BEI 2025

THE BLUE ECONOMY INDEX

THE ECONOMICS SOCIETY, SRCC

·THE BLUE ECONOMY INDEX·

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ABBREVIATIONS

S.No.	Abbreviations	Expanded Form
1	EU	European Union
2	UNDP	United Nations Development Programme
3	FICCI	Federation of Indian Chambers of Commerce and Industry
4	RAWE	Rural Agricultural Work Experience
5	SDG	Sustainable Development Goal
6	PMMSY	Pradhan Mantri Matsya Sampada Yojana
7	DBT	Direct Bank Transfer
8	EEZ	Exclusive Economic Zone
9	FIDF	Fisheries and Aquaculture Infrastructure Development Fund
10	PPP	Public Private Partnership
11	UDAN	Ude Desh ka Aam Nagrik

INTRODUCTION

Oceans are inarguably an essential and strategic resource. Blue Economy is a reference to the sustainable use of these resources for economic growth while preserving the health of ocean ecosystems. In the Indian scenario, its maritime location along major international shipping routes enhances its strategic importance for trade and security as well.

This report endeavours to build upon this context by developing a state-wise Blue Economy Index for India, covering 9 states over the period from 2013 to 2023. The index is constructed using 15 indicators covering diverse domains of economy, sustainability, livelihoods, and social well being. Ranks have been assigned to the states based on their index values for all years in the study period. This analysis will provide a quantitative assessment of the blue economy's development and sustainability across these states, offering certain useful insights for policymakers and stakeholders.

"As a subset of the economy, Blue Economy covers all ocean-related activities including direct and indirect supporting activities required for functioning of these economic sectors, while adjusting to the costs of environmental damage and ecological imbalance caused due to exploitation of ocean resources for consumption. Therefore, the scope of Blue Economy is much wider and inclusive."

-Research and Information System for Developing Countries (RIS)

India has the potential to become a leader in this sector with its geostrategic position between two seas and a large ocean in its name. With the right policies, investments, and community participation, India can achieve inclusive growth, environmental sustainability, and regional leadership in maritime affairs.

Government initiatives such as the Pradhan Mantri Matsya Sampada Yojana (PMMSY), Deep Ocean Mission, Sagarmala Programme, etc., are all aimed at taking the Blue Economy of India to greater heights. India has been investing in infrastructure development, such as modernising ports and improving shipping infrastructure, through the Maritime Amrit Kaal Vision 2047 initiative.

In this report, the Temporal-Spatial Entropy Method has been used to assign weights to each parameter to prioritise factors which create the greatest difference and impact. This method is grounded in the concept of entropy from information theory, which measures the degree of uncertainty, disorder, or randomness within a system. To put it simply, this methodology would help in the creation of an index that assigns the highest weightage to factors that reflect the most significant drivers of change.

LITERATURE REVIEW

Globally and nationally, there's a growing body of work with regards to the blue economy, but limited integration into a structured, comparative index, especially for India.

GLOBAL BENCHMARKS

A. EU Blue Economy Report 2024

The report outlines the economic performance of EU marine sectors like shipping, coastal tourism, fisheries, and marine renewable energy. It compiles data across all 27 EU countries, presenting trends in Gross Value Added (GVA), employment, and productivity.

It also presents an alignment with more comprehensive policy agendas, such as the European Green Deal, which is one of its main advantages; it links indicators to ecological, decarbonisation, and circular economy objectives in addition to economic output. It demonstrates how an index can serve as a strategic policy guide in addition to a measurement tool.

Gaps:

- **Sector Specific:** It focuses on individual marine sectors like fisheries, tourism, or shipping separately, rather than combining them into a single, overall score or index for each country, i.e. it provides sector-wise statistics but doesn't integrate them into one composite ranking or performance score that captures a country's holistic blue economy status. This makes it harder to compare countries in a simple, unified way.

B. UNDP Framework for measuring the Blue Economy

A conceptual measurement framework based on three pillars: economic development, environmental sustainability, and governance institutions, has been proposed in this UNDP report. It promotes a systems-based approach to valuing marine resources, including non-market services, and pushes nations to modify indicators according to their own national context. Despite having solid principles, the report doesn't offer an index or a statistical approach to ranking or aggregation.

Gaps:

- **Qualitative:** The framework lacks scoring or ranking and remains qualitative.
- No temporal analysis or standardised weighting is provided.

C. Towards a regenerative Blue Economy (INTERNATIONAL UNION FOR CONSERVATION OF NATURE)

This report outlines some key principles such as inclusivity, resilience, and ecological integrity, and discusses how various marine sectors can possibly adopt these values.The report also discusses various types of blue economies and key performance indicators of these.

Gaps:

- The report is primarily qualitative in nature and does not create an index and provide a lot of quantitative findings.
- It does not address the lack of feasibility of policies related to financing for instance.

REGIONAL APPLICATION: JAPAN'S BLUE ECONOMY INDEX

A comprehensive index for assessing the sustainable blue economy: A Japanese application

The paper creates an index for prefectures in Japan. It assigns different weights to different domains keeping in mind varying areas of focus, namely: Equalitarianism, Preservationist, Sustainable Use, and Extractive Use. It creates an index for each coastal prefecture in different weight scenarios.

Gaps:

- **Methodology Used**: The methodology employed is quite simple in nature. The weights assigned to each domain are somewhat arbitrary in nature, with no quantitative methodology being employed to calculate weights.

INDIAN CONTEXT

Despite India's long coastline and growing interest in the ocean economy, there isn't yet a single Blue Economy Index that evaluates or contrasts the economic, environmental, and social performance of Indian states, despite the country's extensive coastline and growing interest in the ocean economy. Although current reports provide useful frameworks and guidance for policy, they fall short of providing a quantitative, state-level tool that facilitates tracking, comparison, and strategic action.

A. FICCI Blue Economy Vision 2025

The report highlights multi-sectoral engagement and aligns the blue

economy with national strategies like Sagarmala and inland water transport. It also provides a helpful framework for classifying different sectors, such as shipping, coastal tourism, fisheries, and renewable energy. These categories could serve as important index dimensions, providing a clear framework for monitoring progress in various industries.

B. Final Report on the Blue Economy - RAWE (2022)

The report gives a useful sectoral overview of the coastal states of India, emphasising the distribution and existence of important blue economy sectors like shipping lanes, aquaculture, and biodiversity zones.

Additionally, it highlights socio-economic issues such as regional disparities and traditional livelihoods, especially in the eastern coastal belt. Finding priority industries and regional traits that ought to be represented in a subnational Blue Economy Index is made easier with the help of these insights.

Despite providing useful sectoral insights and sustainability principles, the current literature, both national and international, consistently lacks an integrated, comparative Blue Economy Index, particularly for the states of India. Although the EU and Japan offer some frameworks, they either use arbitrary weightings or concentrate on sectors that have been broken down. IUCN and UNDP maintain their qualitative focus while emphasising conceptual clarity. While sectoral mapping and alignment with national strategies are provided by Indian reports such as FICCI and RAWE, they lack quantitative metrics and scoring systems.

The proposed Indian Blue Economy Index will combine a strong indicator framework that takes into account economic, environmental, and social factors with global best practices, such as alignment with sustainability goals and multi-sector inclusion, in order to close these gaps. To facilitate benchmarking, progress monitoring, and evidence-based policymaking throughout India's coastal states, it will make use of standardised, state-level data, a transparent scoring and weighting system, and temporal analysis.

PARAMETER ANALYSIS

ECONOMIC DOMAIN

The Economic Domain captures the productive capacity and commercial vitality of a state's marine and coastal economy. It shows how well a state is using its blue assets like fisheries, aquaculture, shipping, ports and tourism for income generation, employment and trade. Parameters in this domain are chosen to give a comprehensive view of this economic engagement: GVA growth measures sector dynamism and value creation, exports signal international competitiveness and value chain strength, fund release shows fiscal support, while GVA per fund released assesses the efficiency of public investment. Capex as a % of GVA indicates long-term capital formation and modernisation.

Tourist arrivals, cargo traffic and ship arrivals reflect the importance of marine tourism and maritime logistics, two key drivers of blue growth. Fish seed production and fish output capture the foundational importance of fisheries and aquaculture, which are the bedrock of coastal economies. Together, these parameters show the economic scale, quality and sustainability of marine resource use.

State-wise growth in GVA of Fisheries and Aquaculture

This parameter measures the year-on-year or compounded annual growth in the Gross Value Added (GVA) from the fisheries and aquaculture sectors in different states. GVA reflects the net contribution of these sectors to the economy after subtracting input costs.

Growth in this indicator suggests improvements in productivity, technology adoption, better market access or favourable policy support. For a Blue Economy Index, this metric directly shows how fast a state's marine and aquatic sectors are growing economically. It helps identify leaders and laggards in fisheries development and resource use.

State-wise export of Marine Products

Captures the value (in ₹ crores) of marine products like fish, frozen shrimp, squids, cuttlefish and other seafood exported from each state. It is a proxy for international demand, processing capabilities, quality standards and compliance with food safety norms.

It also reflects infrastructure like cold chains, export quality processing units and proximity to ports. High exports indicate the external competitiveness of a state's marine economy. The Blue Economy Index shows how well a state is integrating its marine sector with global markets.

State-wise fund release (in ₹ Lakhs)

This metric refers to the financial support provided by central or state governments to individual states under various schemes related to fisheries, aquaculture, harbour development, fish marketing and coastal infrastructure.

It doesn't always mean actual expenditure is budget allocation or disbursal. It helps measure policy attention and fiscal support to build blue economy capabilities. But it should be used along with outcome indicators (like GVA or fish production) to assess effectiveness.

GVA Per Unit Fund Released

The metric-derived by dividing the Gross Value Added (economic output) by the total public funds released for fisheries and aquaculture in a state. It shows how well a state converts public investment into economic value. Higher values mean better governance and management and investment efficiency. The Blue Economy Index, we measure not just input (funding) but output (value creation).

Capex as a % of GVA

This parameter measures the share of capital expenditure (on infrastructure, equipment, etc.) as a percentage of the fisheries sector's GVA. A high ratio means a significant portion of value is being reinvested into long-term assets like fishing harbours, port terminals, fish landing centres, vessels or processing plants. It indicates modernisation, capacity building and growth potential. The index reflects the sustainability of economic growth and infrastructure development.

Tourist Arrivals State-wise

This captures the number of tourists visiting each state, especially coastal or marine destinations. It may include beach tourism, eco-tourism, cruise tourism or visits to marine parks. This is an important indicator for the non-extractive dimension of the blue economy.

Blue tourism generates income without depleting natural resources and creates employment, especially in small businesses and services. Attractiveness and management of coastal zones are reflected here.

Cargo Traffic state-wise ('000 tonnes)

This refers to the total volume of goods handled at seaports in each

state, measured in thousand tonnes. It includes imports, exports, and domestic cargo. It reflects how well ports are integrated with industrial, trade, and logistics ecosystems. A higher volume means better port connectivity, industrial demand and maritime efficiency. Blue economy framework reflects marine infrastructure utilisation.

Number of ship arrivals state-wise

This parameter tracks how many ships (cargo, passenger, naval or others) call at a state's ports every year. It complements cargo traffic by showing frequency and logistical throughput. Ports with high arrivals are hubs for trade, tourism and logistics and indicate infrastructure readiness and global integration.

Passenger Traffic

This metric tracks the number of passengers using ferries, coastal shipping or inland water transport systems. It measures how much water-based transport is used for mobility, especially in island, deltaic or coastal regions. Promoting such transport reduces road congestion, lowers emissions and provides cost-effective mobility, key goals of a sustainable blue economy.

SUSTAINABILITY DOMAIN

The Sustainability Domain shows the sustainability and ecological impact of blue economy activities. It ensures that economic growth is pursued in harmony with marine and coastal ecosystems, in line with the principle that the blue economy must be regenerative, not extractive (SDG 14: Life Below Water). Parameters like capacity utilisation in small hydro and wind power show how well states are transitioning to clean and renewable energy, especially for climate-vulnerable coastal areas. The inclusion of offshore crude oil and natural gas production helps us account for the pressure on marine ecosystems by extractive industries. Offshore operations involve complex engineering in an open sea environment and entail a significant ecological risk, like oil spills or methane leaks.

Measuring their proportion highlights the need for careful management, regulation and eventual transition to less harmful blue economy activities like offshore wind, marine biotech or conservation-based tourism. This domain therefore helps to assess if states are balancing marine economic utilisation with climate responsibility and environmental stewardship.

Capacity Utilisation in Wind Power

This is the operational efficiency of installed wind power, especially for coastal states with onshore or offshore wind farms. It's actual energy produced divided by the maximum possible production. Higher capacity utilisation means

good geography, stable policy and good grid infrastructure. Wind power is key to the blue economy's clean energy.

Proportion of Crude Oil Production

This parameter measures the share of total oil production that comes from offshore fields, oil wells underthe sea, usually on the continental shelf or deeper. Offshore oil fields are capital-intensive and technologically complex but have high reserves. In the Blue Economy Index, this parameter is important because while offshore drilling contributes to economic output and energy security, it also has serious environmental risks that can impact fisheries, marine biodiversity and coastal livelihoods.

Tracking this indicator helps to understand the extent of dependence on factors like marine hydrocarbons and the pressure on ocean ecosystems.

Proportion of Natural Gas Production

This metric represents the percentage of a state's natural gas output that comes from offshore gas fields, under the ocean. Offshore gas production, especially in areas like the Krishna-Godavari Basin (KG-D6) has been crucial for industrial and urban energy needs.

From a Blue Economy perspective, this indicator reflects the economic potential of offshore reserves but also flags concerns around marine ecosystem safety, methane leakage and the overlap between gas fields and fishing zones. Its inclusion in the index allows for a balanced view of extractive vs sustainable activities.

Capacity Utilisation in Small Hydro

This parameter tracks the operational efficiency of installed small hydro plants, especially in coastal and hilly states with hydropower potential. It is calculated as the actual energy generated divided by the maximum possible generation capacity. A higher capacity utilisation ratio indicates favourable topography, effective water resource management, reliable rainfall patterns, and strong maintenance and policy support. Small hydropower contributes significantly to the blue economy's clean energy goals by offering a stable and low-emission source of power.

SOCIAL WELFARE DOMAIN

The Fishermen Welfare Domain ensures the Blue Economy Index is inclusive, equitable and grounded in human development. Marine resources are a lifeline for millions of traditional fishers and coastal communities, many of whom face income uncertainty, physical danger and climate shocks. This domain focuses on their well-being, social security and resilience.

The Fisherman Accident Insurance Scheme indicates the presence and coverage of safety nets for those engaged in marine hazardous occupations, while relief assistance and financial support capture the state response during disasters, lean seasons or livelihood disruptions.

Fisherman Accident Insurance Scheme

This indicator measures the number of fishermen covered and the number of claims paid under insurance schemes that provide financial protection against accidents, injuries or death during fishing activities. Given the hazardous nature of fishing, especially at sea, this metric is a strong proxy for social protection and the human development aspect of the blue economy. It measures inclusivity and risk mitigation for marine workers.

Relief Assistance and Financial Support (in lakhs INR)

This includes monetary support given to fishermen during crises like cyclones, economic hardships. It includes direct cash transfers, subsidies or disaster relief packages. This metric measures the resilience framework of the blue economy and how well coastal populations are protected from climate shocks.

These parameters ensure that social dimensions often overlooked in growth metrics are part of the assessment of a state's blue economy. They underline the idea that a truly sustainable blue economy must protect and empower its most vulnerable stakeholders.

METHODOLOGY

This report employs a carefully designed three-step approach to assess and rank the performance of different states. Each stage is rooted in data-driven techniques and is structured to ensure fairness, comparability, and analytical soundness. The aim is to transform raw data into meaningful insights that reflect both the scale and quality of outcomes across multiple dimensions.

Stage 1: Normalisation of Data

In any comparison across states, raw data can be misleading due to differences in scale, units, or distribution. For instance, a larger state may naturally have higher absolute production figures, but this doesn't always reflect better performance. To make the data comparable, it needs to be brought to a common scale.

To achieve this, we applied the **min-max normalisation method**. This approach rescales data values for each parameter (such as fish seed production, hatchery count, or funding allocated) to a range between 0 and 1 using the formula:

$$X' = \frac{X - Xmin}{Xmax - Xmin}$$

This step ensures that the highest value becomes 1 and the lowest becomes 0. However, it introduces a challenge because outliers or exceptionally high values can distort the scale and skew the interpretation. For example, if one state's fish production is 10 times that of others due to geographical advantage, its normalised value will be 1 while others may fall disproportionately low, even if they are performing well within their context.

To correct for this, we divided each normalised value by the **sum of all normalised values under that parameter for a particular year**. This additional adjustment helps eliminate the undue influence of outliers, ensuring that all states are assessed fairly. It essentially brings the focus back to relative performance rather than just extremes.

Once this refined dataset was prepared across parameters and years, it was ready for the next phase: assigning appropriate **weights** to reflect the relative importance of each parameter.

Stage 2: Calculation of Weights (Using Temporal-Spatial Entropy Method)

Not all parameters contribute equally to performance. For example, a parameter like "availability of fish seed" might have a more direct impact on overall aquaculture performance than the "number of awareness workshops conducted." Thus, assigning equal importance to every parameter would be analytically weak.

To address this, we used the **Temporal-Spatial Entropy (TSE) method**, an advanced technique that builds on the conventional entropy method. It captures both:

- **Temporal variation** refers to how much a parameter changes over the years.
- **Spatial variation** refers to how it differs across states in a given year.

Why entropy?

Entropy, in information theory, measures uncertainty or randomness. In our context, a parameter with less variation (less entropy) carries a more informative value because it signals consistency or stability. Conversely, high entropy means the parameter is more unpredictable or volatile, and therefore contributes less clarity in distinguishing performance.

The steps involved in this method are as follows:

1.Calculate H-values (entropy values):
For each parameter, we measured how dispersed or uneven the values were across time and space. For instance, if all states had nearly identical scores under a parameter over time, the entropy would be high and the weight low, indicating limited differentiation.

$$H = \ln(N)^{-1}$$

Where N = Number of Datapoints

2.Logarithmic Transformation:
Each normalised value was multiplied by the natural logarithm of itself.

$$\sum x_i . \ln(x_i)$$

This helps capture non-linearity in data and improves sensitivity to minor differences. The resulting values were summed across observations for each parameter.

3.Multiply with Entropy Scores:
These log-transformed sums were then scaled by the previously calculated H-values, producing a refined measure of disorder or uncertainty for each parameter.

$$e_i = H \times \sum x_i . \ln(x_i)$$

4. Calculate Dispersion Values (di):
To invert entropy into a measure of information, each entropy score (ei) was subtracted from 1. The result represents the parameter's "dispersion"in other words, how much meaningful variation it offers. A dispersion score close to 1 means the parameter is highly informative. If any did_idi falls outside the 0 to 1 range, it usually signals a data issue such as skewed distribution or input error.

$$d_i = 1 - e_i$$

5. Assign Weights:
Each parameter's dispersion was then divided by the **sum of all dispersion values**. This provided us with a relative weight for every parameter, ensuring that more informative parameters had a stronger influence on the final rankings.

$$W_i = \frac{d_i}{\sum d_i}$$

Example:
Suppose the parameter "Exports of Fisheries Products" shows low variation across states and time (high entropy), while "Relief assistance and Financial Support" shows significant variation (low entropy). The latter will get a higher weight because it provides better discrimination between states' performances.

Stage 3: Calculation of Ranks (Using the TOPSIS Method)

Once the weights were finalised, the last step was to rank the states using the **TOPSIS method**, which is a widely used multi-criteria decision-making technique (MCDM). It is based on a simple yet powerful idea that the best option is the one that is closest to the ideal solution and furthest from the worst-case scenario.

Conceptual Foundation:

- The **ideal best** is a hypothetical state that scores the highest possible value in every parameter.
- The **ideal worst** is a hypothetical state with the lowest possible scores.

States are evaluated by computing their **Euclidean distance** from both of these ideal reference points.

Step-by-Step Implementation:
1. Time Period Segmentation:
Since data on fish and fish seed production was available for only five years, the study period was divided into two parts:
-Years with complete data (including fish-related parameters).
-Years without fish-related data.

2.To ensure consistency, separate weight sets were calculated for each segment. This prevented states from being penalised or favoured due to missing data.

3. Weighted Normalised Scores (Vi):
Each state's normalised value under a parameter was multiplied by its corresponding weight to get the Vi score.

4. Identification of Ideal Values:
The maximum Vi value (V^+) and the minimum Vi value (V^-) were determined for each parameter across all states.

5. Distance from Ideal Solutions:
For each state, the **distance from the ideal best (Si^+)** was calculated using the Euclidean distance formula. The same was done for the **distance from the ideal worst (Si^-)**.

6. Final Composite Score (Pi):
Each state's performance index was calculated using the formula:

Pi = Si- / (Si- + Si+)
This Pi value lies between 0 and 1. A value closer to 1 indicates that the state is closer to the ideal best and hence ranks higher.

7.Assignment of Ranks:
States were ranked in descending order of their Pi values. This ranking was conducted separately for each year from 2014 to 2023, enabling a longitudinal understanding of performance.

Example:
Suppose Maharashtra has a Pi of 0.87 and Goa has a Pi of 0.65.
This implies that State A is not only closer to the best-case scenario across all parameters but is also more distant from the worst-case scenario. Therefore, State A would be assigned a higher rank than State B.

Conclusion

This three-step methodology ensures that the final state rankings are not influenced by superficial factors such as absolute size or isolated data peaks. Instead, they reflect a balanced, comprehensive, and dynamic assessment of performance across multiple years and indicators.

By incorporating normalisation, information-theoretic weighting, and distance-based ranking, the methodology ensures that results are transparent, statistically sound, and analytically meaningful. The ultimate goal is to enable stakeholders to identify not just which states are leading, but also *why* they are leading and *how* others can improve.

FINAL ANALYSIS

H LOG TRANSFORMATION

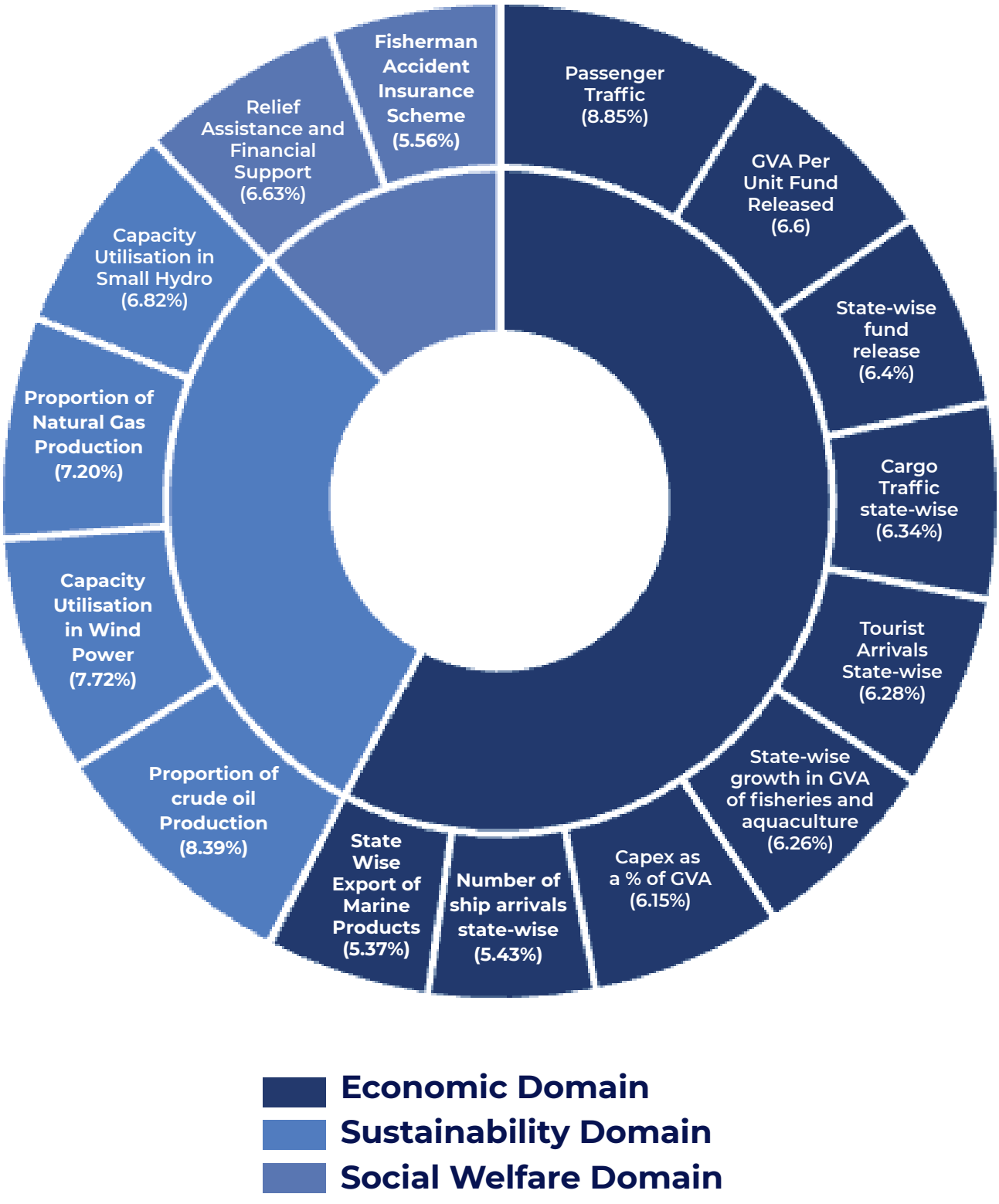
The entropy log transformation reveals how much variation each parameter contributes to the Blue Economy Index. Parameters with highly negative log sums such as Passenger Traffic, Natural Gas Production, and Crude Oil Production suggest minimal variation across states. These parameters carry limited statistical information and offer low discriminatory power when comparing performance across the coastal regions.

This is because of their geographic concentration. Crude oil and gas output is appreciable only in places like Gujarat and Andhra Pradesh, while other coastal states have little or zero values. Likewise, passenger traffic seems high only in the states that have established ferry or water transport systems, while others record little or no traffic. These factors, though vital in principle, make little contribution towards balanced state-wise differentiation in the present form.
Conversely, parameters like Marine Product Exports, Capex as a Percentage of GVA, and GVA per Unit Fund Released have larger (more negative) log entropy values, i.e., they range more among states. Marine exports capture variation in infrastructure and access to foreign markets. Capex as % of GVA unveils variation in long-term investment choice. GVA per fund released informs us about the efficiency with which states transform financial inputs into economic outputs.

Other measures such as Tourist Arrivals, Cargo Traffic, and Insurance Coverage exhibit moderate to low log entropy, which reflects either data consistency or restricted performance variation. Here, a low value of log entropy does not necessarily imply a low final weight. Passenger Traffic, e.g., has low entropy value but receives high weight due to high dispersion in some states, showing non-linear interaction between entropy and influence.

As a whole, this step assists in distinguishing parameters that are too flat, too sparse, or too skewed to provide valid comparative value, facilitating improved indicator selection and interpretation.

TEMPORAL SPATIAL ENTROPY WEIGHTS



ENTROPY WEIGHTS

The ultimate weights obtained through the entropy method reaffirm the trends seen in the log transformation phase. Passenger Traffic carries the maximum weight, indicating its high variability and influence on ranking. It is trailed by Crude Oil Production and Wind Power Utilisation, both having high concentrations in individual states and acting as good differentiators in blue economy performance.

Natural Gas Production, Small Hydro Utilisation, and GVA per Unit Fund Released are in the middle category. These measures point to inter-state variations in energy diversification and investment returns. On the other hand, social support-related measures like Relief Assistance, Fund Release, and Insurance Coverage are in the moderate category, with some inter-state variation in policy coverage and responsiveness.

Smaller weights are seen for Marine Product Exports, Ship Arrivals, and Tourist Arrivals, perhaps because they are concentrated in a limited number of states or have comparatively homogeneous data in different states. The lightest weight, Capex as a Percentage of GVA, could be because of low variability or systematic underinvestment in all the states.
In short, transport, energy utilisation, and extractive capacity are the most weighted parameters that reflect where the greatest inter-state differentiation occurs. However, trade, investment in infrastructure, and tourism recorded comparatively weaker differentiation in this data set.

TOPSIS RANKS

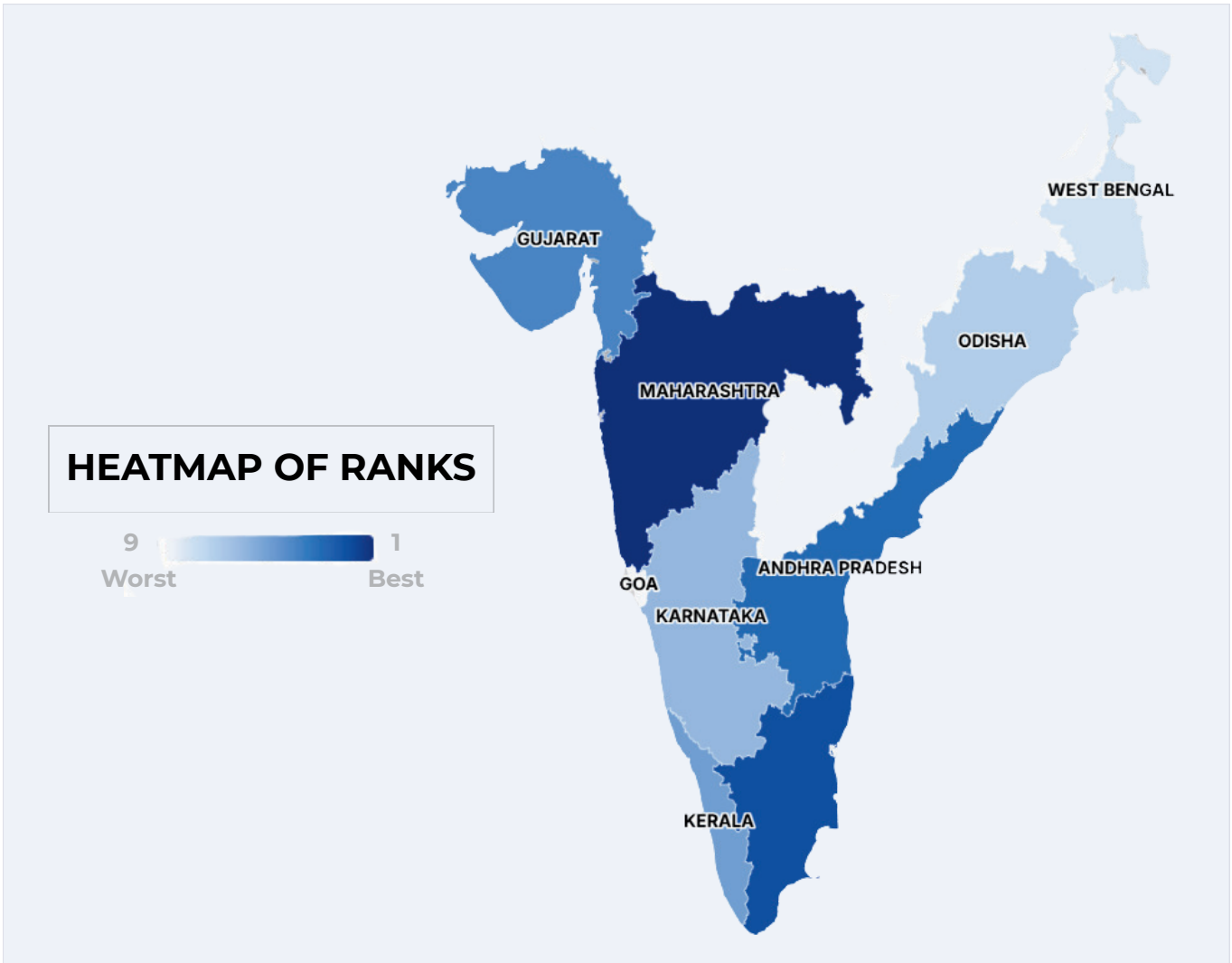
To obtain a final composite value and rank the states, the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) was used. TOPSIS ranks alternatives on the basis of their similarity to the ideal solution i.e., the highest possible performance on all indicators and dissimilarity from the worst possible scenario. The score for each state was computed based on the weighted indicators obtained through the entropy method, which consisted of economic, social, environmental, and infrastructure-related parameters.

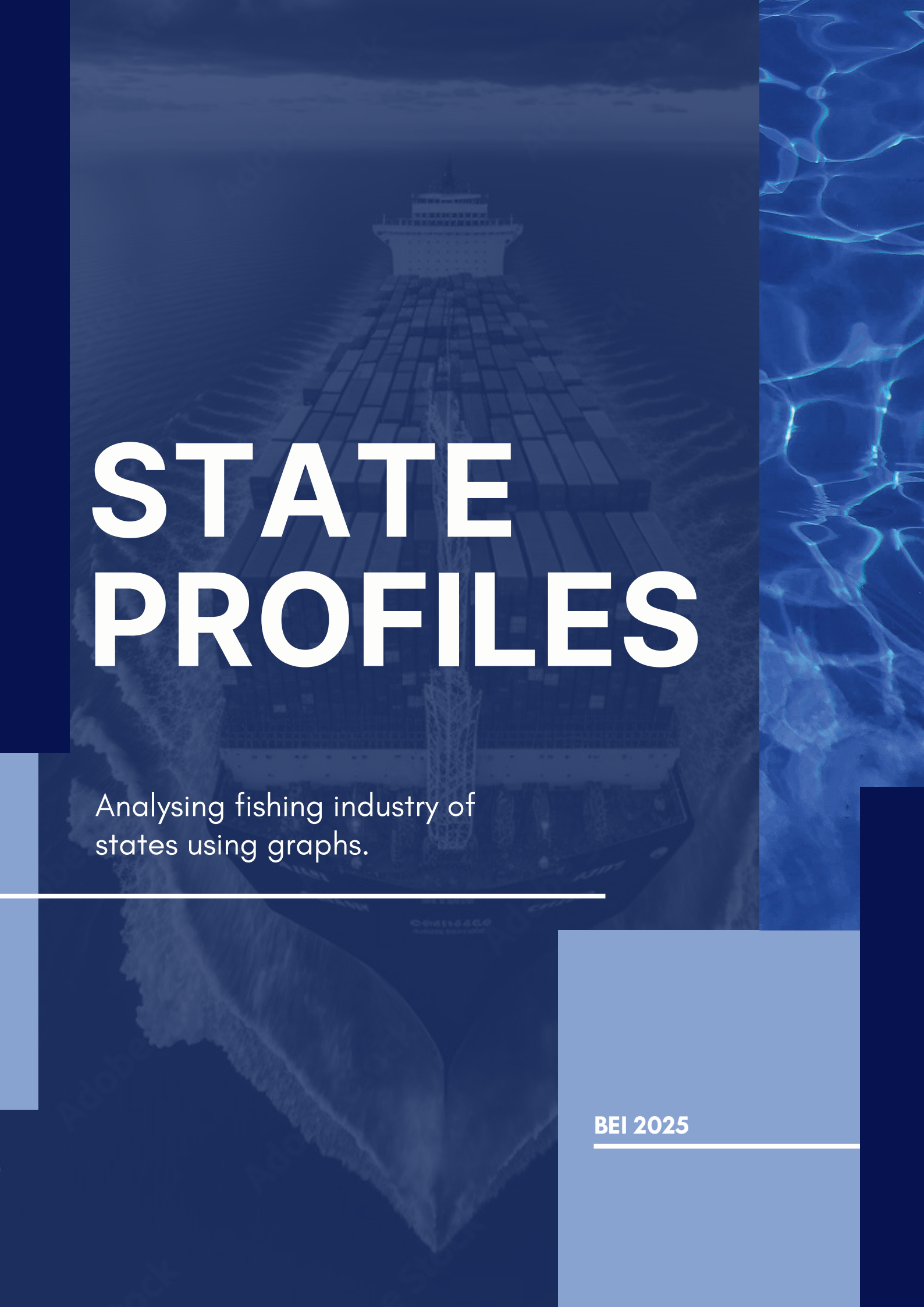
This approach facilitates holistic ranking by computing simultaneously how far a state is from ideal performance and the relative performance of a state. The state nearest the ideal solution on most measures has a higher ranking, with those nearer the negative-ideal receiving lower rankings.

According to this model, the final ranks of Indian coastal states based on Blue Economy performance were as follows:

RANKS THROUGHOUT THE YEARS

State	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Andhra Pradesh	3	3	4	3	2	4	3	2	3	4
Goa	9	9	9	9	9	9	9	9	9	9
Gujarat	4	4	3	5	5	5	5	5	4	3
Karnataka	6	6	8	8	8	8	8	6	6	8
Kerala	5	7	6	7	7	7	7	8	7	6
Maharashtra	1	1	1	1	1	1	1	1	1	1
Odisha	7	5	7	6	6	6	6	7	5	7
Tamil Nadu	2	2	2	2	3	2	2	3	2	2
West Bengal	8	8	5	4	4	3	4	4	8	5





STATE PROFILES

Analysing fishing industry of states using graphs.

BEI 2025

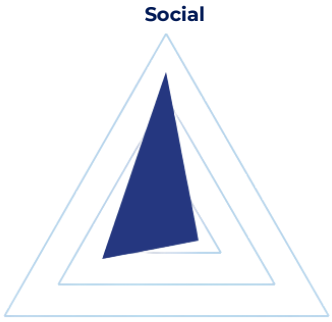
MAHARASHTRA

State Profile

↑ 1

Overall Ranking

DOMAIN SPECIFIC SCORES



0.15	0.30	0.60
Economy	Sustainability	Social

KEY PERFORMANCE INDICATORS

Government Budgetary Expenditure

68%	OpEx	₹368 Crores
32%	CapEx	₹184 Crores

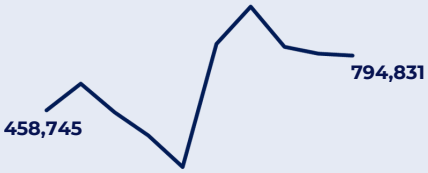
Blue Energy Generation

100%	Wind Power	174 GW
0%	Hydro Power	0.8 GW

Passenger Traffic
(in Thousands)

Rank 1

Expenditure on Disaster
(in Lakhs INR)

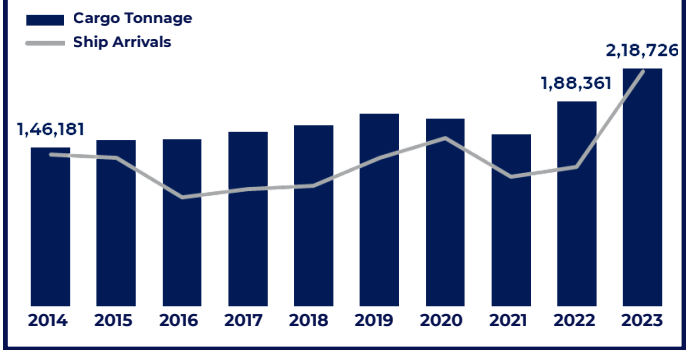


Rank 2

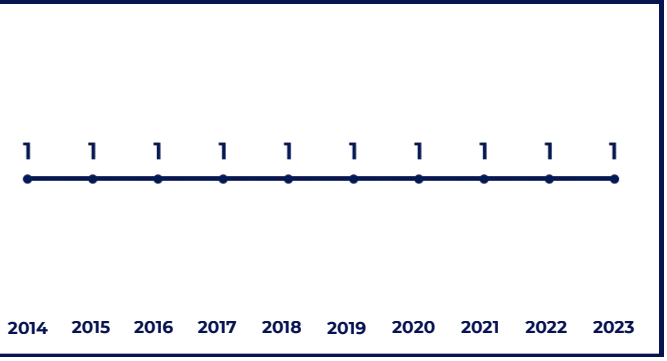
Small Hydro Potential
(in MW)

Rank 1

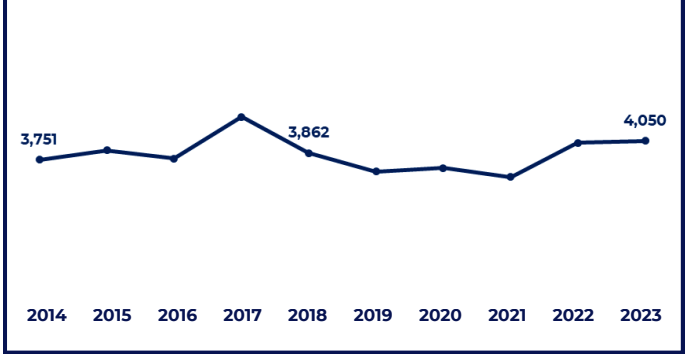
Ship Arrivals and Cargo



Trend of Ranking



GVA from Fisheries (in ₹ Crores)



Inferences

1. **Fluctuating Fisheries Performance:** Fisheries GVA has been volatile, oscillating between 0 and 1, with a modest absolute GVA of ₹0.04 Lakh.
2. **Inconsistent Funding:** Funding kept declining, GVA per unit of funding was erratic, indicating uneven resource utilization.
3. **A Moderate Blue Economy**: Revenue expenditure rose to ₹0.41 Cr; capex spiked in 2019–20 but dipped later, while marine exports and renewable potential (wind from 0.17 to 0.96, hydro at ~0.21) showed slow but steady growth.

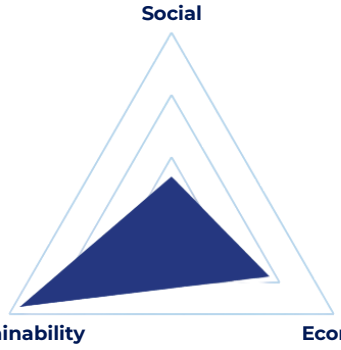
TAMIL NADU

State Profile

↑2

Overall Ranking

DOMAIN SPECIFIC SCORES



0.40	0.76	0.56
Economy	Sustainability	Social

KEY PERFORMANCE INDICATORS

Government Budgetary Expenditure

69%	OpEx	₹858 Crores
31%	CapEx	₹393 Crores

Blue Energy Generation

99%	Wind Power	95 GW
1%	Hydro Power	0.6 GW

CapEx for Fisheries
(in Crores INR)

Rank 1

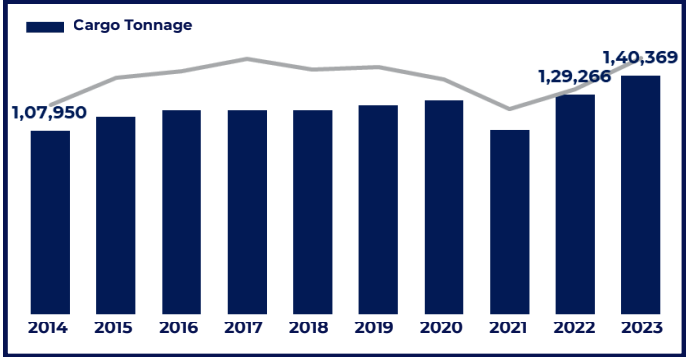
Relief Assistance
(in Lakhs INR)

Rank 1

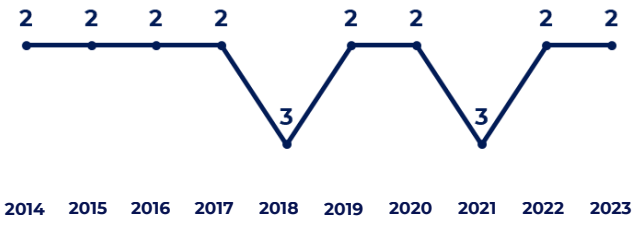
Wind Power Potential
(in MW)

Rank 1

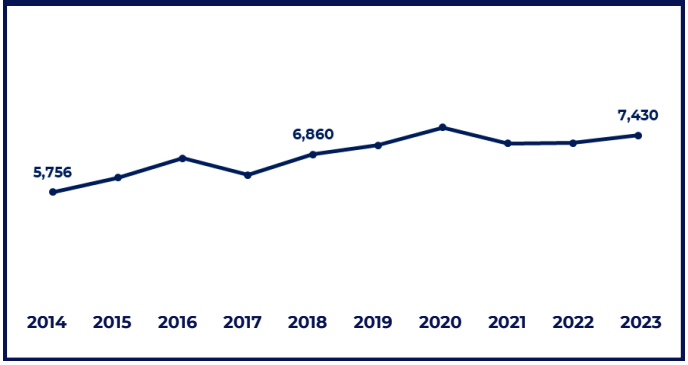
Ship Arrivals and Cargo



Trend of Ranking



GVA from Fisheries (in ₹ Crores)



Inferences

1. **Sustainability and Budget Strength:** High sustainability score (0.76) backed by leading CapEx and relief expenditure; strong support through ₹858 Cr OpEx and ₹393 Cr CapEx.
2. **Renewable Energy Powerhouse:** Dominates blue energy with 99% of 95 GW capacity from wind, and highest wind potential in India at 95,107 MW.
3. **Consistent Sectoral Output:** Fisheries GVA grew steadily; cargo peaked at 1.4 Lakh MT; maintained 2nd rank overall.

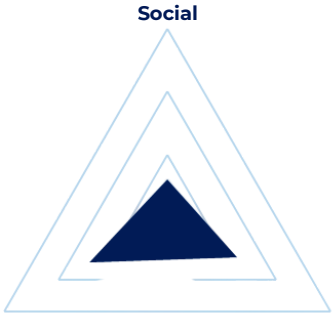
GUJARAT

State Profile

↑3

Overall Ranking

DOMAIN SPECIFIC SCORES



0.32	0.36	0.15
Economy	Sustainability	Social

KEY PERFORMANCE INDICATORS

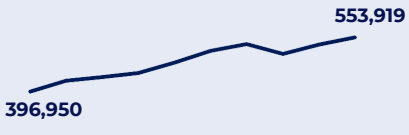
Government Budgetary Expenditure

61%	OpEx	₹486 Crores
39%	CapEx	₹316 Crores

Blue Energy Generation

100%	Wind Power	181 GW
0%	Hydro Power	0.2 GW

Cargo Traffic
(in Tonnes)



Rank 1

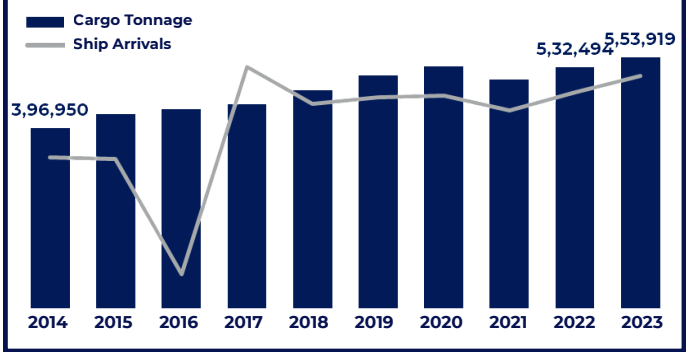
CapEx for Fisheries
(in Crores INR)

Rank 3

Fish Seed Production
(in Lakh Fry)

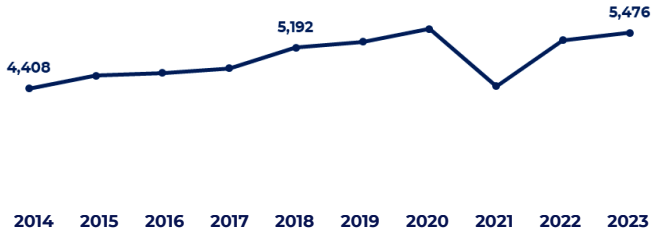
Rank 4

Ship Arrivals and Cargo



Trend of Ranking

GVA from Fisheries (in ₹ Crores)



Inferences

1. **Top Maritime Trade State:** Ranks 1st in cargo traffic (5.5 lakh tonnes), supported by strong ship arrivals and port infrastructure.
2. **Blue Energy Leadership:** Harnesses 181 GW of wind power, making it a top renewable energy contributor.
3. **Rising Fisheries Investment & Ranking:** CapEx rose to ₹316 Cr; fish seed production increased to 9,585 lakh fry; overall rank improved from 5th to 3rd in 2023.

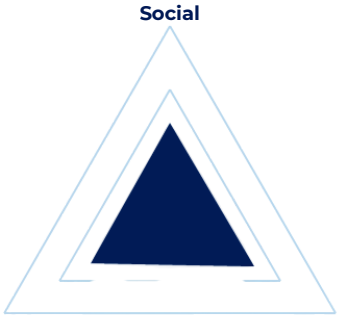
ANDHRA PRADESH

State Profile

↑4

Overall Ranking

DOMAIN SPECIFIC SCORES



0.38	0.36	0.37
Economy	Sustainability	Social

KEY PERFORMANCE INDICATORS

Government Budgetary Expenditure

68%	OpEx	₹201 Crores
32%	CapEx	₹95 Crores

Blue Energy Generation

100%	Wind Power	123 GW
0%	Hydro Power	0.4 GW

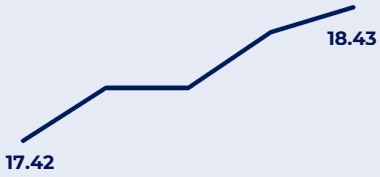
Growth in GVA

Rank 1

Fisheries Exports
(in Crores)

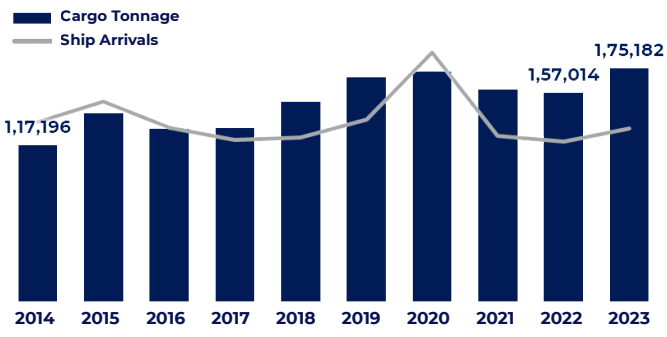
Rank 1

Fish Production
(in Lakh Tonnes)

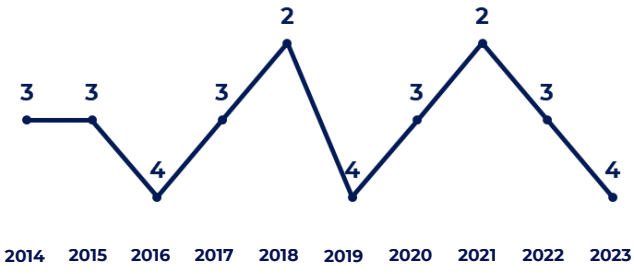


Rank 4

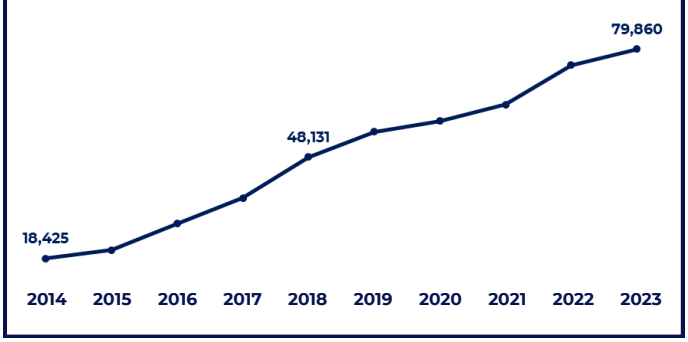
Ship Arrivals and Cargo



Trend of Ranking



GVA from Fisheries (in ₹ Crores)



Inferences

1. **Fisheries and Export Leader:** Andhra Pradesh leads the nation with the highest GVA (₹79,860 Cr) and exports (₹18,168 Cr) in the fisheries sector.
2. **High Production & Port Activity:** Fish production rose to 18.43 lakh tonnes (4th rank), while cargo tonnage increased to 1.75 lakh tonnes, reflecting strong infrastructure.
3. **Robust Renewable Capacity:** The state has developed 123 GW of installed wind power, making it a strong player in the blue energy space.

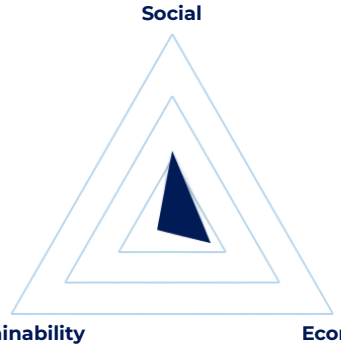
WEST BENGAL

State Profile

↑5

Overall Ranking

DOMAIN SPECIFIC SCORES



0.28	0.18	0.07
Economy	Sustainability	Social

KEY PERFORMANCE INDICATORS

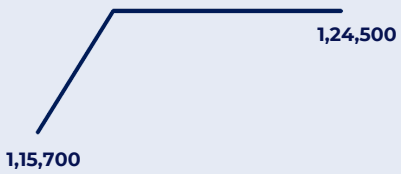
Government Budgetary Expenditure

92%	OpEx	₹189 Crores
8%	CapEx	₹16 Crores

Blue Energy Generation

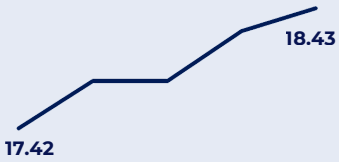
77%	Wind Power	1.2 GW
23%	Hydro Power	0.4 GW

Fish Seed Production
(in Lakh Fry)



Rank 1

Fish Production
(in Lakh Tonnes)

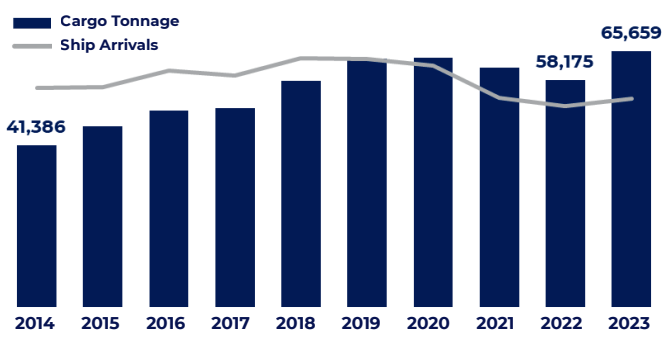


Rank 2

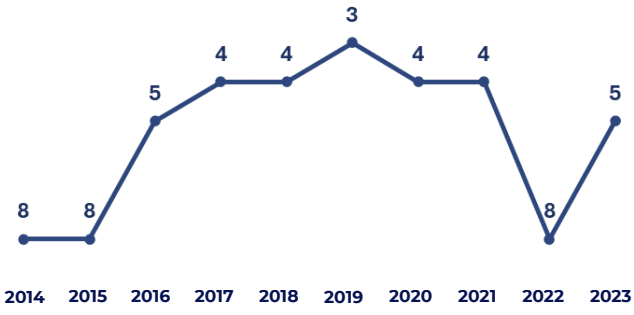
Fisheries Exports
(in Lakhs)

Rank 4

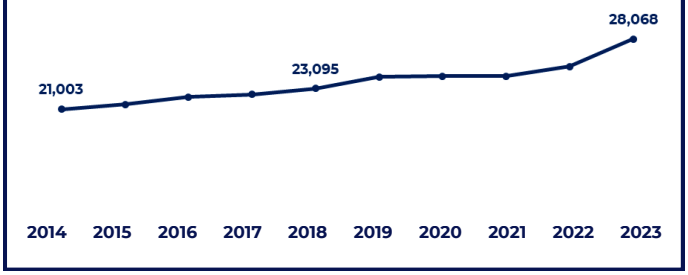
Ship Arrivals and Cargo



Trend of Ranking



GVA from Fisheries (in ₹ Crores)



Inferences

1. **Fisheries Production Hub:** West Bengal leads in fish seed production (1.24 lakh fry) and ranks 2nd in overall fish production at 18.43 lakh tonnes.
2. **Strong Value Addition:** Fisheries GVA reached ₹28,068 Cr, reflecting consistent contribution and economic importance.
3. **Low Capital Investment:** Despite high output, only 8% of the fisheries budget goes to CapEx, which may hinder long-term sectoral growth.

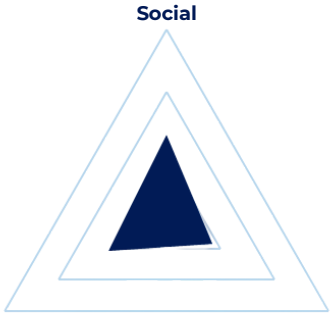
KERALA

State Profile

↑6

Overall Ranking

DOMAIN SPECIFIC SCORES



0.21	0.27	0.33
Economy	Sustainability	Social

KEY PERFORMANCE INDICATORS

Government Budgetary Expenditure

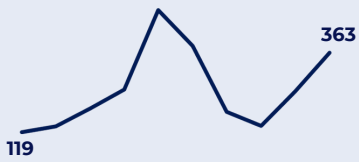
53%	OpEx	₹417 Crores
47%	CapEx	₹363 Crores

Blue Energy Generation

80%	Wind Power	2.6 GW
20%	Hydro Power	0.6 GW

CapEx for Fisheries

(in Crores INR)



Rank 2

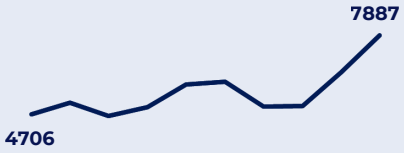
Relief Assistance

(in Lakhs INR)

Rank 2

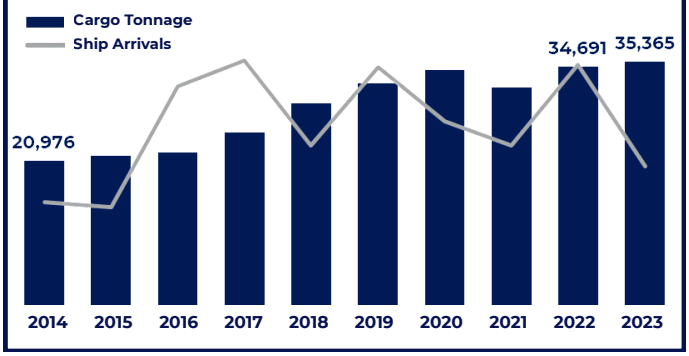
Fisheries Exports

(in Lakhs INR)



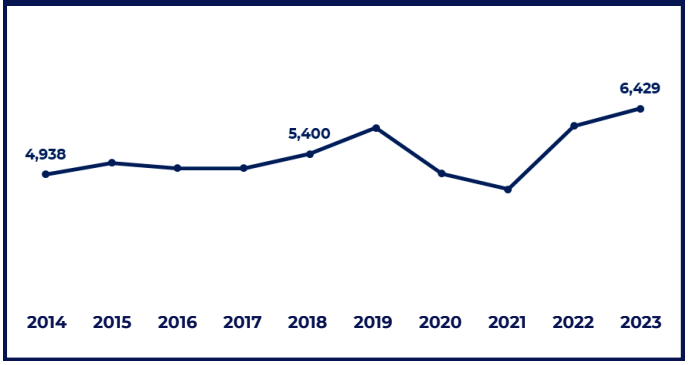
Rank 3

Ship Arrivals and Cargo



Trend of Ranking

GVA from Fisheries (in ₹ Crores)



Inferences

1. **High Capital Spending:** Kerala allocated 47% of its fisheries budget to CapEx, prioritizing infrastructure and long-term capacity building.
2. **Strong Relief Measures:** With ₹15,316 lakh spent, it ranks 2nd in the country for fisheries-related relief, showcasing strong social protection.
3. **Solid Trade Performance:** Fisheries exports reached 7,887 lakh (3rd rank), and cargo tonnage steadily increased to 35,365 tonnes.

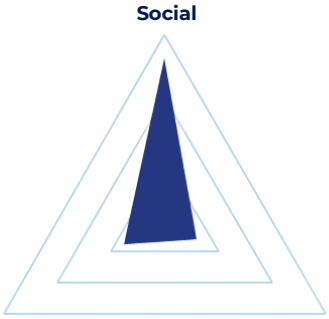
ODISHA

State Profile

↑7

Overall Ranking

DOMAIN SPECIFIC SCORES



0.15	0.19	0.66
Economy	Sustainability	Social

KEY PERFORMANCE INDICATORS

Government Budgetary Expenditure

89%	OpEx	₹383 Crores
11%	CapEx	₹45 Crores

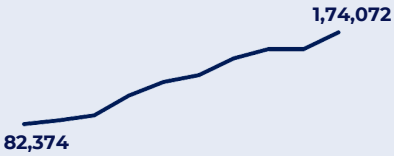
Blue Energy Generation

98%	Wind Power	12 GW
2%	Hydro Power	0.29 GW

Accident Insurance

Rank 1

Cargo Traffic
(in Tonnes)

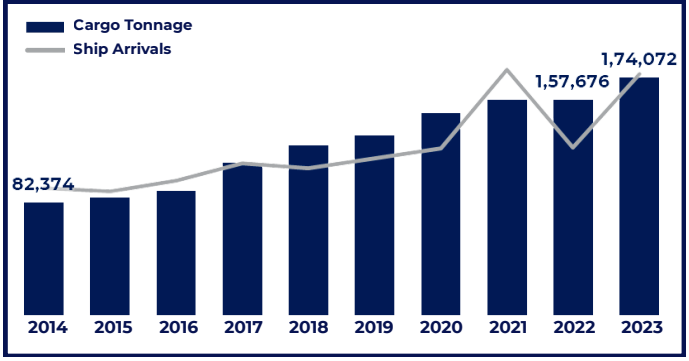


Rank 4

Fish Production
(in Lakh Tonnes)

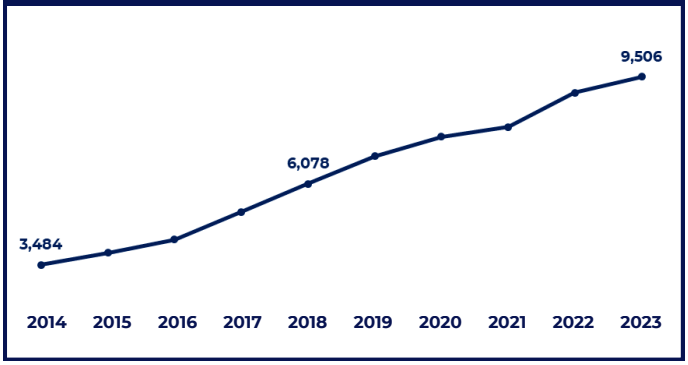
Rank 4

Ship Arrivals and Cargo



Trend of Ranking

GVA from Fisheries (in ₹ Crores)



Inferences

1. **Strong Social Indicators:** Odisha scores 0.66 overall, with standout performance in fisher accident insurance coverage and safety.
2. **Rising Cargo Traffic:** Cargo movement increased to 1.74 lakh tonnes, reflecting expanding maritime activity.
3. **OpEx-Dominated Budgeting:** While fish production stands at 9.9 lakh tonnes (ranked 4th), 89% of the budget is allocated to OpEx, limiting long-term investment.

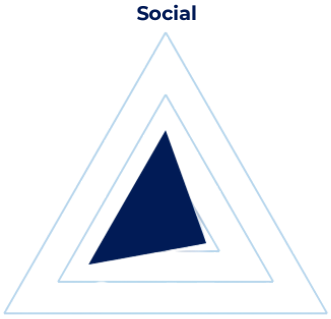
KARNATAKA

State Profile

↑8

Overall Ranking

DOMAIN SPECIFIC SCORES



0.19	0.36	0.36
Economy	Sustainability	Social

KEY PERFORMANCE INDICATORS

Government Budgetary Expenditure

63%	OpEx	₹185 Crores
37%	CapEx	₹107 Crores

Blue Energy Generation

98%	Wind Power	169 GW
2%	Hydro Power	3.7 GW

Growth in GVA

Rank 3

Relief Assistance

(in Lakhs INR)

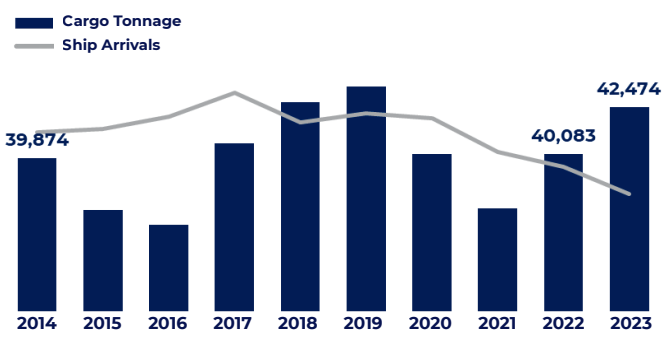
Rank 3

Expenditure on Disaster

(in Lakhs INR)

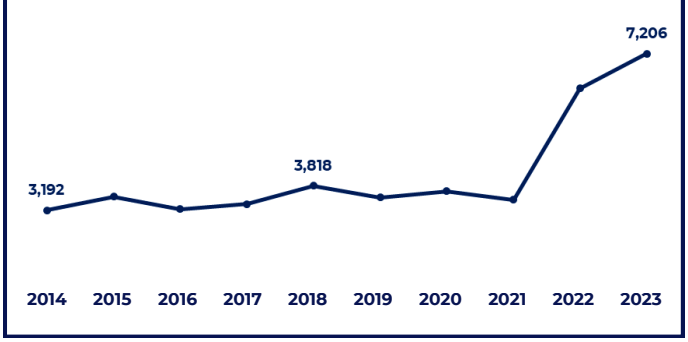
Rank 3

Ship Arrivals and Cargo



Trend of Ranking

GVA from Fisheries (in ₹ Crores)



Inferences

1. **Moderate All-Round Scores:** Karnataka shows balanced but modest performance across economy (0.19), sustainability (0.36), and social (0.36) indicators.
2. **Strong Renewable Energy Base:** The state has 169 GW of wind and 3.7 GW of hydro power, strengthening its blue energy infrastructure.
3. **Growth in Fisheries & Relief:** Fisheries GVA surged to ₹7,206 Cr in 2023, while disaster relief expenditure placed it 3rd nationally.

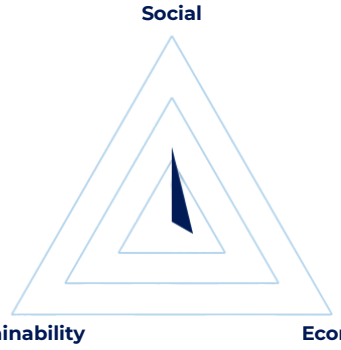
GOA

State Profile

↑9

Overall Ranking

DOMAIN SPECIFIC SCORES



0.12	0.00	0.04
Economy	Sustainability	Social

KEY PERFORMANCE INDICATORS

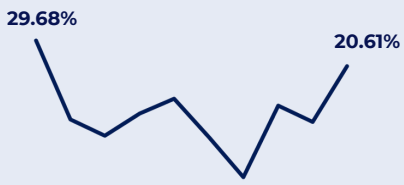
Government Budgetary Expenditure

55%	OpEx	₹65 Crores
45%	CapEx	₹54 Crores

Blue Energy Generation

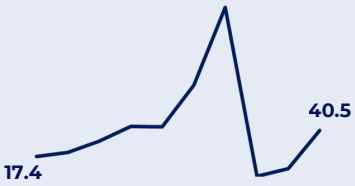
74%	Wind Power	0.01 GW
26%	Hydro Power	0.005 GW

Growth in GVA



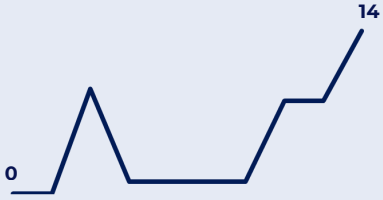
Rank 4

Passenger Traffic
(in Thousands)



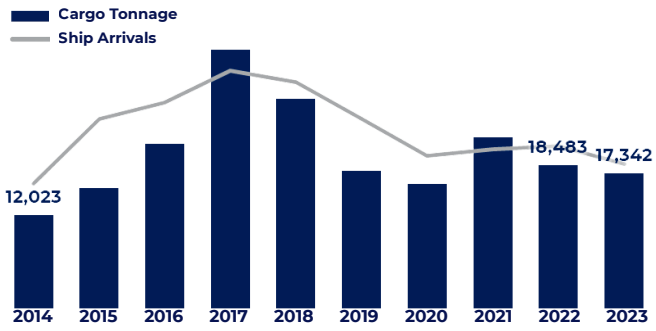
Rank 4

Wind Power Potential
(in MW)

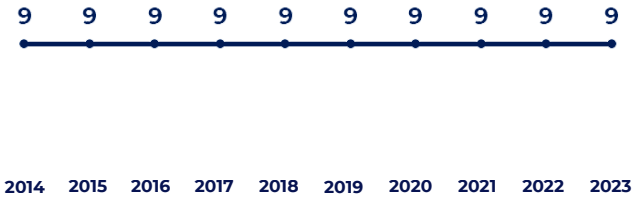


Rank 7

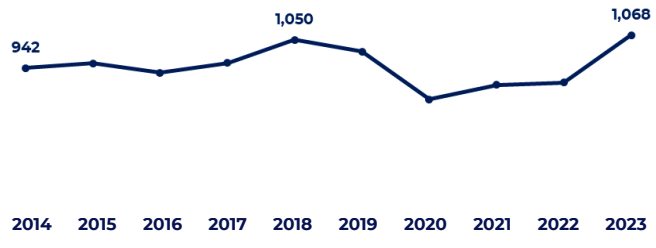
Ship Arrivals and Cargo



Trend of Ranking



GVA from Fisheries (in ₹ Crores)



Inferences

1. **Persistently Low Scores:** Goa ranks consistently low in economic (0.12), sustainability (0.00), and social (0.04) dimensions of the blue economy.
2. **Negligible Renewable Energy**: Wind (0.01 GW) and hydro (0.005 GW) capacities remain very limited, restricting blue energy development.
3. **Flat Sectoral Growth:** Fisheries GVA remains modest at ₹1,068 Cr in 2023, and the state has retained a stagnant rank of 9 since 2014.

POLICY SUGGESTIONS & FUTURE OUTLOOK

Analysing the Blue Economy Index (BEI) and state profiles from 2013 to 2023 reveals several patterns. While states like Tamil Nadu and Gujarat demonstrate consistent leadership through strong investments in infrastructure, exports, and renewable capacity, others such as Odisha, Goa, and Karnataka show persistent weaknesses in capital investment, sustainability, or welfare measures. This unbalanced development requires differential, targeted policy interventions. On the basis of data-supported evaluation on economic, environmental, and social indicators, we suggest the following policy recommendations for Indian policymakers:

1. Pursue a Differentiated Investment Model to Ensure Equitable Regional Growth

The Blue Economy scenario in India is characterised by asymmetric development, while Maharashtra, Tamil Nadu, and Andhra Pradesh exhibit multidimensional development; Goa and Odisha lag behind. To fill the gap, policymakers will need to adopt a diversified investment framework, whereby underperforming states receive more central assistance in the form of conditional matching grants. This may be tied to specific performance targets such as fish production efficiency, the capacity for renewable energy, and fund utilisation. This would not only help enhance infrastructure development but also foster balanced coastal growth.

2. Upgrade Fisheries Infrastructure and Enhance Public Investment Efficiency

Even though states like Andhra Pradesh and West Bengal have high fish output and GVA from fisheries, the effectiveness of public investment (GVA per released fund) varies by state. This identifies the necessity of a country-wide Fisheries Infrastructure Modernisation scheme. The programme developed should give high priority to smart cold chains, digitalised fish markets, state-of-the-art processing units, and post-harvest handling training. States such as Gujarat that already possess a high investment-to-output ratio can be taken as models for capacity-building in backwater states.

3. Encourage Renewable Blue Energy Corridors in High-Potential Coastal Areas

States such as Gujarat and Tamil Nadu are front-runners in wind energy with capacities of over 95 GW, while others, such as Goa and West Bengal, are far behind. Policymakers will have to identify Renewable Blue Energy Corridors geographic concentrations where offshore wind, tidal energy, and wave energy projects can be expedited through single-window clearances and viability gap support. These zones can serve as centers of green industrialisation, channeling into coastal economic zones and generating green jobs while limiting ecological harm from marine exploitation.

4. Direct State-Level Blue Economy Roadmaps and Harmonise with National Vision

There is presently no requirement for coastal states to retain or renew elaborate marine development plans. Policymakers need to institutionalise Decadal Blue Economy Roadmaps for all states, in consideration with the Maritime India Vision 2030 and the SDGs. These roadmaps should encompass marine spatial planning, disaster-resilient infrastructure, conservation of marine biodiversity, and livelihood transition planning. Integrating these roadmaps into state budget cycles and monitoring mechanisms can impart unity to disjointed initiatives.

5. Enhance Social Safety Nets with Digital Welfare Platforms

The analysis shows that states such as Odisha and Kerala rank high on social welfare indicators such as relief assistance and accident insurance, while others fall behind. There is an overwhelming argument to increase national schemes such as PMMSY to wider digital welfare platforms to bring together insurance, DBT, health cards, and pension coverage. A Fishermen's Social Security Platform must be created to enable real-time monitoring of entitlements, complaints, and disbursement effectiveness, particularly in calamity-risk coastal areas.

6. Implement a Skill Development plan for Workforce Preparedness

The Blue Economy extends to a number of sectors like shipping, aquaculture, offshore energy, coastal tourism, etc., but there is still a lack of skilled human resources. The Government of India must set up a Blue Economy Skill-focused Council within the Ministry of Skill Development and Entrepreneurship, with regional training centers in coastal states. Courses need to include underwater welding, fishery management, port logistics, marine data science, and eco-tourism management. This will not only improve employability but also enhance sectoral productivity and

resilience.

7. Enhance Blue Economy Data Systems to Facilitate Evidence-Based Decision Making

Data inconsistencies, like unrecorded years of fish seed production, a lack of real-time passenger traffic updates, or delayed environmental factor monitoring, impede policymaking. States are encouraged to establish Blue Economy Data Cells within their planning departments. The cells will work together to define indicators, ensure timely submission to national portals, and coordinate with scientific associations for satellite-based marine resource monitoring. With better data stewardship, policymakers will be able to benchmark annually and react quickly to shifting oceanic parameters.

8. Promote nature-based solutions and ecotourism

Many coastal areas are unregulated and susceptible to environmental degradation, despite the fact that states like Kerala, Goa, and Maharashtra are seeing an increase in tourists.Blue flag beaches, coral reef restoration sites, and low-impact lodging options can all be developed through public-private partnerships to make tourism both profitable and regenerative.

RECENT POLICY EVOLUTION

India's blue economy has become a strategic driver of economic development, including fisheries, shipping, aquaculture, oceanic tourism, renewable energy and deep-sea minerals. The Blue Economy principle of sustainable utilisation of coastal and oceanic resources has been prominently included in national development strategies. With a 7,500 km coastline and an Exclusive Economic Zone (EEZ) spanning more than 2.3 million square kilometers (the world's 18th largest), India is tapping its marine wealth for livelihoods and GDP development. During the recent policy cycle, the Union Budget 2025-26 and state budgets have placed the blue economy agenda high on the priority list. Budget speeches and supporting subnational programs stress contemporary infrastructure, high-value fisheries, and advanced technologies, together with efforts to engage ecological and social issues. The subsequent overview integrates these core trends, pointing out concerted national and state initiatives, rising issues, and impending implications for India's emerging Blue Economy policy.

NATIONAL STRATEGY AND BUDGET 2025 ACTION

The Union Budget 2025 renewed the government's pledge to the maritime economy as a "fuel" for development. Core budgetary measures specifically focus on blue economy sectors. To begin with, the budget proposed a Maritime Development Fund of ₹25,000 crore to be invested with a maximum government contribution of 49% and the remaining from the private

KEY BUDGET TAKEAWAYS

- Total Budget Expenditures: INR 50.65 lakh crore
- Budgetary Allocation to fisheries sector: INR 2,703 crore (highest ever)
- Budgetary Allocation to fisheries sector in previous budget: INR 2,616 crore
- Percentage increase = 2.56% (approx.)

sector and ports. This specialised fund is designed to trigger long-term investment in ports, shipyards, and allied infrastructure. The second announcement was the revamped Shipbuilding Financial Assistance Policy (SBFAP 2.0) with an outlay of around ₹18,000 crore.

This new policy seeks to enhance local shipyards, lure international shipbuilding orders, and enable India to become a top-five shipbuilding nation by 2047. Concurrently, the government added large merchant ships to the national Infrastructure Harmonized Master List, even more encouraging private involvement in maritime building and repair yards. A third significant budget announcement involves sustainable fishing. The Finance Minister intimated a fresh paradigm of "sustainable harnessing of fisheries" in India's EEZ as well as

on the High Seas, with a special focus on island union territories (Andaman & Nicobar and Lakshadweep). The step recognises on one hand the economic potential offered by offshore fisheries and on the other the requirement of conservation. It supplements existing national initiatives like the Blue Revolution and the Pradhan Mantri Matsya Sampada Yojana (PMMSY), which have already been offering infra loans (FIDF) and credit facilities (Kisan Credit Cards) to fisher folk. Indeed, the Department of Fisheries has stated that with PMMSY, Kerala received central approvals worth more than ₹1,358 crore (2020-25) for hatcheries, deep-sea boats, harbor development and coastal-community plans, so clearly national schemes finance state programs simultaneously. The Budget also provided tax relief to increase marine shipping.

The Tonnage Tax Scheme, formerly limited to overseas shipping, was extended to cover inland ships registered under the Indian Vessels Act, 2021. It promotes freight movement in rivers and coastal waters and brings inland waterways into the general blue economy framework. In addition to these steps, the government introduced pipeline planning: three-year project pipelines for PPPs will be put forward by infrastructure ministries, and states have been offered long-term interest-free loans (₹1.5 lakh crore) to stimulate capital expenditure. These fiscal indicators are aimed at fast-tracking port modernisation under the Sagarmala Programme, coastal shipping networks and even small-scale mariculture clusters under a national coastal employment scheme. In the R&D sector, the Budget renewed commitment to the Deep Ocean Mission. The Chennai National Institute of Ocean Technology was allocated around ₹600 crore for 2025-26, primarily for the Samudrayaan mission (a domestic

manned submersible). The bigger Earth Sciences ministry got a total of around ₹3,650 crore. The Deep Ocean Mission (initiated in 2021) focuses on mapping seabed mineral resources (sulphides, polymetallic nodules), developing marine biotechnology, and constructing climate advisory services technology. Its increased budget reflects sustained efforts to harness deep-ocean resources for India's blue economy.

This is complemented by India's agreement with the International Seabed Authority (ISA) for exploration of strategic minerals, reflecting policy focus towards resource exploration balanced with global norms. In addition to fisheries and infrastructure, Budget 2025 spoke about blue-economy connections to other industries. For instance, maritime logistics connect with the extended UDAN.

CONCLUSION

The Blue Economy Index 2025 offers innovative, data-intensive analysis of India's coastal states, unlocking deep insights into the dynamics of coastal development, ecological sustainability, and social progress. Due to underinvestment, a dearth of renewable energy capacity, and dispersed welfare support, Goa and Odisha lag behind Tamil Nadu, Gujarat, and Andhra Pradesh in terms of infrastructure investment and economic performance.

It becomes evident that state-specific, tailored policies that address both potential and constraints are urgently needed. This report's entropy-based weighting and multi-domain indexation approach emphasise the need to look beyond conventional economic indicators. Welfare coverage, energy use, and ecological balance must be the main focuses of future coastal policymaking due to their higher informational content.
India is at a crossroads; its 7,500+ km coastline is not merely a geographical border but an economic and strategic frontier. With developing blue economy frameworks on the world stage and climate vulnerabilities intensifying, India needs to reengineer its ocean management through the prism of inclusivity, sustainability, and innovation.

By incorporating the suggestions herein into central and state government blue economy missions, and by institutionalising this index as a yearly instrument of review and planning, India can set a path towards becoming a Blue Superpower a country that not only harvests value from its seas but also replenishes, safeguards, and rejuvenates them for future generations.

APPENDIX

LEGEND

1 Total Capital Outlay
2 State Own Revenue
3 Inflation Rate
4 Per Capita GSDP
5 Social Sector Expenditure as percent of Total Disbursement
6 Gross Fiscal Deficit
7 Revenue Deficit
8 State-Wise Sanctions and Utilisation of Short-Term Credit - RRBs
9 Outstanding Liabilities
10 State wise contribution to AAUM
11 Interest Payments
12 Total Expenditure Incurred Towards the AB-PMJAY
13 PMJJBY Claims
14 PMSBY Claims
15 Funds Released under DAY - NRLM
16 Number of houses sanctioned under PMAY-G
17 Subsidies

ENTROPY WEIGHTS

Parameters	1	2	3	4	5	6	7	8	9
H	0.2627	0.2627	0.2627	0.2627	0.2627	0.2627	0.2627	0.2627	0.2222
Sum of logarthmic transformation of H	-1.9999	-2.2543	-1.9582	-1.9003	-2.0303	-1.9930	-1.9749	-2.2390	-2.1691
Sum*(- H)	0.5254	0.5922	0.5144	0.4992	0.5333	0.5236	0.5188	0.5882	0.4820
1 - Sum*(- H)	0.4746	0.4078	0.4856	0.5008	0.4667	0.4764	0.4812	0.4118	0.5180
Weightage	6.26%	5.37%	6.40%	6.60%	6.15%	6.28%	6.34%	5.43%	6.83%

Parameters	10	11	12	13	14	15	16	17
H	0.2222	0.2627	0.2627	0.2627	0.2627	0.2627	0.000	0.000
Sum of logarthmic transformation of H	-1.8632	-2.2011	-1.8910	-1.2518	-1.3840	-1.7270	0.000	0.000
Sum*(- H)	0.4141	0.5782	0.4968	0.3288	0.3636	0.4537	0.059	0.039
1 - Sum*(- H)	0.5859	0.4218	0.5032	0.6712	0.6364	0.5463	0.000	0.013
Weightage	7.72%	5.56%	6.63%	8.85%	8.39%	7.20%	6.46%	6.07%

TOPSIS RANKINGS 2014

States	1	2	3	4	5	6	7	8	9	10	11	12	15	16	17
Andhra Pradesh	0.006	0.033	0.003	0.012	0.000	0.015	0.012	0.013	0.011	0.003	0.027	0.008	0.000	0.033	0.030
Goa	0.014	0.002	0.005	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
Gujarat	0.002	0.014	0.000	0.000	0.002	0.004	0.046	0.038	0.003	0.006	0.009	0.000	0.000	0.005	0.028
Karnataka	0.003	0.004	0.029	0.000	0.027	0.015	0.003	0.005	0.013	0.010	0.007	0.006	0.000	0.000	0.000
Kerala	0.002	0.018	0.035	0.000	0.027	0.001	0.001	0.004	0.011	0.002	0.017	0.033	0.001	0.000	0.000
Maharashtra	0.024	0.016	0.000	0.056	0.002	0.013	0.016	0.022	0.020	0.040	0.013	0.000	0.092	0.000	0.000
Odisha	0.001	0.000	0.011	0.000	0.003	0.001	0.008	0.004	0.011	0.000	0.046	0.016	0.000	0.000	0.000
Tamil Nadu	0.000	0.019	0.032	0.000	0.030	0.038	0.011	0.012	0.009	0.030	0.030	0.015	0.011	0.040	0.039
West Bengal	0.000	0.012	0.000	0.000	0.002	0.004	0.003	0.010	0.012	0.000	0.006	0.000	0.000	0.000	0.004
Weights	6.26%	5.37%	6.40%	6.60%	6.15%	6.28%	6.34%	5.43%	6.83%	7.72%	5.56%	6.63%	8.85%	8.39%	7.20%

TOPSIS																Si+	Si-	Pi	Rank
Andhra Pradesh	0.000	0.002	0.000	0.001	0.000	0.001	0.001	0.001	0.001	0.000	0.002	0.001	0.000	0.003	0.002	0.010	0.005	0.312	3
Goa	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.001	0.072	9
Gujarat	0.000	0.001	0.000	0.000	0.000	0.000	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.011	0.004	0.277	4
Karnataka	0.000	0.000	0.002	0.000	0.002	0.001	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.011	0.003	0.208	6
Kerala	0.000	0.001	0.002	0.000	0.002	0.000	0.000	0.000	0.001	0.000	0.001	0.002	0.000	0.000	0.000	0.011	0.004	0.254	5
Maharashtra	0.001	0.001	0.000	0.004	0.000	0.001	0.001	0.001	0.001	0.003	0.001	0.000	0.008	0.000	0.000	0.007	0.010	0.601	1
Odisha	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.003	0.001	0.000	0.000	0.000	0.012	0.003	0.207	7
Tamil Nadu	0.000	0.001	0.002	0.000	0.002	0.002	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.003	0.003	0.009	0.007	0.433	2
West Bengal	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.001	0.098	8

TOPSIS RANKINGS 2015

States	1	2	3	4	5	6	7	8	9	10	11	12	15	16	17
Andhra Pradesh	0.011	0.033	0.035	0.056	0.000	0.031	0.012	0.008	0.016	0.015	0.000	0.033	0.000	0.021	0.018
Goa	0.008	0.000	0.004	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000
Gujarat	0.012	0.010	0.017	0.003	0.002	0.007	0.046	0.038	0.018	0.018	0.002	0.014	0.000	0.004	0.026
Karnataka	0.024	0.003	0.018	0.004	0.004	0.027	0.002	0.003	0.014	0.012	0.002	0.025	0.000	0.000	0.000
Kerala	0.014	0.012	0.015	0.005	0.016	0.001	0.001	0.003	0.016	0.008	0.000	0.020	0.001	0.000	0.000
Maharashtra	0.000	0.011	0.018	0.000	0.018	0.014	0.015	0.014	0.020	0.014	0.000	0.010	0.092	0.000	0.000
Odisha	0.011	0.000	0.019	0.007	0.001	0.000	0.012	0.004	0.015	0.000	0.046	0.020	0.000	0.000	0.000
Tamil Nadu	0.010	0.026	0.012	0.010	0.030	0.038	0.010	0.009	0.008	0.040	0.021	0.008	0.000	0.060	0.039
West Bengal	0.008	0.013	0.000	0.000	0.000	0.007	0.004	0.006	0.010	0.000	0.000	0.000	0.000	0.000	0.007
Weights	6.26%	5.37%	6.40%	6.60%	6.15%	6.28%	6.34%	5.43%	6.83%	7.72%	5.56%	6.63%	8.85%	8.39%	7.20%

TOPSIS																Si+	Si-	Pi	Rank
Andhra Pradesh	0.001	0.002	0.002	0.004	0.000	0.002	0.001	0.000	0.001	0.001	0.000	0.002	0.000	0.002	0.001	0.010	0.006	0.382	3
Goa	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.001	0.064	9
Gujarat	0.001	0.001	0.001	0.000	0.000	0.000	0.003	0.002	0.001	0.001	0.000	0.001	0.000	0.000	0.002	0.011	0.005	0.301	4
Karnataka	0.001	0.000	0.001	0.000	0.000	0.002	0.000	0.000	0.001	0.001	0.000	0.002	0.000	0.000	0.000	0.012	0.003	0.218	6
Kerala	0.001	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.012	0.003	0.174	7
Maharashtra	0.000	0.001	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.001	0.008	0.000	0.000	0.009	0.009	0.503	1
Odisha	0.001	0.000	0.001	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.003	0.001	0.000	0.000	0.000	0.012	0.004	0.228	5
Tamil Nadu	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.000	0.001	0.003	0.001	0.001	0.000	0.005	0.003	0.010	0.008	0.444	2
West Bengal	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.001	0.097	8

TOPSIS RANKINGS 2016

States	1	2	3	4	5	6	7	8	9	10	11	12	15	16	17
Andhra Pradesh	0.024	0.033	0.014	0.023	0.000	0.013	0.012	0.030	0.010	0.006	0.017	0.003	0.000	0.037	0.018
Goa	0.003	0.002	0.001	0.007	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gujarat	0.005	0.012	0.001	0.052	0.030	0.004	0.046	0.017	0.003	0.009	0.009	0.002	0.000	0.004	0.029
Karnataka	0.000	0.004	0.011	0.002	0.007	0.001	0.002	0.013	0.011	0.010	0.008	0.011	0.000	0.000	0.000
Kerala	0.003	0.016	0.035	0.000	0.020	0.001	0.000	0.009	0.011	0.004	0.010	0.033	0.001	0.000	0.000
Maharashtra	0.014	0.013	0.000	0.000	0.010	0.012	0.014	0.038	0.020	0.023	0.013	0.006	0.092	0.000	0.000
Odisha	0.003	0.000	0.006	0.007	0.001	0.001	0.008	0.009	0.009	0.000	0.046	0.006	0.000	0.000	0.000
Tamil Nadu	0.010	0.015	0.019	0.003	0.021	0.038	0.011	0.034	0.007	0.040	0.030	0.028	0.010	0.047	0.039
West Bengal	0.009	0.012	0.005	0.056	0.001	0.008	0.003	0.025	0.010	0.000	0.009	0.004	0.000	0.000	0.007
Weights	6.26%	5.37%	6.40%	6.60%	6.15%	6.28%	6.34%	5.43%	6.83%	7.72%	5.56%	6.63%	8.85%	8.39%	7.20%

TOPSIS																Si+	Si-	Pi	Rank
Andhra Pradesh	0.001	0.002	0.001	0.001	0.000	0.001	0.001	0.002	0.001	0.000	0.001	0.000	0.000	0.003	0.001	0.010	0.005	0.333	4
Goa	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.001	0.067	9
Gujarat	0.000	0.001	0.000	0.003	0.002	0.000	0.003	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.002	0.010	0.005	0.345	3
Karnataka	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.012	0.002	0.133	8
Kerala	0.000	0.001	0.002	0.000	0.001	0.000	0.000	0.000	0.001	0.000	0.001	0.002	0.000	0.000	0.000	0.011	0.004	0.240	6
Maharashtra	0.001	0.001	0.000	0.000	0.001	0.001	0.001	0.002	0.001	0.002	0.001	0.000	0.008	0.000	0.000	0.008	0.009	0.535	1
Odisha	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.003	0.000	0.000	0.000	0.000	0.012	0.003	0.195	7
Tamil Nadu	0.001	0.001	0.001	0.000	0.001	0.002	0.001	0.002	0.001	0.003	0.002	0.002	0.001	0.004	0.003	0.009	0.007	0.461	2
West Bengal	0.001	0.001	0.000	0.004	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.011	0.004	0.273	5

TOPSIS RANKINGS 2017

States	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Andhra Pradesh	0.019	0.033	0.002	0.020	0.000	0.015	0.011	0.006	0.020	0.014	0.016	0.020	0.010	0.000	0.000	0.058	0.023
Goa	0.006	0.002	0.003	0.000	0.011	0.000	0.001	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.000	0.000
Gujarat	0.005	0.011	0.000	0.000	0.030	0.004	0.046	0.038	0.003	0.011	0.009	0.000	0.007	0.000	0.000	0.005	0.032
Karnataka	0.006	0.004	0.026	0.000	0.011	0.001	0.002	0.004	0.011	0.012	0.008	0.033	0.006	0.000	0.000	0.000	0.000
Kerala	0.004	0.013	0.035	0.000	0.026	0.001	0.000	0.002	0.011	0.005	0.000	0.012	0.002	0.000	0.002	0.000	0.000
Maharashtra	0.024	0.011	0.000	0.056	0.009	0.012	0.014	0.010	0.017	0.018	0.013	0.022	0.002	0.000	0.092	0.000	0.000
Odisha	0.014	0.000	0.008	0.000	0.001	0.001	0.009	0.003	0.008	0.000	0.046	0.029	0.009	0.000	0.000	0.000	0.000
Tamil Nadu	0.015	0.011	0.024	0.000	0.027	0.038	0.010	0.009	0.007	0.040	0.027	0.028	0.007	0.000	0.011	0.049	0.039
West Bengal	0.000	0.011	0.000	0.000	0.001	0.007	0.003	0.006	0.008	0.000	0.000	0.005	0.139	0.000	0.000	0.000	0.011
Weights	5.05%	6.03%	5.69%	7.13%	5.79%	5.97%	5.80%	6.23%	6.18%	6.55%	7.18%	5.39%	3.37%	3.52%	7.58%	6.46%	6.07%

TOPSIS																		Si+	Si-	Pi	Rank
Andhra Pradesh	0.001	0.002	0.000	0.001	0.000	0.001	0.001	0.000	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.004	0.001	0.010	0.005	0.352	3
Goa	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.001	0.066	9
Gujarat	0.000	0.001	0.000	0.000	0.002	0.000	0.003	0.002	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.002	0.011	0.005	0.292	5
Karnataka	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.001	0.001	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.012	0.003	0.189	8
Kerala	0.000	0.001	0.002	0.000	0.002	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.012	0.003	0.191	7
Maharashtra	0.001	0.001	0.000	0.004	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.007	0.000	0.000	0.008	0.009	0.514	1
Odisha	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.012	0.004	0.250	6
Tamil Nadu	0.001	0.001	0.001	0.000	0.002	0.002	0.001	0.001	0.000	0.003	0.002	0.001	0.000	0.000	0.001	0.003	0.002	0.009	0.006	0.407	2
West Bengal	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.001	0.011	0.005	0.302	4

TOPSIS RANKINGS 2018

States	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Andhra Pradesh	0.024	0.033	0.004	0.056	0.000	0.018	0.012	0.008	0.007	0.014	0.000	0.006	0.010	0.086	0.000	0.068	0.020
Goa	0.012	0.001	0.004	0.001	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gujarat	0.012	0.010	0.000	0.000	0.018	0.004	0.046	0.038	0.006	0.011	0.009	0.004	0.002	0.018	0.000	0.004	0.035
Karnataka	0.015	0.004	0.027	0.000	0.004	0.017	0.002	0.003	0.012	0.013	0.010	0.009	0.003	0.012	0.000	0.000	0.000
Kerala	0.011	0.012	0.035	0.000	0.030	0.001	0.000	0.002	0.013	0.005	0.000	0.002	0.002	0.014	0.001	0.000	0.000
Maharashtra	0.000	0.010	0.001	0.025	0.004	0.011	0.014	0.012	0.020	0.017	0.013	0.006	0.007	0.012	0.092	0.000	0.000
Odisha	0.002	0.000	0.009	0.003	0.001	0.001	0.010	0.003	0.009	0.000	0.046	0.002	0.009	0.015	0.000	0.000	0.000
Tamil Nadu	0.016	0.011	0.029	0.000	0.008	0.038	0.009	0.010	0.007	0.040	0.027	0.033	0.006	0.014	0.011	0.055	0.039
West Bengal	0.012	0.010	0.000	0.000	0.000	0.007	0.003	0.008	0.010	0.000	0.000	0.001	0.139	0.042	0.000	0.000	0.010
Weights	5.05%	6.03%	5.69%	7.13%	5.79%	5.97%	5.80%	6.23%	6.18%	6.55%	7.18%	5.39%	3.37%	3.52%	7.58%	6.46%	6.07%

TOPSIS																		Si+	Si-	Pi	Rank
Andhra Pradesh	0.001	0.002	0.000	0.004	0.000	0.001	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.003	0.000	0.004	0.001	0.010	0.007	0.425	2
Goa	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.001	0.051	9
Gujarat	0.001	0.001	0.000	0.000	0.001	0.000	0.003	0.002	0.000	0.001	0.001	0.000	0.000	0.001	0.000	0.000	0.002	0.012	0.005	0.281	5
Karnataka	0.001	0.000	0.002	0.000	0.000	0.001	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.003	0.173	8
Kerala	0.001	0.001	0.002	0.000	0.002	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.012	0.003	0.192	7
Maharashtra	0.000	0.001	0.000	0.002	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.007	0.000	0.000	0.009	0.008	0.453	1
Odisha	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.003	0.000	0.000	0.001	0.000	0.000	0.000	0.012	0.004	0.225	6
Tamil Nadu	0.001	0.001	0.002	0.000	0.000	0.002	0.001	0.001	0.000	0.003	0.002	0.002	0.000	0.001	0.001	0.004	0.002	0.010	0.007	0.404	3
West Bengal	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.005	0.001	0.000	0.000	0.001	0.012	0.005	0.307	4

TOPSIS RANKINGS 2019

States	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Andhra Pradesh	0.005	0.033	0.003	0.014	0.000	0.019	0.014	0.009	0.017	0.014	0.000	0.006	0.010	0.086	0.000	0.058	0.021
Goa	0.001	0.001	0.000	0.007	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gujarat	0.002	0.010	0.004	0.001	0.024	0.005	0.046	0.038	0.013	0.021	0.002	0.006	0.007	0.016	0.000	0.004	0.029
Karnataka	0.000	0.004	0.014	0.000	0.013	0.021	0.002	0.004	0.014	0.013	0.002	0.027	0.007	0.010	0.000	0.000	0.000
Kerala	0.004	0.012	0.018	0.000	0.030	0.001	0.001	0.003	0.014	0.005	0.000	0.023	0.001	0.015	0.002	0.000	0.000
Maharashtra	0.024	0.010	0.009	0.000	0.019	0.012	0.015	0.015	0.020	0.016	0.002	0.013	0.003	0.010	0.092	0.000	0.000
Odisha	0.000	0.000	0.006	0.001	0.001	0.001	0.010	0.003	0.009	0.000	0.046	0.004	0.010	0.014	0.000	0.000	0.000
Tamil Nadu	0.005	0.011	0.035	0.000	0.018	0.038	0.010	0.010	0.008	0.040	0.019	0.033	0.014	0.013	0.010	0.059	0.039
West Bengal	0.003	0.010	0.000	0.056	0.000	0.008	0.004	0.008	0.010	0.000	0.005	0.001	0.139	0.037	0.000	0.000	0.013
Weights	5.05%	6.03%	5.69%	7.13%	5.79%	5.97%	5.80%	6.23%	6.18%	6.55%	7.18%	5.39%	3.37%	3.52%	7.58%	6.46%	6.07%

TOPSIS																		Si+	Si-	Pi	Rank
Andhra Pradesh	0.000	0.002	0.000	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.003	0.000	0.004	0.001	0.010	0.006	0.359	4
Goa	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.001	0.060	9
Gujarat	0.000	0.001	0.000	0.000	0.001	0.000	0.003	0.002	0.001	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.002	0.011	0.005	0.289	5
Karnataka	0.000	0.000	0.001	0.000	0.001	0.001	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.012	0.003	0.177	8
Kerala	0.000	0.001	0.001	0.000	0.002	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.012	0.003	0.183	7
Maharashtra	0.001	0.001	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.001	0.000	0.000	0.007	0.000	0.000	0.009	0.008	0.443	1
Odisha	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.003	0.000	0.000	0.001	0.000	0.000	0.000	0.012	0.004	0.227	6
Tamil Nadu	0.000	0.001	0.002	0.000	0.001	0.002	0.001	0.001	0.001	0.003	0.001	0.002	0.000	0.000	0.001	0.004	0.002	0.010	0.007	0.409	2
West Bengal	0.000	0.001	0.000	0.004	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.005	0.001	0.000	0.000	0.001	0.010	0.006	0.381	3

TOPSIS RANKINGS 2020

States	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Andhra Pradesh	0.022	0.033	0.013	0.056	0.000	0.018	0.014	0.013	0.016	0.013	0.000	0.009	0.006	0.086	0.000	0.047	0.019
Goa	0.013	0.001	0.000	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000
Gujarat	0.022	0.009	0.013	0.004	0.011	0.004	0.046	0.038	0.014	0.013	0.009	0.004	0.029	0.016	0.000	0.004	0.031
Karnataka	0.022	0.002	0.007	0.005	0.009	0.017	0.002	0.004	0.014	0.012	0.008	0.008	0.006	0.011	0.000	0.000	0.000
Kerala	0.013	0.009	0.035	0.000	0.015	0.001	0.002	0.003	0.014	0.005	0.000	0.033	0.001	0.012	0.002	0.000	0.000
Maharashtra	0.000	0.008	0.005	0.007	0.030	0.011	0.014	0.017	0.020	0.016	0.016	0.004	0.015	0.010	0.092	0.000	0.000
Odisha	0.021	0.000	0.003	0.034	0.003	0.001	0.012	0.004	0.009	0.000	0.046	0.002	0.011	0.015	0.000	0.000	0.000
Tamil Nadu	0.024	0.011	0.005	0.019	0.007	0.038	0.010	0.009	0.008	0.040	0.021	0.006	0.022	0.014	0.011	0.060	0.039
West Bengal	0.023	0.009	0.000	0.000	0.000	0.007	0.004	0.008	0.010	0.000	0.000	0.000	0.139	0.035	0.000	0.000	0.012
Weights	5.05%	6.03%	5.69%	7.13%	5.79%	5.97%	5.80%	6.23%	6.18%	6.55%	7.18%	5.39%	3.37%	3.52%	7.58%	6.46%	6.07%

TOPSIS																		Si+	Si-	Pi	Rank
Andhra Pradesh	0.001	0.002	0.001	0.004	0.000	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.003	0.000	0.003	0.001	0.010	0.007	0.405	3
Goa	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.001	0.055	9
Gujarat	0.001	0.001	0.001	0.000	0.001	0.000	0.003	0.002	0.001	0.001	0.001	0.000	0.001	0.001	0.000	0.000	0.002	0.011	0.005	0.301	5
Karnataka	0.001	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.002	0.160	8
Kerala	0.001	0.001	0.002	0.000	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.012	0.003	0.204	7
Maharashtra	0.000	0.000	0.000	0.000	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.001	0.000	0.007	0.000	0.000	0.009	0.008	0.459	1
Odisha	0.001	0.000	0.000	0.002	0.000	0.000	0.001	0.000	0.001	0.000	0.003	0.000	0.000	0.001	0.000	0.000	0.000	0.011	0.004	0.279	6
Tamil Nadu	0.001	0.001	0.000	0.001	0.000	0.002	0.001	0.001	0.001	0.003	0.002	0.000	0.001	0.000	0.001	0.004	0.002	0.009	0.006	0.410	2
West Bengal	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.005	0.001	0.000	0.000	0.001	0.011	0.005	0.312	4

TOPSIS RANKINGS 2021

States	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Andhra Pradesh	0.011	0.033	0.035	0.056	0.000	0.031	0.012	0.008	0.016	0.015	0.000	0.033	0.000	0.021	0.018		
Goa	0.008	0.000	0.004	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000		
Gujarat	0.012	0.010	0.017	0.003	0.002	0.007	0.046	0.038	0.018	0.018	0.002	0.014	0.000	0.004	0.026		
Karnataka	0.024	0.003	0.018	0.004	0.004	0.027	0.002	0.003	0.014	0.012	0.002	0.025	0.000	0.000	0.000		
Kerala	0.014	0.012	0.015	0.005	0.016	0.001	0.001	0.003	0.016	0.008	0.000	0.020	0.001	0.000	0.000		
Maharashtra	0.000	0.011	0.018	0.000	0.018	0.014	0.015	0.014	0.020	0.014	0.000	0.010	0.092	0.000	0.000		
Odisha	0.011	0.000	0.019	0.007	0.001	0.000	0.012	0.004	0.015	0.000	0.046	0.020	0.000	0.000	0.000		
Tamil Nadu	0.010	0.026	0.012	0.010	0.030	0.038	0.010	0.009	0.008	0.040	0.021	0.008	0.000	0.060	0.039		
West Bengal	0.008	0.013	0.000	0.000	0.000	0.007	0.004	0.006	0.010	0.000	0.000	0.000	0.000	0.000	0.007		
Weights	6.26%	5.37%	6.40%	6.60%	6.15%	6.28%	6.34%	5.43%	6.83%	7.72%	5.56%	6.63%	8.85%	8.39%	7.20%		

TOPSIS																Si+	Si-	Pi	Rank		Rank
Andhra Pradesh	0.001	0.002	0.002	0.004	0.000	0.002	0.001	0.000	0.001	0.001	0.000	0.002	0.000	0.002	0.001	0.010	0.006	0.382	3		2
Goa	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.001	0.064	9		9
Gujarat	0.001	0.001	0.001	0.000	0.000	0.000	0.003	0.002	0.001	0.001	0.000	0.001	0.000	0.000	0.002	0.011	0.005	0.301	4		5
Karnataka	0.001	0.000	0.001	0.000	0.000	0.002	0.000	0.000	0.001	0.001	0.000	0.002	0.000	0.000	0.000	0.012	0.003	0.218	6		6
Kerala	0.001	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.012	0.003	0.174	7		8
Maharashtra	0.000	0.001	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.001	0.008	0.000	0.000	0.009	0.009	0.503	1		1
Odisha	0.001	0.000	0.001	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.003	0.001	0.000	0.000	0.000	0.012	0.004	0.228	5		7
Tamil Nadu	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.000	0.001	0.003	0.001	0.001	0.000	0.005	0.003	0.010	0.008	0.444	2		3
West Bengal	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.001	0.097	8		4

TOPSIS RANKINGS 2022

States	1	2	3	4	5	6	7	8	9	10	11	12	15	16	17
Andhra Pradesh	0.011	0.033	0.035	0.056	0.000	0.031	0.012	0.008	0.016	0.015	0.000	0.033	0.000	0.021	0.018
Goa	0.008	0.000	0.004	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000
Gujarat	0.012	0.010	0.017	0.003	0.002	0.007	0.046	0.038	0.018	0.018	0.002	0.014	0.000	0.004	0.026
Karnataka	0.024	0.003	0.018	0.004	0.004	0.027	0.002	0.003	0.014	0.012	0.002	0.025	0.000	0.000	0.000
Kerala	0.014	0.012	0.015	0.005	0.016	0.001	0.001	0.003	0.016	0.008	0.000	0.020	0.001	0.000	0.000
Maharashtra	0.000	0.011	0.018	0.000	0.018	0.014	0.015	0.014	0.020	0.014	0.000	0.010	0.092	0.000	0.000
Odisha	0.011	0.000	0.019	0.007	0.001	0.000	0.012	0.004	0.015	0.000	0.046	0.020	0.000	0.000	0.000
Tamil Nadu	0.010	0.026	0.012	0.010	0.030	0.038	0.010	0.009	0.008	0.040	0.021	0.008	0.000	0.060	0.039
West Bengal	0.008	0.013	0.000	0.000	0.000	0.007	0.004	0.006	0.010	0.000	0.000	0.000	0.000	0.000	0.007
Weights	6.26%	5.37%	6.40%	6.60%	6.15%	6.28%	6.34%	5.43%	6.83%	7.72%	5.56%	6.63%	8.85%	8.39%	7.20%

TOPSIS																Si+	Si-	Pi	Rank
Andhra Pradesh	0.001	0.002	0.002	0.004	0.000	0.002	0.001	0.000	0.001	0.001	0.000	0.002	0.000	0.002	0.001	0.010	0.006	0.382	3
Goa	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.001	0.064	9
Gujarat	0.001	0.001	0.001	0.000	0.000	0.000	0.003	0.002	0.001	0.001	0.000	0.001	0.000	0.000	0.002	0.011	0.005	0.301	4
Karnataka	0.001	0.000	0.001	0.000	0.000	0.002	0.000	0.000	0.001	0.001	0.000	0.002	0.000	0.000	0.000	0.012	0.003	0.218	6
Kerala	0.001	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.012	0.003	0.174	7
Maharashtra	0.000	0.001	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.001	0.008	0.000	0.000	0.009	0.009	0.503	1
Odisha	0.001	0.000	0.001	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.003	0.001	0.000	0.000	0.000	0.012	0.004	0.228	5
Tamil Nadu	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.000	0.001	0.003	0.001	0.001	0.000	0.005	0.003	0.010	0.008	0.444	2
West Bengal	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.001	0.097	8

TOPSIS RANKINGS 2023

States	1	2	3	4	5	6	7	8	9	10	11	12	15	16	17
Andhra Pradesh	0.010	0.033	0.035	0.020	0.000	0.034	0.013	0.008	0.017	0.013	0.000	0.033	0.000	0.026	0.025
Goa	0.024	0.000	0.000	0.022	0.026	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000
Gujarat	0.007	0.011	0.001	0.030	0.030	0.024	0.046	0.038	0.019	0.021	0.004	0.000	0.000	0.005	0.036
Karnataka	0.018	0.007	0.004	0.012	0.007	0.032	0.002	0.002	0.014	0.012	0.003	0.014	0.000	0.000	0.000
Kerala	0.011	0.014	0.009	0.001	0.029	0.002	0.002	0.002	0.017	0.009	0.000	0.032	0.001	0.000	0.000
Maharashtra	0.000	0.013	0.007	0.000	0.023	0.019	0.017	0.022	0.020	0.011	0.004	0.022	0.092	0.000	0.000
Odisha	0.005	0.000	0.006	0.012	0.002	0.000	0.013	0.006	0.017	0.000	0.046	0.016	0.000	0.000	0.000
Tamil Nadu	0.010	0.025	0.004	0.012	0.027	0.038	0.010	0.010	0.008	0.040	0.022	0.000	0.000	0.058	0.039
West Bengal	0.008	0.013	0.005	0.056	0.000	0.014	0.004	0.006	0.010	0.000	0.000	0.011	0.000	0.000	0.011
Weights	6.26%	5.37%	6.40%	6.60%	6.15%	6.28%	6.34%	5.43%	6.83%	7.72%	5.56%	6.63%	8.85%	8.39%	7.20%

TOPSIS																Si+	Si-	Pi	Rank
Andhra Pradesh	0.001	0.002	0.002	0.001	0.000	0.002	0.001	0.000	0.001	0.001	0.000	0.002	0.000	0.002	0.002	0.010	0.006	0.354	4
Goa	0.001	0.000	0.000	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.003	0.176	9
Gujarat	0.000	0.001	0.000	0.002	0.002	0.001	0.003	0.002	0.001	0.002	0.000	0.000	0.000	0.000	0.003	0.010	0.006	0.357	3
Karnataka	0.001	0.000	0.000	0.001	0.000	0.002	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.012	0.003	0.203	8
Kerala	0.001	0.001	0.001	0.000	0.002	0.000	0.000	0.000	0.001	0.001	0.000	0.002	0.000	0.000	0.000	0.012	0.003	0.218	6
Maharashtra	0.000	0.001	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.001	0.008	0.000	0.000	0.008	0.009	0.517	1
Odisha	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.001	0.000	0.003	0.001	0.000	0.000	0.000	0.012	0.003	0.217	7
Tamil Nadu	0.001	0.001	0.000	0.001	0.002	0.002	0.001	0.001	0.001	0.003	0.001	0.000	0.000	0.005	0.003	0.010	0.007	0.434	2
West Bengal	0.000	0.001	0.000	0.004	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.001	0.012	0.004	0.263	5

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