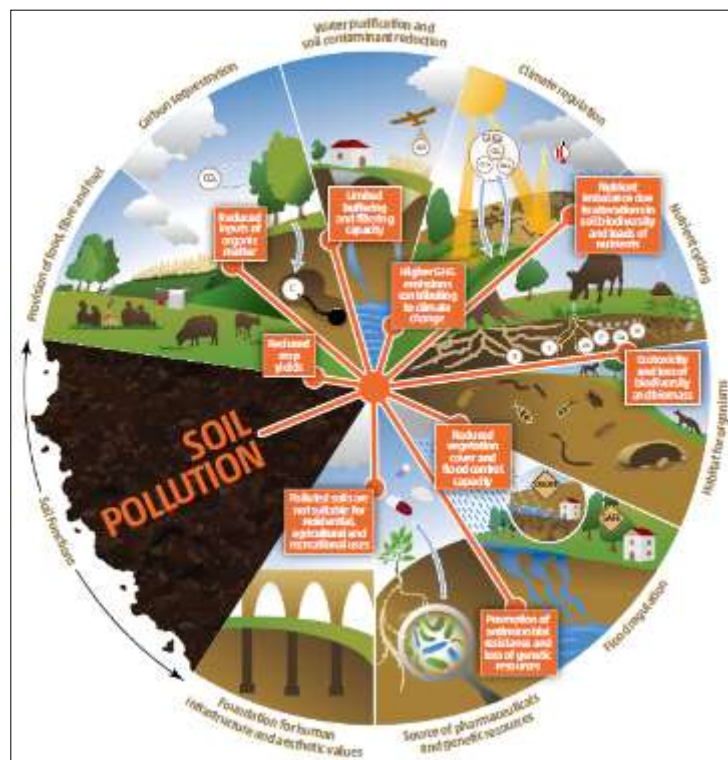
Figure 3 Renewable internal freshwater resources per capita (cubic meters)

Global warming is expected to increase the frequency and duration of droughts, while population growth and industrialization are contributing to declining water tables worldwide (Figure 2). Despite progress in providing improved drinking water, which now reaches over 90% of the global population—up from 76% in 1990, representing an increase of 2.4 billion people in less than two decades—785 million people still lack access to clean water, a rise of 122 million since 2015 (Swain et al., 2022). Humanity allocates 70% of its water supply to agriculture, 20% to industry, and 10% to household use. However, the most developed countries utilize 50-80% of their industrial water supply (Figure 3). As developing countries expand their industries and agriculture, and as population and GDP per capita rise, per capita water consumption will increase, potentially leading to severe water crises and migrations unless substantial changes are implemented (Bharambe et al., 2023). Current declines in global water tables, compounded by climate change, water pollution, and population growth, threaten the future availability of safe water for some regions. Asia, which houses 60% of the world's population, possesses only 28-30% of the world's freshwater resources (Kabir et al.,

2023). Groundwater levels are declining in many areas, with some regions in India experiencing a drop of 1 meter per year. Additionally, the Yangtze, Mekong, Salween, Ganges, and Indus rivers rank among the ten most polluted rivers globally (Malhi et al., 2021).

Biodiversity, both above and below ground, is essential for sustaining healthy soils and the ecosystems upon which we depend. Soil biodiversity facilitates nutrient and carbon cycling, regulates pest and disease spread, and supplies pharmaceuticals, building materials, fuel, and fibers (Fan et al., 2023). These functions are crucial for human infrastructure and the preservation of cultural heritage. However, soil pollution adversely affects both above-ground and below-ground biodiversity by reducing organism populations due to toxin exposure and altering communities as sensitive species are replaced by more pollution-tolerant ones (Cook et al., 2019) (Figure 4).

Approximately 79% of individuals living in extreme poverty reside in rural areas, where they heavily depend on natural resources, primarily agriculture, for their livelihoods. Soil pollution diminishes crop yields and quality, leading to reduced incomes for rural populations and exacerbating the impacts of toxins. Around 65% of global energy is derived from the combustion of fossil fuels (coal, natural gas, and oil), which are significant environmental pollutants (Marselle et al., 2021). Additionally, rapid population growth and urbanization are expected to drive annual waste generation to 3.4 billion tonnes by 2050. In some regions, inadequate waste management practices are a major source of soil pollution (Cappelli et al., 2022).



Source: UNEP, 2021

Figure 4 Soil pollution causes a cycle of degradation processes that leads to the reduction and ultimately to the loss of ecosystem services

The Asia and Pacific region encompasses 41 countries distributed across four sub-regions: East Asia, South Asia, Southeast Asia, and the Pacific. Major sources of soil pollution in this region include:

- **Agriculture:** This includes contamination from polluted groundwater and extensive use of pesticides.
- **Industrial Activities:** Anthropogenic activities are identified as a primary driver of soil pollution, with significant contamination from trace elements such as copper, cadmium, nickel, lead, arsenic, and chromium, particularly in India.
- **Waste Disposal and Management:** Key sources of pollution are mining, petrochemical industries, illegal dumping, and waste management facilities, including landfills and recycling centers.

To sustain our existing way of life, we need the equivalent of 1.6 Earths, yet ecosystems can't keep up with our needs. Sustainable consumption and production practices can foster economic development, mitigate climate change, enhance health and reduce pollution, and contribute to poverty alleviation (Xu et al., 2019). By 2060, such practices are projected to increase average incomes by 11% in low- and middle-income countries and by 4% in high-income countries. To address current challenges, it is essential to reform our economies and communities to become more inclusive, equitable, and environmentally sustainable. This transition involves shifting from practices that harm the environment to those that restore and protect it (Dembińska et al., 2022).

3. Definition of Culture and Cultural Resources

Culture serves as a crucial tool for creating liveable and innovative cities when viewed as a combination of art, heritage, and cultural industries. Truly creative cities will also be equitable cities. According to the UN Habitat's "State of the World's Cities Report" (2004), the trend of refurbishing and rebranding cities as cultural centers—leveraging the economic appeal of art, history, and religion—has proven beneficial for many cities and makes economic sense (Cappeller, 2024). Additionally, culture can act as a catalyst for employment growth. A master plan cannot fully convey the rich and complex meanings and values that indigenous people attach to their land. Culture is defined by the participants who engage in it (Zemite et al., 2022).

Several definitions of culture are relevant to this discussion:

- **UNESCO (2001)** defines culture as the set of distinctive spiritual, material, intellectual, and emotional features of a society or social group. It includes not only art and literature but also lifestyles, ways of living together, value systems, traditions, and beliefs.
- **Jon Hawkes (2001)**, in "The Fourth Pillar of Sustainable Development: Culture's Essential Role in Public Planning," describes culture as the social production and transmission of identities, meanings, knowledge, beliefs, values, aspirations, memories, purposes, attitudes, and understanding. It encompasses customs, faiths, conventions, manners, dress, cuisine, language, arts, science, technology, religion, rituals, norms, and institutions.
- **Sir Edward Tylor** defines culture as "that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by humans as members of society."
- **Robert Redfield** views culture as "an organized body of conventional understandings manifest in art and artifacts, which, persisting through tradition, characterizes a human group." The terms 'acquired by man' and 'persisting through tradition' highlight two key aspects of culture.

According to these definitions, culture and its resources play a vital role in making cities more livable and creative when considered as part of sustainability. Culture represents both the method and the message, embodying inherent value and facilitating social expression (Tura & Ojanen, 2022). It encompasses all facets of human interaction, including family, education, legal and political systems, mass media, work practices, welfare programs, leisure pursuits, religion, and the built environment.

Several definitions of cultural resources are also relevant:

- **Cher Weixia Chen and Michael Gilmore** define cultural resources as manifestations such as languages, oral traditions, philosophies, writing systems, archaeological and historical sites, artifacts, designs, ceremonies, sports, traditional games, and visual and performing arts (Pykäläinen et al., 2023). This category also includes spiritual and religious manifestations such as traditions, customs, ceremonies, religious sites, ceremonial objects, and human remains, as well as scientific and technological manifestations like traditional medicines, genetic resources, seeds, and knowledge of fauna and flora properties.
- **Washington Administrative Code (WAC) 222-16-010** (certified 10/25/2019) defines cultural resources as archaeological and historic sites and artifacts, along with traditional religious, ceremonial, and social uses and activities of affected Indian tribes.
- **Indiana Department of Transportation-Cultural Resources Manual** (March 2014) defines cultural resources as any prehistoric or historic remains or indicators of past human activities, including artifacts, sites, structures, landscapes, and objects of significance to a culture or community for scientific, traditional, religious, or other reasons

According to the above definitions, it was observed that cultural resources are both tangible and intangible phenomenon that is associated with human's cultural activities. It is not just a physical aspect but also human activity. It includes values, rites, rituals, beliefs, norms, actions to sites, structures and artifacts (Purvis et al., 2019). It may be unique and

important for today's society. In the process of new development and maintenance of physical infrastructure, especially, transportation, housing, commercial etc, which are important for the growth and progress of the nations as a whole, such activities can have impacts on cultural resources. In this case, it becomes important to make a balance between the physical growth/ development and protection of culture and its resources (Zemite et al., 2022).

4. Relation of Environment and Culture

The relationship between environment and culture is intrinsically connected. The environment encompasses not only the biophysical context but also the ways in which humans interact with and interpret this context through a cultural lens (Zylstra et al., 2014). Thus, the environment is not merely a set of elements to which people adapt; it also involves a dynamic process of mutual adaptation between cultural practices and the material context. Culture plays a significant role in determining the social environment and social behaviour. An individual's behaviour is influenced by the culture in which they live. Biological inheritance allows them to choose from a wide range of different behaviours (Hartig, 2021). Culture helps to choose one of these behaviours. Knowledge, beliefs, arts, morality, laws, customs, and any other capacities/ skills and habits acquired by man as a member of society are all part of culture. Although humanity has a surprisingly diverse culture at global level, each culture always incorporates certain characteristics of human activity that are referred to as distinct parts of culture. These aspects are ways of adapting to the surrounding physical environment (Cappeller, 2024). A society's cultural arrangements are primarily affected by its physical environment, which includes climate, terrain, natural resources, and other factors. As a result, all of the major agricultural villages are found along riverbanks, fertile terrain, and sufficient water supply and the related practices are done on the basis of either biological inheritance or some other traditional factors (Wamsler et al., 2021).

Culture can be defined as the processes through which people perceive their surroundings. The most obvious links between these meanings and interpretations and the natural world can be found in communities which dependent on traditional resources. Cultures shape biodiversity through plant and animal choices and changes in the overall landscape (Rice & Liamputtong, 2023). The composition of such landscapes has been defined as anthropogenic Nature, as it reflects local culture and is a result of human history. For instance, some indigenous group of people in Sri Lanka traditionally practiced slashes and burn cultivation as an important perspective from food production and environment. These landscapes represent an ecological profile shaped by the cultural practices of the region. There are many other cultural practices which have been discussed in case studies (Kingwell-Banham & Fuller, 2012). Knowledge is an important link between nature and culture when different cultural practices and worldviews are vital to biodiversity management. The knowledge of nature interpreted as traditional, indigenous, local, etc are part of society and transferred in the form of stories or narratives. Understanding of the environment through culture leads not only to sustainable approaches, but also to knowledge of species requirements, ecosystem dynamics, sustainable harvests, and ecological interactions (Zemite, 2022).

Living in harmony with nature has long been a significant aspect of cultural practices, particularly evident in Indian society. This harmonious relationship is deeply embedded in traditional practices, religious beliefs, rituals, folklore, arts and crafts, and the daily lives of the Indian people. Many ancient societies, including those in India, have demonstrated a lifestyle characterized by a respectful coexistence with nature (Babbar & Johannsdottir, 2024). They obtained their sustenance from natural resources while simultaneously conserving the environment that sustains them. The protection of nature and natural resources is a fundamental element of India's belief system, influencing religious practices, folklore, art, and culture, and pervading daily life (Chang, 2024). One notable example of traditional conservation practices in India is the maintenance of "sacred groves," areas of land or forests dedicated to deities or village gods, which are protected and revered. Vrindavan, located approximately 150 kilometers from Delhi, is a significant pilgrimage site, named after the Vrinda or Tulasi plant. The 84 'Kos Parikrama' is a nearly 300-kilometer pilgrimage route in Braj Bhoomi/Mathura that includes 12 major forests and 24 sacred groves (Shinde, 2012). Among these, the groves known as "Nidhi-Ban" and "Seva-Kunj" are considered particularly sacred, as it is believed that Radha-Krishna and their divine associates perform their divine leelas (pastimes) there every night (Pauwels, 2017).

4.1. According to Madhav Gadgil (1985):

"Sacred groves ranged in extent from fifty hectares or more to a few hundred square metres. Where the network of sacred groves has remained intact till recent times, as in the South Kanara district of the west coast, one can see that they formed island of climax vegetation at densities of 2 to 3 per. sq. km, ranging in size from a small clump to a hectare or more, and originally covering perhaps 5 per cent of the land area (Gadgil, 1985). This must have been a very effective way of preserving tropical biological diversity, for we are still discovering new species of plants which have disappeared from everywhere else, in these sacred groves." The maintenance of sacred groves can be viewed as a notable example of a traditional practice contributing to forest conservation, albeit on a small scale. In various regions of India, sacred

ponds associated with temples have also played a role in conserving endangered species such as turtles, crocodiles, and the rare freshwater sponge. Many plant and animal species are regarded as sacred by different Indian communities (Ormsby & Ismail, 2015). For instance, the tulsi (holy basil), neem, sandalwood, peepal tree (*Ficus religiosa*), banyan tree (*Ficus benghalensis*), and khejdi tree (*Prosopis cineraria*) are traditionally revered. Although this cultural reverence is rooted in religious beliefs, it significantly aids in the preservation and regeneration of these trees and plants (Kandari et al., 2014). A similar respect is observed in the conservation of water bodies, such as ponds and rivers.

India is primarily an agricultural country, with agriculture providing a living for approximately 67 percent of the people. It's worth noting that the Vedic agricultural system was quite rich, as evidenced by the numerous allusions to various stages of cultivation, such as ploughing, sowing, harvesting, threshing, and presenting agricultural products, among others (Bailey et al., 2012). There is a term called Krishi-Panchang or Agro-Almanac or Agro-Panchang which is a "basic agricultural manual / calendar, containing calendar information on various aspects of agriculture and related activities, primarily region and season-wise, and also suggests crop-specific cultivation strategies based on astronomical predictions, indicates favorable / unfavorable times for carrying out / avoiding various agricultural activities, religious ceremonies, festivals, observational fasting, and primarily agriculture (Kaur et al., 2023). It gives benefit to agriculture communities and makes the balance between food production and environment. The above brief discussion shows the inter-relationship of culture and environment and its importance in the present day context. According to Jon Hawkes, our environment create our culture, culture is integral of environment and environment may affected by the culture. The vast majority of people rely heavily on the country's natural resources to meet their fundamental needs for food, fuel, shelter, and fodder for livestock. Environmental protection is inextricably linked to broader development issues and must be considered an integral component of sustainable development (Harivelo & Harifidy, 2022). There is an increasing recognition of the essential requirements for achieving sustainability. At this juncture, it is important to revisit our rich tradition of living in harmony with nature, which has often been overshadowed by a pragmatic Western approach to science and technological development over the years.

5. Case Studies

Places/ Items	Sri Lanka	Bhutan	Maldives, Papua New Guinea, Indonesia, Thailand	Ghana	China	Gullah Island-Coast Of South Carolina & Georgia	Indonesia	Island Of Mozambique	India	Singapore	Sabacimala	Mayuna Peru
Resource	Agriculture and Rain/ Tropical Forest	Water, Forest Trees, faunal and floral species, Land use	Mangrove Forest	Wetland/ Lagoon	Water, Forests, Animals, Plants	Aromatic Herb/ Plant - Sweet Grass	Dadap Tree	Forest-Mwendje tree	Water	River	Land, Forest	Land
Importance	Food, Envir.	Irrigation Domestic Medicine Agriculture	Ecology, food, erosions, flooding, etc	Food, Habitat, etc	Envir., maintenance of landscapes economic value, etc.	medicine, ceremony, craft	traditional medicine	Economic value	Agriculture, drinking, domestic, etc	Trading path	Socially, Envir.	flora and fauna, hunting, Fishing, etc
Types of Practice	Traditional	Religious & Traditional	Traditional	Religious & Traditional	Religious & Traditional	Religious & Traditional	Traditional	Traditional	Traditional	Historically	Traditional	Traditional
Issues	Pollution, Waste Disposal Areas, Threats and challenges to natural and cultural resources, Environment degradation, economic damages, Global warming, global climate change, resource degradation, threat of extinction etc											
Causes	Deforestation, Poachers and Loggers, Climate Change, Pace in Tourism, Development Activities											

Figure 5 Comparison of traditional and religious practices related to natural resources, their importance, issues, and causes across various global regions

In the context of the significance of culture, cultural resources and its impacts on the various environmental conditions, some literature case studies at global level, especially, Asia region, have been discussed with some selected resources which have cultural importance. In these case studies, the resources have been identified, the discussion continues with the importance of resource, its associated practices followed, issues related to it, causes behind the degradation or

vulnerability of the resources and initiative taken by the concerned authorities or natives of the place/ people still follow those practices (Figure 5).

6. Conclusion

Culture plays an important role in balancing the environmental conditions. It has been identified that there are many resources which have some associated cultural values. These resources are attached with both biotic and abiotic conditions. The resources are identified in two ways: one is a large scale group identity where there are parts of agricultural practices, various forms of water bodies, forest areas, etc. and as individual identity at small scale level such as linked to faunal and floral species, single type of tress, particular mangroves, animals, plants, herbs, even river as a single identity. These resources with cultural values provide and contribute not only in harmonizing the environmental conditions, but also add-on to the economic, social and cultural aspects. Many of the resources have traditional and religious values. The practices are still part of the daily routine of the people. These resources are important from the perspective of food, medicinal values, supporting a variety of habitats, ecological balance, preventing soil erosion and flooding conditions, maintenance of landscapes/ biological diversity, as an economical tool and Shelters a flora and fauna with new, rare, and specialized species.

But nowadays, many of the resources are in vulnerable conditions. The issues has been already discussed in this paper. The major issues can be categorized from various literature case studies are increase pollution, Waste Disposal Areas, Threats and challenges to natural and cultural resources, Environment degradation, economic damages, Global warming, global climate change, threat of extinction etc. In this study, the causes behind such are also identified such as Deforestation, Poachers and Loggers, Climate Change, Pace in Tourism and various Development Activities.

Presently, many concrete initiatives have been taken at international, national and local levels. The concerned authorities are also working on developing new technical initiatives considering cultural aspects behind the resources. The local people are also making themselves aware of new technologies and identifying ways to integrate these technologies with the cultural part of the resource. The existence of cultural values associated with resources are very much important to maintain and timely up-gradation of environmental conditions. To sustain our existing way of life, we need the equivalent of 1.6 Earths, yet ecosystems can't keep up with our needs. Sustainable consumption and production can help to promote economic development, reduce climate change, improve health and pollution, and aid in poverty alleviation, with incomes rising by an average of 11% in low- and middle-income nations and 4% in high-income countries by 2060.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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