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Experimental Methodology for Prudential Assessment of Indivisible Nature of Sdgs: An **Explorative Log Frame Approach for Tourism** Sector

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Abstract

The established development trajectory has revealed the limitations of the growth theory, particularly due to prevailing conflict between economic expansion and environmental preservation over a period of time. This realization of the fact has ultimately led to the emergence of the concept of sustainable development. In 2015, the United Nations ratified the Sustainable Development Goals (SDGs), which are intended to guide global development until 2030. These goals urge governments, industries, and communities to incorporate Environmental, Social, and Governance (ESG) considerations when making financial and investment decisions across various development sectors. Despite the ambitious nature of these goals, there are significant obstacles on the path to sustainability. Global efforts must prioritize environmental sustainability, recognize the interconnected nature of the SDGs, and seek synergies across sectors. As a relatively new concept in the development arena since 2015, a comprehensive understanding of the intricate nexus among the goals across various development sectors necessitates an interdisciplinary approach. Furthermore, to appreciate its impact, SDGs 12 and 17 emphasize the critical need for developing a robust data and monitoring system. Therefore, considering the cross-sectoral nature of tourism, this paper makes a pioneering attempt to develop an experimental methodology to illustrate an interdisciplinary approach for a deeper understanding of the impact of tourism activities through the Theory of Change (TOC) log framework. It also suggests a series of policy recommendations to promote research activities on the subject within higher education and research institutions.

Keywords: Sustainable Development Goals, Interdisciplinary, Theory of change, Earthonomics, Tourism.

1. Introduction

1.1 History of economic thought in the trodden development pathway

A brief examination of the events along the well-established path of development reveals a noticeable emergence of the tension between economic growth and environmental concerns, which eventually gave rise to the idea of sustainable development. Ancient economic thought, shaped by Kautalya, the mercantilists, and physiocrats, was focused on welfare state. It aimed to explore the challenges and



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opportunities of a welfare state. Ancient Indian thinkers had a well-defined concept of a welfare state, where the state's functions were guided by moral principles, with ethics and politics playing a central role in governance. In contrast, modern economic science focuses on the efficient allocation of scarce resources and the trade-offs involved. Neoclassical economists study price determination by viewing the economy as a closed system without limits. However, classical economists such as Malthus, Ricardo, Mill, and Marx argued that economic activities are limited by nature. This perspective led to the emergence of the theory of limits to economic growth, as propagated by a global association of individuals called 'Club of Rome in 1972 sparking a global debate on the social and environmental constraints to growth. In 2000, the importance of social values was recognized. In September 2000, leaders from 189 nations convened at the United Nations headquarters to sign the landmark Millennium Declaration called Millennium Development Goals(MDG). This declaration committed them in achieving eight specific goals by 2015, which included reducing extreme poverty and hunger by half, advancing gender equality, and decreasing child mortality rates.

However, the United Nations conference on sustainable development held in Rio de Janeiro in June 2012, initiated the development of a new set of Sustainable Development Goals (SDGs) to continue the momentum of the Millennium Development Goals (MDGs) and integrate into a global development framework beyond 2015. To establish a new, people-oriented development agenda, a global consultation took place both online and offline. This process actively involved civil society organizations, citizens, scientists, academics, and the private sector worldwide. In July 2014, the UN General Assembly Open Working Group (OWG) proposed a document with 17 goals, which was to be presented for approval by the General Assembly in September 2015. This document laid the foundation for the new SDGs and the global development agenda from 2015 to 2030. (SDGF 2014).

1.2 Implications of economic thought process on the people and the planet in development pathway Various forms of economic modelling within open market systems reveal a troubling trend: the dominance of self-interest and profit maximization often leads to unethical practices. These behaviours contribute to widening economic inequality, social deprivation, and pose risks to humanity. Additionally, such profitdriven approaches have harmful consequences on the environment, accelerating the degradation of our planet, as illustrated in Figure 1.

Figure 1 illustration of adverse consequences along historical development pathways, emphasizing the negative impacts on people and planet.



Figure 1 Policy implications in the trodden development pathway



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Historically, these crises can be traced back to the specific development models adopted and the human actions influenced by underlying ideological beliefs. To understand the root causes of today's sustainability challenges—many of which stem from the consequences of such ideologically driven economic activities—it is helpful to examine them through the perspectives of Amartya Sen.

Sen argues "economics is fundamentally linked to ethics and politics" (Sen, 1999, p.3). He contrasts two approaches: the ethical approach, which focuses on social outcomes and human development, and the "engineering" approach, which deals more with practical implementation and logistics. The ethical approach emphasizes achieving broader social goals, whereas the engineering approach is concerned with the mechanisms to reach those goals. According to Sen, the realization of these social objectives ultimately depends on how ethically human activities are carried out. It is through the collective and ethical actions of individuals that common goals—such as social well-being and sustainable development—can truly be achieved.

From Amartya Sen's outlook, it becomes evident that while historical economic systems—dating back to the 18th century—made contributions to social development, they primarily focused on addressing logical aspects rather than achieving their ultimate goals. As Sen noted "The ends are taken as straightforwardly given, and the object of exercise is to find the appropriate means to serve them. Human behaviour is typically seen as being based on simple and easily characterizable motives" (Sen, 1999, p.4). Over time, the ethical shortcomings in human behaviour—further influenced by political ideologies—have significantly weakened the ability of these systems to deliver meaningful social outcomes.

For example, the emergence of French physiocrats and their laissez-faire (free trade) approach marked a significant shift in human lifestyles, often at the expense of the environment. Similarly, in India, the economic liberalization policies of 1990–91, rooted in the LPG framework (liberalisation, privatisation, and globalisation), sparked a speculative and profit-driven mindset. These policies, by stimulating the *animal spirit* of wealth creation, encouraged competition driven by self-interest and profiteering in resource use—often at the cost of ethics and equity.

Ultimately, the consequences are deeply troubling. Socially, "India's economic growth has been accompanied by rising inequality: in 2017, 73% of the wealth created went to the top 1%, according to Oxfam. Environmentally, anthropogenic greenhouse gas emissions continue to rise, leading to global warming. The Intergovernmental Panel on Climate Change reported a 1.1°C rise in global average temperature between 1880 and 2012" (Gauri Shankar Gupta, 2019). "These developments mark the onset of the Anthropocene era from the year 2000, a period characterized by significant human impact on the Earth's ecosystems—creating a false narrative of progress that compromises both human development and environmental security" (Rengarajan, 2022).

Two critical insights emerge from this economic analysis when viewed through Sen's lens and considered from a sustainability standpoint:

- 1. There is a flawed assumption that human behaviour will inherently be ethical and rational in guiding sustainable development. This fact highlights the urgent need to prioritize ethical and behavioural economics as a foundation, upon which environmental and ecological economics can be effectively built—since the ethical dimension significantly influences outcomes in all these fields.
- 2. Past experiences with traditional economic models show clear evidence of damage—to both humanities, through growing inequality and deepening poverty, and to the planet, through environmental degradation, biodiversity loss, and pollution of essential resources such as air and water.



1.3 Need for robust methodology for understanding development process

The ever-persisting negative implications, infested with multi- dimensional Environmental social and governance (ESG) risks in the development pathway, merit attention arguably. This fact is due to the absence of diligent understanding the hidden consequences of human activities on the people and planet besides non-adherence of a robust methodology for concurrent evaluation/assessment on the achievement of SDGs.

With this construct, this research article aims to analyse the dynamics of the casual link between India's growing tourism industry and sustainable development goals using secondary data and the documents from the concerned Government websites. For illustration, an attempt has been made to suggest a conceptual framework for descriptive analysis on the outcome of tourism through theory of change (TOC) log frame and further extend to analyse the activity wise impact through the lens of SDGs for better understanding on the cross-cutting goals across the sectors and its synergetic effect on the people and the planet embedded in peace and prosperity.

1.4 The specific objectives of the paper are:

- 1. To investigate the intrinsic development values of tourism sector from SDGs perspectives for better appreciation; and
- 2. To initiate an experimental methodology based on TOC log framework for making a diligent assessment on the impact of tourism hotspots on the people and planet in terms of Sustainable Development goal orientation along with a slew of policy recommendations.

1.5 Presentation of the article

The first section describes the intrinsic nexus between SDGs and the various development activities related to Tourism industry for diligent understanding of the implications of SDG on the people and planet. Second section provides the experimental methodology based on TOC log frame model for assessment of tourism activities on SDGs in various stages/sectors in the pathway to sustainability along with observed limitations. Last section presents a slew of policy recommendations towards promoting interdisciplinary research activities on SDGs in higher education and research institutions.

2. Nexus between SDGs and tourism activities

2.1 Values of tourism & the link with SDG

"Tourism industry as an economic powerhouse in the services sector is the third highest world export earnings in 2015 accounting 10% of world GDP and one out of every 10 jobs in the world tourism while it is 9.4% of GDP in India. It has been estimated that 41.622 million jobs representing 8% of its total employment is in the India tourism" (WTTC -2017). Tourism holds significant potential for achieving multiple Sustainable Development Goals (SDGs) due to its capacity to contribute to economic growth, social inclusivity, cultural preservation, and environmental sustainability. Here's the portrayal on how tourism can address various SDG that is presented below.

"Tourism and SDG 1 - Eradicate poverty

Tourism helps reduce poverty directly by creating jobs in tourism-related sectors and offering opportunities for locals to provide services or start small businesses. Indirectly, revenue from tourism taxes and infrastructure projects can also support poverty alleviation by benefiting low-income communities.

Tourism and SDG 2 – Zero hunger

Tourism can promote sustainable agriculture by integrating local food production into its value chain. Ag-



ritourism supports farmers by generating extra income while offering tourists authentic experiences. Infrastructure built for tourism also helps ensure consistent access to food and other services in rural areas.

Tourism and SDG 3 – Good health and well-being

The COVID-19 pandemic highlighted the connection between tourism and public health. Clean, safe, and well-prepared destinations are essential to rebuild trust among travellers. Additionally, tourism-generated revenue can be used to enhance healthcare facilities and services in host communities.

Tourism and SDG 4 – Quality education

Tourism employs a large and diverse workforce; it can drive inclusive and sustainable growth. Training and education tailored for tourism careers improve skills and provide opportunities for personal and professional development. Tourism also plays a role in raising awareness about the SDGs among travellers and local population.

Tourism and SDG 5 – Gender equality

Tourism offers significant opportunities for women, many of whom work in the sector or run businesses. Although often concentrated in lower-paying jobs, tourism can empower women economically and socially by opening up leadership and entrepreneurial paths.

Tourism and SDG 6 - Clean water and sanitation

Investments in tourism-related utilities can improve access to water, sanitation, and hygiene. Efficient water use, pollution control, and advanced technologies in tourism operations are crucial to protect this vital resource.

Tourism and SDG 7 – Affordable and clean energy

Tourism, while energy-intensive, can promote the use of renewable energy and energy-saving practices. It can also lead local communities toward cleaner energy sources, reducing greenhouse gas emissions and addressing climate change.

Tourism and SDG 8 – Decent work and economic growth

Tourism significantly boosts global economic activity and provides job opportunities, especially in developing and remote areas. With responsible management, tourism supports inclusive economic development, rural growth, cultural preservation, and job creation for vulnerable population.

Tourism and SDG 9 – Industry, innovation, and infrastructure

Tourism stimulates demand for reliable infrastructure, pushing for upgrades that are sustainable and resource-efficient. Public and private investments in tourism infrastructure can support broader economic growth and innovation.

Tourism and SDG 10 – Reduce inequalities

Tourism helps bridge income gaps by involving local communities in its growth. It supports economic integration, rural development, and social inclusion, enabling people to thrive in their own region rather than migrating to urban centres.

Tourism and SDG 11 – Sustainable cities and communities

Tourism can enhance urban areas through improved infrastructure, accessibility, and heritage preservation. Green and efficient transport and reduced pollution benefit both residents and visitors, making cities more liveable and sustainable.

Tourism and SDG 12 – Responsible consumption and production

To remain sustainable, tourism must shift toward responsible consumption and production. By optimizing resource use and minimizing waste, the sector can boost environmental and social outcomes while supporting economic growth.



Tourism and SDG 13 – Climate action

Tourism must address its impact on climate change by reducing emissions and adopting greener practices, especially in transport and accommodation. As both a contributor to and victim of climate change, the sector must lead in adaptation and mitigation efforts.

Tourism and SDG 14 – Life below water

Marine and coastal tourism depend on healthy oceans. Sustainable tourism should be part of marine conservation strategies, helping to protect ecosystems and promote the blue economy that supports many coastal livelihoods.

Tourism and SDG 15 - Life on land

Biodiversity often draws tourists, placing the sector in a unique position to promote conservation. Sustainable tourism can protect natural habitats, support community welfare, and offer alternative incomes that reduce environmental degradation.

Tourism and SDG 16 – Peace, justice, and strong institutions

Tourism encourages intercultural dialogue and mutual respect by connecting people from different backgrounds. It can uphold human rights and promote ethical practices, supporting peace and justice in destination communities.

Tourism and SDG 17 – Partnerships for the goals achievement

Tourism's cross-cutting nature makes it ideal for forming partnerships among governments, private sectors, and communities. With coordinated efforts and innovative funding, tourism can contribute to achieve all the SDGs through collaborative development." (WTO 2023).

The hidden connection between tourism and the Sustainable Development Goals (SDGs) clearly highlights tourism as a multi-dimensional industry. The wide range of activities, involved in tourism, contributes both directly and indirectly to the achievement of all 17 SDGs. In many cases, a single tourism initiative can have overlapping impacts across several goals. For instance, creating job opportunities for underprivileged women in the tourism sector not only advances gender equality (SDG 5) but also supports economic growth (SDG 8) through increased GDP, and poverty alleviation (SDG 1) by raising the income levels of poor households. Another notable aspect of tourism is its role in safeguarding cultural and natural heritage (SDG 11) and promoting lifestyles that are more in tune with nature (SDG 12), though this is sometimes less visible.

2.2 Unique themes of SDGs in tourism

To better grasp the deep interconnection between the SDGs and their relevance to both the planet and its people, these goals can be grouped into four broad streams: People, Prosperity, Planet, and Peace & Partnerships, as suggested by Massey University (2019).

"The **People stream** focuses on building a society that is healthy, inclusive, and fair. It addresses critical areas such as ending poverty (SDG 1), eradicating hunger (SDG 2), promoting health and well-being (SDG 3), ensuring access to quality in education (SDG 4), and achieving gender equality (SDG 5).

The **Prosperity stream** emphasizes advancing human development through sustainable economic progress. It includes goals like access to affordable and clean energy (SDG 7), promoting decent work and economic growth (SDG 8), fostering industry, innovation, and infrastructure (SDG 9), reducing inequality (SDG 10), and developing sustainable cities and communities (SDG 11).

The **Planet stream** is dedicated to protecting the natural environment. It covers areas such as clean water and sanitation (SDG 6), responsible consumption and production (SDG 12), action on climate change (SDG 13), conserving marine ecosystems (SDG 14), and preserving terrestrial ecosystems (SDG 15).



The **Peace and Partnership stream** aims to promote peaceful societies, justice, and strong institutions (SDG 16), and to strengthen global cooperation to achieve all goals (SDG 17)".

2.3 Significance of Data, Monitoring & Evaluation (M&E)

There are three critical factors for making significance of M&E for tourism.

First one is related to robust methodology. This makes Understanding the distinctive features of the Sustainable Development Goals (SDGs) is crucial, but equally important is establishing a sound methodology for assessment or evaluation. Integrating the Theory of Change (TOC) with the SDGs within a unified framework allows for real-time evaluation and helps identify Environmental, Social, and Governance (ESG) risks within the causal chain, enabling their mitigation to support the achievement of the SDGs.In particular, SDGs 12 and 17 emphasize the need to create and apply tools that can track the impact of sustainable tourism—tourism that not only generates employment but also promotes local culture and products.

Second, there is a pressing need for capacity-building initiatives aimed at improving access to high-quality, timely, and actionable data. This data should be disaggregated by factors such as income, gender, age, race, ethnicity, migration status, disability, location, and other contextually relevant characteristics.

Third, contemporaneously in the context of implementation of Viksit Bharat 2047 and of our Prime Minister's call for developing at least one tourist destination per State at par with global standards and by providing all facilities and infrastructure, a sound M&E system based on TOC log framework would go a long way to act an effective tool for effective governance towards sustain aging the development goals With this background, an initial attempt has been made to develop an experimental methodology that serves this purpose, inviting further discussion and refinement.

3. Theoretical underpinning on TOC

3.1 Need for TOC framework

The need for adopting a Theory of Change (TOC) approach stems from two key factors: the necessity to identify risk factors within the impact pathway, and the importance of capturing both the tangible and intangible effects of interventions along that path.

First, while understanding the Sustainable Development Goals (SDGs) and their connection to the tourism industry is essential, it is equally critical to systematically evaluate tourism-related activities at each stage of the result or causal pathway to ensure sustainability. In particular, identifying and addressing Environmental, Social, and Governance (ESG) risks associated with these activities during implementation is vital to overcome barriers and achieving the SDGs. TOC offers a structured framework for carrying out such risk-focused assessments.

Secondly, conventional evaluation methods in many socio-economic development programs tend to be narrowly focused on meeting physical or quantitative targets within a specific time frame. As Sanjay Saxena (2011) noted, "such approaches often lack a culture of learning, partly due to political sensitivities. These traditional assessments usually concentrate on immediate, measurable outputs derived from the relationship between inputs and activities" as depicted in Figure 2. However, they fail to capture the broader, long-term outcomes and impacts on people



Figure 2 Conventional assessment system



and the planet. These impacts may be both quantitative and qualitative, involving visible (tangible) and invisible (intangible), as well as intended and unintended effects on society and the environment. From an utilitarian point of view, as Carol Patterson (2011) suggests," the evaluation should go beyond calculating utility at the output level to also consider the long-term qualitative effects on all stakeholders". This perspective aligns with consequentialism, which emphasizes the ultimate consequences of actions rather than just immediate results. In this context of change, drawing from Amartya Sen's insights, human behavior—both in terms of demand and supply—plays a crucial role over time. People's behavior significantly influences the outcomes of socio-economic interventions, especially when considered within a specific social structure or cultural context aimed at enhancing well-being.

In this context, the Theory of Change (TOC) serves as a structured framework that outlines a causal pathway or result chain, tracing the process of transformation from initial activities (inputs) to long-term impact (as illustrated in Figure 3). This framework helps capture the overall change in the world, reflecting both tangible and intangible, as well as intended and unintended, effects on the well-being of people and the health of the planet. This kind of incomplete result chain is illustrated above in the figure 2.

3.2 Theory of Change framework

TOC establishes a link between development initiatives and their outcomes, which are tracked through ongoing process monitoring. In essence, TOC is a continuous reflective practice aimed at understanding how change unfolds and what drives it. According to the World Bank, (World Bank-TOC) "Theory of change is a detailed description of the mechanisms through which a change is expected to occur in a particular situation. A theory of change identifies the goals, preconditions, requirements, assumptions, interventions, and indicators of a program, providing important insight into and guidance on intervention and impact evaluation design."

3.2.1 TOC and causal pathway

The intended results that emerge from program activities are typically represented in the a causal pathway diagram, using key terms such as input, output, outcome, and impact—commonly used in the field of monitoring and evaluation. This pathway maps the sequence of results generated by program activities at different stages within the results chain. Figure 3 demonstrates the logical relationships among these components, showing how various project or program activities contribute to achieve both intermediate outcomes and long-term impacts.



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In this context TOC provides a logical framework to portray a casual path or result chain showing the process of change from the activities (Input) to impact (fig 3) indicating ultimate change in the universe both in terms of tangible or intangible and intended or unintended implications on the status people and the planet

Input: Inputs refer to the essential resources needed to carry out a project. These include personnel, finances, equipment, infrastructure, knowledge, and information—everything necessary to generate the intended outputs.

Output: Outputs are the immediate deliverables produced by the project, such as goods, services, and capital items. These are the direct results of project activities and fall within the organization's control. Outputs may also reflect improvements in skills, capacities of individuals or institutions, or the availability of new products and services. They are produced within the scope of the available resources and scheduled timeframe.

Outcome: Outcomes represent the medium and end term effects directly experienced by the target group. They result from the outputs of a project and show a change in behavior or institutional performance under the influence of project partners. Outcomes occur between the completion of outputs and the achievement of broader goals and typically reflect the practical use and influence of project results.

Impact: Impacts are the long-term effects that a project contributes to on a larger scale, such as national, regional, or sectoral levels. These effects may be positive or negative, intentional or accidental, and can influence various aspects of people's lives, including their knowledge, health, behavior, and living conditions. Impacts may be economic, social, cultural, institutional, environmental, or technological in nature. To fully understand their broader significance, impacts are often assessed through the lens of the Sustainable Development Goals (SDGs), considering how they affect both people and the planet.

Overall, the progress from input to impact in the result chain illustrates the complete chain of changes brought about by any type of development intervention.

3.3 Experimental model - SDG oriented TOC for tourism

Taking cognizance of the logical framework of TOC, an attempt has been made to position the SDGs under four streams wise concerns and to illustrate the respective envisaged from the corresponding input in the causal path as portrayed in Table 1.

Table 1 presents the anticipated changes expected during the implementation of various selected thematic tourism activities. These projected changes in institutional and behavioral capacities are evaluated up to the outcome stage within the causal framework. Ultimately, the impact stage reflects these behavioral changes as they affect people's lives and livelihoods from a multidisciplinary perspective. At this stage, it is important to examine the changes resulting from the interventions through the lens of the Sustainable Development Goals (SDGs), grouped into four categories: People (SDGs 1, 2, 3, 4, 5), Prosperity (SDGs 7, 8, 9, 10, 11), Planet (SDGs 6, 12, 13, 14, 15), and Peace & Partnership (SDGs 16, 17). This approach helps to understand the long-term effects—whether positive or negative, intended or unintended—in relation to the envisioned goals.



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| | Table 1 Experimental model - TOC for tourism industry | | | | | | | | | | |
|------------------------|---|-------|--------|---------|-------------------------|------------|----------|-------------|---|--|--|
| Theory of Change (TOC) | | | | | Impact-Stream wise SDGs | | | | | | |
| SL | Thematic | Input | Output | Outcome | People | Prosperity | Planet | Peace | & | | |
| | Tourism | | | | SDGs | SDGs | SDGs | Partnership | | | |
| No | | | | | | | | SDGs | | | |
| | (Natural, | | | | (1,2,3,4,5) | (7,8,9,10, | (6,12,13 | (16,17) | | | |
| | commercial) | | | | | 11) | 14,15) | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | | | |
| | • | | | | | | | | | | |

| 1 | Adventure | Surfing, | 1.Increas | 1.Increa | No | Clean | Clean | Private |
|---|-----------------|------------|------------|----------|-----------|-----------|-----------|-------------|
| • | tourism: | Paraglidin | e in no. | se in | poverty, | energy, | water | public |
| | activities in | g, | of tourist | income | zero | Decent | and | Partner- |
| | Tamil Nadu- | Mountaine | 2.Increas | 2. | hunger, | work | sanitatio | ships to |
| | Yercaud, | ering, | e in | Increase | good | and | n | esta-blish |
| | Yelagiri, | Trekking, | infrastru | in | health | economi | Respons | tourism |
| | Kodaikanal, | Bungee | cture | employ | care, | с | ible, | hotspots, |
| | Mahabalipuram, | jumping, | facility | ment | education | growth, | consum | Participati |
| | Ooty, Kolli | Scuba | 3.Increas | 3. | al | new | ption | on of |
| | Hills, | diving, | e in job | Increase | Opportun | industrie | and | corporate |
| | Hogenakkal | Hiking | opportun | in | ities, | S | producti | s under |
| | Masinagudi | Rock | ity | wellnes | gender | innovati | on, | corporate |
| | Anamalai Hills, | climbing. | 4.Increas | S | equality | on, | climate | social |
| | Coonoor, | | e in good | | | infrastru | action, | responsibi |
| | Mudumalai, | | health | | | cture | life | lities |
| | JalagamparaiW | | practices | | | develop | below | (CSR) |
| | aterfalls, | | 5. | | | ment, | water, | |
| | Vellore, | | Increase | | | Universa | life on | |
| | Madurai. | | in | | | 1 access | land. | |
| | Chennai, | | commer | | | to these | Reducti | |
| | Kanniyakumari, | | cial | | | health | on in | |
| | | | activities | | | wellness | biodiver | |
| | | | | | | practices | sity loss | |
| | | | | | | , | | |
| | | | | | | reduced | | |
| | | | | | | inequalit | | |
| | | | | | | ies | | |
| | | | | | | sustaina | | |
| | | | | | | ble | | |
| | | | | | | cities. | | |



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| 2 | Cultural | Architect | 1.Increase | 1.Increas | No | Clean | Clean | Peace |
|---|------------|------------|-------------|------------|-----------|-------------|------------|------------|
| | tourism: | ure | in no of | e in | poverty, | energy | water and | justice |
| | Places in | Painting | tourist | income | zero | Decent | sanitation | and |
| | Tamil Nadu | and | 2.Increase | 2. | hunger, | work | , | strong |
| | Brahadeesw | sculpture, | in | Increase | good | and | Responsi | institutio |
| | arar | Music, | infrastruct | in | health | economic | ble | ns, |
| | Temple, | Dance, | ure | employm | care, | growth, | consumpt | Partnersh |
| | Mamallapur | Performa | facility | ent 3. | education | new | ion | ips for |
| | am Shore | nce | 3.Increase | Feeling | opportuni | industries | and | the goals. |
| | temple, | Martial | in job | of peace | ties | innovatio | productio | |
| | Gangaikond | arts, | opportunit | and well- | gender | n | n, climate | |
| | а | Modern | у. | being | equality | infrastruct | action, | |
| | Cholapuram | arts. | 4.Increase | everyone | | ure | life below | |
| | , Madurai, | | in | to | | developm | water, | |
| | Thanjavur, | | commerci | 4.give up | | ent | life on | |
| | Rameswara | | al | their bad | | Universal | land. | |
| | m | | activities. | habits | | access to | | |
| | Kancheepur | | | which | | these | | |
| | am, | | | lead them | | health | | |
| | Chidambara | | | to live | | wellness | | |
| | m, | | | healthy | | practices | | |
| | Kumbakona | | | happy | | reduced | | |
| | m. | | | life. | | inequaliti | | |
| | | | | 5. | | es | | |
| | | | | Spiritual | | Sustainabl | | |
| | | | | satisfacti | | e cities. | | |
| | | | | on and | | | | |
| | | | | peace at | | | | |
| | | | | home | | | | |
| | | | | | | | | |



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| 3 | Ecotouris | Waterfal | 1.Increase | 1.Increas | No | Clean | Clean | Peace |
|---|-------------|----------|--------------|------------|------------|-------------|-------------|-------------|
| | m: Places | ls, hill | in no. of | e in | poverty, | energy | water and | justice |
| | in Tamil | stations | tourist | income | zero | Decent | sanitation, | and |
| | Nadu | beaches, | 2.Increase | 2. | hunger, | work | Responsib | strong |
| | Kodaikan | lagoons, | in | Increase | good | and | le | institutio |
| | al, | mangrov | infrastruct | in | health | economic | consumpti | ns, |
| | Yercaud, | es, | ure facility | employm | care, | growth, | on | Partnersh |
| | Coonoor, | mudflats | 3.Increase | ent | education | new | and | ips for the |
| | Valparai, | coral | in job | 3.Reducti | opportunit | industries | productio | goals. |
| | Yelagiri, | reefs. | opportunit | on in | ies gender | innovation | n, climate | |
| | Sirumalai, | | У | biodiversi | equality | infrastruct | action, | |
| | Kalrayan | | 4 Increase | ty loss | | ure | life below | |
| | Hills, | | in local | | | developme | water, | |
| | Kolli hills | | consumer | | | nt, | life on | |
| | Hogenakk | | products | | | Universal | land. | |
| | al Agaya | | | | | access to | | |
| | Gangai, | | | | | these | | |
| | Catherine, | | | | | health | | |
| | Kiliyur, | | | | | wellness | | |
| | Suruli and | | | | | practices | | |
| | Tirparapp | | | | | reduced | | |
| | u. | | | | | inequalitie | | |
| | | | | | | S | | |
| | | | | | | sustainabl | | |
| | | | | | | e cities. | | |
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| 4 | Religious | Meditat | 1.Increas | 1.Increas | No | Clean | Clean | Peace |
|---|-----------------|---------|-------------|------------|----------|------------|-----------|------------|
| | tourism: Places | ion | e in no. of | e in | poverty, | energy | water | justice |
| | in Tamil Nadu | Yoga | tourist | income | zero | Decent | and | and |
| | Annamalaiyar | | 2.Increas | 2. | hunger, | work | sanitatio | strong |
| | Temple, | | e in | Increase | good | and | n, | institutio |
| | Vaitheeswaran | | infrastruc | in | health | economic | Responsi | ns |
| | Temple. | | ture | employ | care, | growth, | ble | Partners |
| | Ekambareswarar | | facility | ment | educatio | new | consump | hips for |
| | Temple | | 3.Increas | 3.Feelin | n | industries | tion | the |
| | Jambukeswarar | | e in job | g of | opportun | innovatio | and | goals. |
| | Temple | | opportuni | peace | ities | n | producti | |
| | Kailasanathar | | ty | and | gender | infrastruc | on, | |
| | Temple, | | 4.Increas | well- | equality | ture | climate | |
| | Tiruvarur | | e in local | being | | developm | action, | |
| | Temple, | | consumer | everyone | | ent, | life | |
| | Vailankanni | | products | to 4. give | | Universal | below | |
| | church, | | | up their | | access to | water, | |
| | | | | bad | | these | life on | |
| | | | | habits | | health | land. | |
| | | | | which | | wellness | | |
| | | | | lead | | practices | | |
| | | | | them to | | reduced | | |
| | | | | live | | inequaliti | | |
| | | | | healthy | | es | | |
| | | | | happy | | sustainab | | |
| | | | | life. | | le cities. | | |
| | | | | 5. | | | | |
| | | | | Spiritual | | | | |
| | | | | satisfacti | | | | |
| | | | | on 6. | | | | |
| | | | | peace at | | | | |
| | | | | home | | | | |



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| 5 | Medical | Dental | 1.Increase in | 1.Increas | No | Clean | Clean | Peace |
|---|------------|-------------|----------------|-----------|-----------|------------|------------|------------|
| | tourism: | surgery, | no. of tourist | e in | poverty, | energy | water and | justice |
| | Places in | Organ | 2.Increase in | income | zero | Decent | sanitation | and |
| | Tamil | transplanta | infrastructur | 2. | hunger, | work | , | strong |
| | Nadu | tion | e facility | Increase | good | and | responsib | institutio |
| | G | Cardiac | 3.Increase in | in | health | economic | le | ns, |
| | Kuppusw | surgery, | job | employ | care, | growth, | consumpt | Partners |
| | amy | Orthopedi | opportunity | ment | education | new | ion | hips for |
| | Naidu | c surgery, | Increase in | 3. | opportuni | industries | and | the |
| | Memorial | IVF | number of | Healthy | ties | innovatio | productio | goals. |
| | center | treatment. | clinics | life & | gender | n | n, climate | |
| | Kovai, | | &pharmaceu | well ness | equality | infrastruc | action, | |
| | Medical | | tical shops | | | ture | life | |
| | Center | | | | | developm | below | |
| | PSG | | | | | ent | water, | |
| | Hospitals, | | | | | Universal | life on | |
| | MIOT | | | | | access to | land. | |
| | Hospitals, | | | | | these | | |
| | Chennai | | | | | health | | |
| | Ramacha | | | | | wellness | | |
| | ndra | | | | | practices | | |
| | hospitals, | | | | | reduced | | |
| | | | | | | inequaliti | | |
| | | | | | | es | | |
| | | | | | | sustainabl | | |
| | | | | | | e cities. | | |

Source: Col.Nos 2&3 https://www.tamilnadutourism.tn.gov.in col.no 4 to 9 Authors' inference.

For illustration in the tourism sector, four streams are considered at the impact stage in the causal path. In the case of adventure tourism, which includes activities such as paragliding, trekking, and mountaineering, the expected outputs include an increase in tourists who enjoy these activities, more commercial ventures and adventure-related infrastructure, and a rise in employment opportunities for vulnerable groups as trainers, guides, watchmen and helpers. These outputs are anticipated to enhance employment, income, and overall well-being for the local population. When viewed through the SDG framework, these outcomes directly contribute to achieving the People-related goals (SDGs 1, 2, 3, 4, 5).

In the Prosperity category, impacts such as access to clean water, reliable energy, decent employment, universal health and wellness practices, and reduced inequalities will support the achievement of SDGs 7, 8, 9, 10, and 11. Regarding the Planet theme, positive effects like improved water quality, sanitation, biodiversity conservation, and efficient resource use will advance SDGs 6, 12, 13, 14, and 15. Finally, in the Peace and Partnership category, the development of adventure tourism infrastructure is expected to foster local community involvement, partnerships, and corporate social responsibility initiatives, thereby contributing to SDGs 16 and 17.



Another advantage of adopting the TOC log frame methodology is that throughout the change process, every activity at each stage (input-output-outcome-impact) along the causal chain undergoes Environmental Social and Governance (ESG) risk analysis. This concurrent risk assessment during implementation helps ensure remedial action for ensuring a risk-free path toward sustainability. Similarly, evaluating tasks on the efficiency and effectiveness of various development activities becomes feasible, allowing for an assessment of their contributions in the pathway towards achieving the SDGs in the pathway.

3.4 Limitations

Since the SDG concept has only recently gained recognition in the development field—addressing both planetary and human well-being—there is a shortage of relevant data to effectively measure and represent SDG performance within the tourism sector. As mentioned earlier, SDGs 12 and 17 emphasize the importance of establishing a strong data and monitoring system for this purpose. However, current monitoring systems mainly focus on output-level achievements, measuring target fulfillment in numerical terms within a fixed timeframe, often neglecting the short- and long-term impacts on people and the environment.

Moreover, conducting a comprehensive assessment of tourism's impact on both people and the planet is still demanding due to insufficient data availability at state and national levels. Hence as an experimental basis it is surmised that this research study on tourism which is a kind of phenomenological study, involving multi stake holders, using primary, secondary, data, alongside interviews, observations, and focused group discussions (FGDs) along with case studies, can provide meaningful insights into SDG implementation across diverse destinations with unique needs and characteristics. However imperatively periodic methodological improvements and adaptations in social science research—tailored to the context—are considered essential for going forward.

4. Policy recommendations

4.1 Robust disaggregated data maintenance

Tourism departments at both national and state levels should systematically collect and maintain detailed disaggregated data. This data should be categorized by income, gender, age, race, ethnicity, migration status, disability, geographic location, and other relevant characteristics with destination level granularity to cover various activities within the tourism value chain in relation to SDGs. Maintenance of a centralized tourism data hub is strongly advocated for easy accessibility with iterative feedback mechanism. As India charts its path towards Viksit Bharat, a robust comprehensive data will ensure the risk-free progress not only just fast and but future- proof in the pathway to sustainability.

4.2 TOC-Based on monitoring and evaluation

Tourism hotspots should undergo regular evaluation using the TOC log framework as proposed. For new projects, ongoing evaluation and monitoring against ESG criteria should be incorporated to enable timely mid-course adjustments towards sustainability. Concurrently, application of TOC based M&E assumes more significance in the context of Viksit India 2047 and the need for developing at least one tourist destination per State at par with global standards as exhorted by Indian PM.

4.3 Promotion of interdisciplinary research

Given that the 17 SDGs closely intertwine issues concerning both people and the planet, the Ministry of Education should encourage and promote interdisciplinary research within higher education and research



institutions, offering financial incentives and rewards. Institutions like ICSSR and NCERT need to consider financial support and advocate such research activities to continually refine the methodologies and explore ways for harmonizing SDGs with the existing development schemes at the district and destination /local levels.

4.4 Shift from economics to earthonomics

There is an urgent need to integrate environmental and sustainability concerns into policy implementation, moving away from the traditional growth model focused solely on continuous numerical increases in gross national and per capita income without environmental consideration. Environmental sustainability should be prioritized by planners at both state and national levels (e.g., Planning Commission/NITI Aayog). This calls for a paradigm shift from traditional Economics to Earthonomics. Higher education and research institutions should foster this emerging discipline to develop the human capital with adequate interdisciplinary research skill, needed for economic growth that does not harm the environment.

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