



NITI Aayog

TRANSFORMING THE
ISLANDS THROUGH
Creativity & Innovation

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ISLANDS THROUGH
Creativity & Innovation

Paper prepared by

Jitendra Kumar¹
and
A. Muralidharan²

under the guidance of
Yaduvendra Mathur³

for
NITI Aayog

Peer Review by Dr. Yogesh Suri⁴

The views expressed in this Paper are those of the author(s)
and do not necessarily reflect the views of NITI Aayog.

Project Consultant - IPE Global Limited in consortium with
Horwath HTL France and Crowe Horwath HTL Consultants Private Limited⁵

¹ Jitendra Kumar is presently working in NITI Aayog as Adviser for Islands Development.

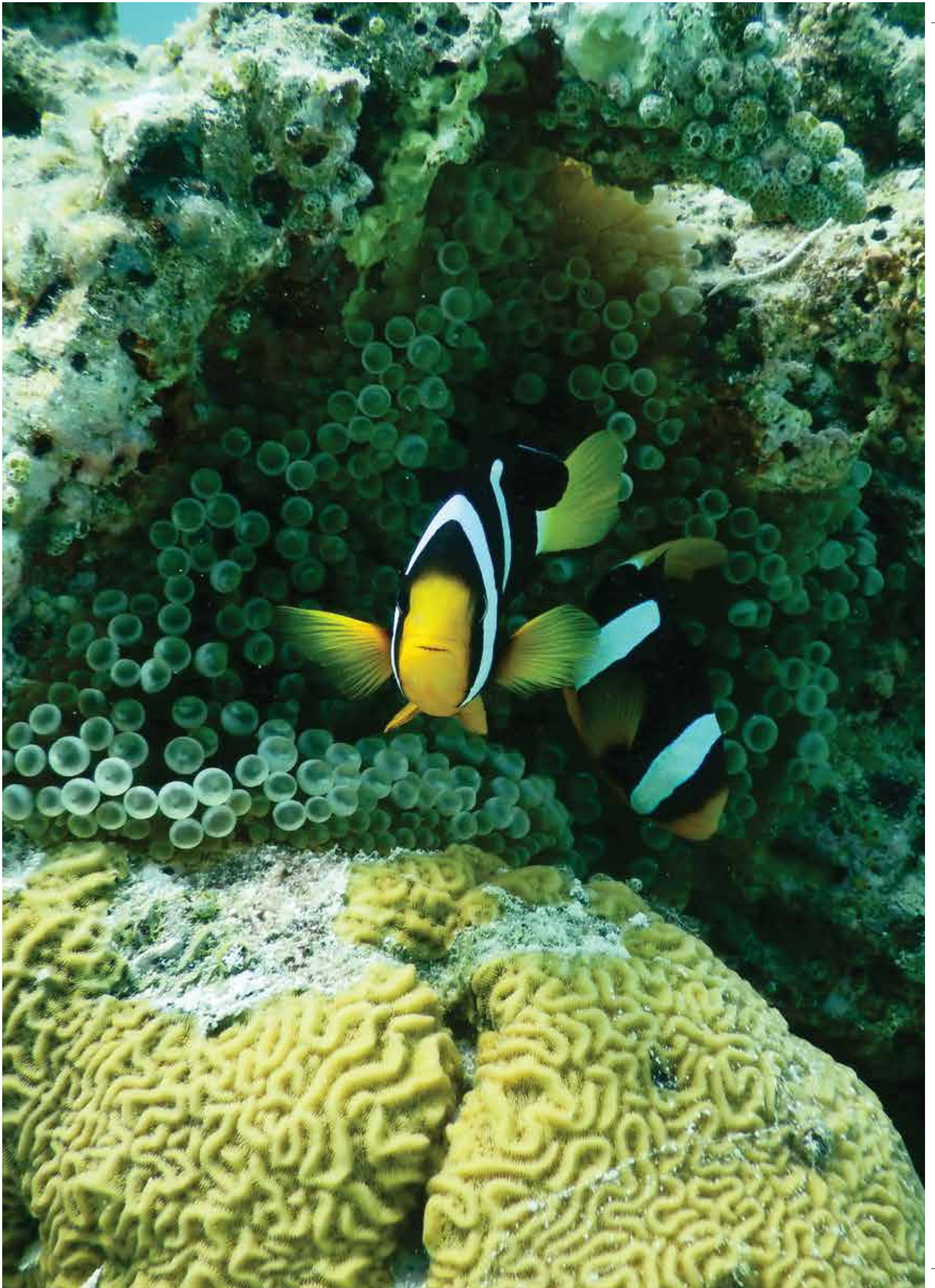
² A Muralidharan, presently working as Deputy Adviser in the Ministry of Drinking Water and Sanitation, has worked earlier in NITI Aayog on Islands Development project.

³ Yaduvendra Mathur is presently working as Special Secretary in NITI Aayog

⁴ Dr. Yogesh Suri is presently working as Senior Adviser in NITI Aayog

⁵ IPE Global Limited in consortium with Horwath HTL France and Crowe Horwath HTL Consultants Private Limited engaged by NITI Aayog to undertake "Preparation of Concept Development Plans and Detailed Master Plans for Holistic Development of 4 islands (Aves, Long, Smith and Ross) in Andaman & Nicobar and five islands (Bangaram, Cheriyam, Minicoy, Suheli and Thinnakara) in Lakshadweep"



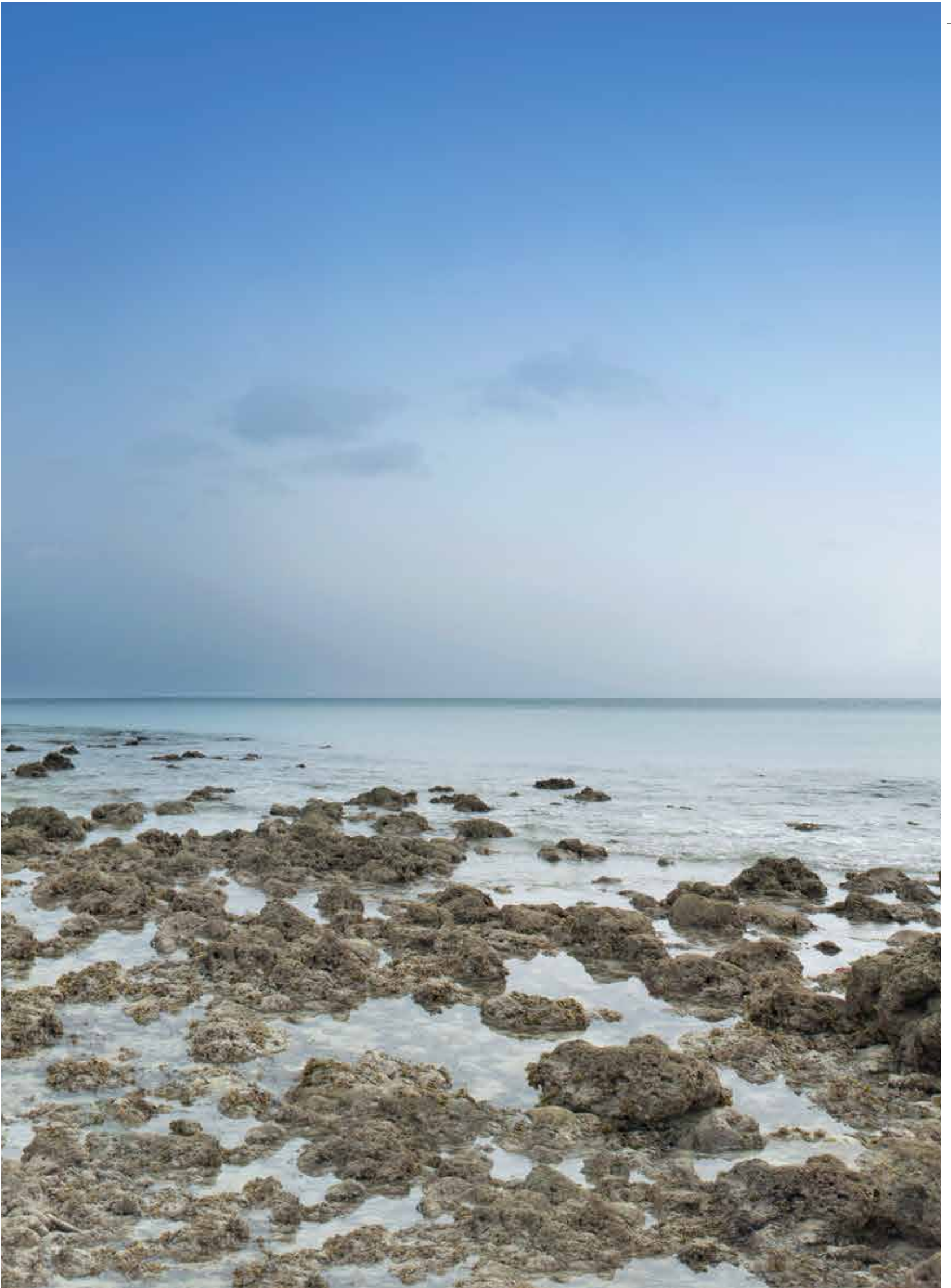


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अमिताभ कांत
Amitabh Kant
मुख्य कार्यकारी अधिकारी
Chief Executive Officer



भारत सरकार
नीति आयोग, संसद मार्ग,
नई दिल्ली-110 001

Government of India
NATIONAL INSTITUTION FOR TRANSFORMING INDIA
NITI Aayog, Parliament Street,
New Delhi-110001

Tel. : 23096576, 23096574 Fax : 23096575
E-mail : ceo-niti@gov.in, amitabh.kant@nic.in

MESSAGE

The islands in India have huge potential for tourism development, export of seafood and coconut products made in the islands, organic farming of high-value crops, deep sea mining and some other important economic sectors. Realizing the potential, 'Holistic Development of Identified Islands' for islanders' benefits has been accorded high priority by the Government and NITI Aayog was mandated to steer the process. Initially, five islands in Andaman & Nicobar and another five in Lakshadweep were identified for high-quality sustainable development.

An exercise for preparation of development plans of the identified islands was initiated in NITI Aayog. Development issues were identified and to address them, appropriate strategies were formulated through constructive debates with reputed experts over creative ideas. Carrying capacity for each of the identified islands was determined, environmental zoning was carried out and adequate safeguards were introduced to maintain ecological stability.

To achieve the desired objectives, projects for implementation with participation of the private sector and support of the local islanders were identified judiciously. In Lakshadweep, the Coral Paradise of India, 'Water Villas' were also planned in addition to the land-based projects. The planning exercise has resulted in a set of the best possible development strategies for holistic development of the identified islands. Successful implementation of these strategies will lead to a model of high-quality sustainable development. Return is expected to be huge in terms of creation of jobs and generation of additional income for the islanders, profit for the private sector as well as revenue for the Government, while maintaining a clean, green and healthy environment in the islands.

The development model, promising huge dividends to all its key stakeholders, can be replicated in other islands of the country. This Paper contains information on strategies planned and benefits expected which will be highly useful for the islanders, the private sector and the policy-planners in the Government.

(Amitabh Kant)

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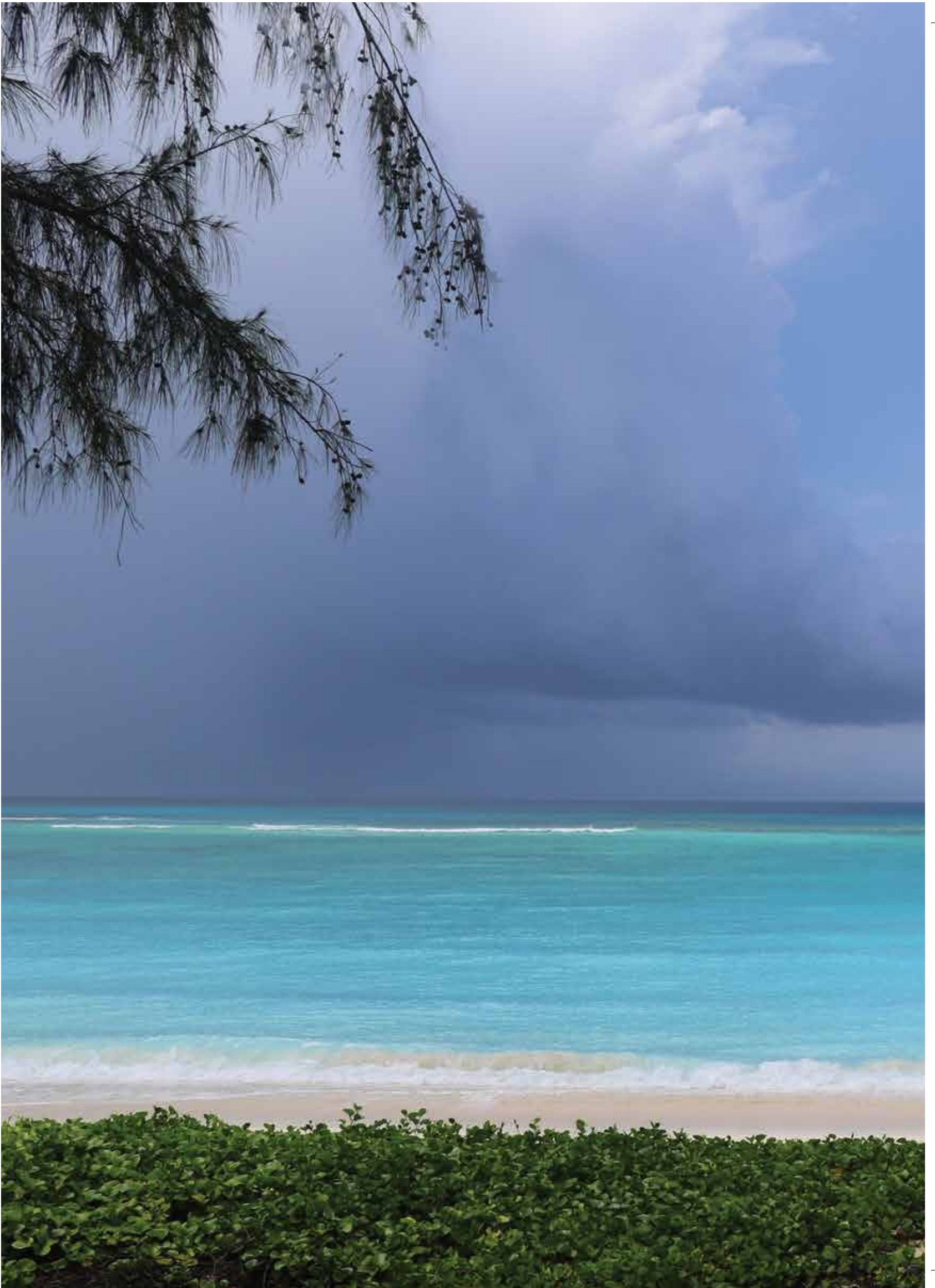
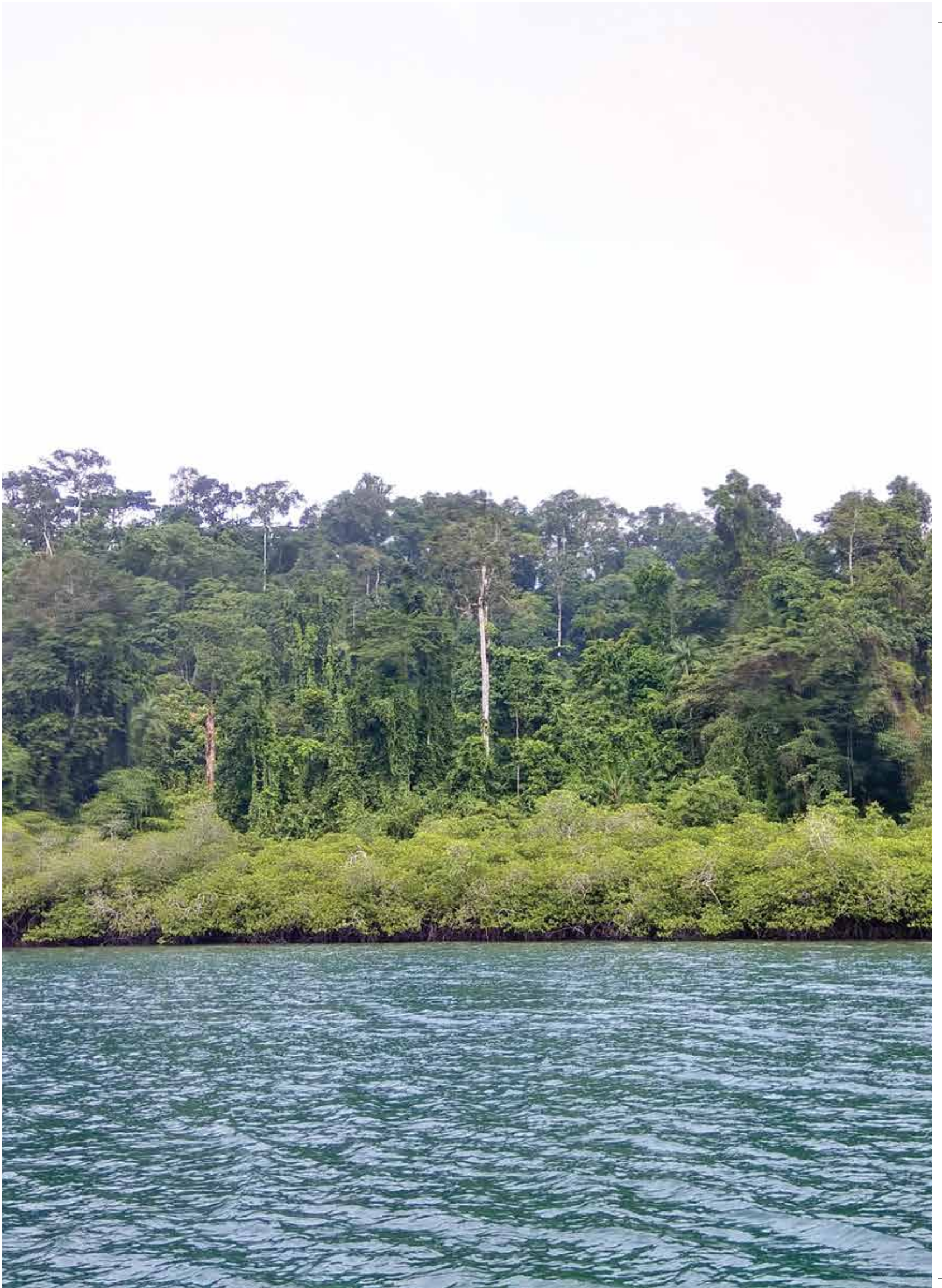


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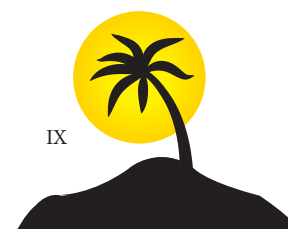
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ACRONYMS AND ABBREVIATIONS

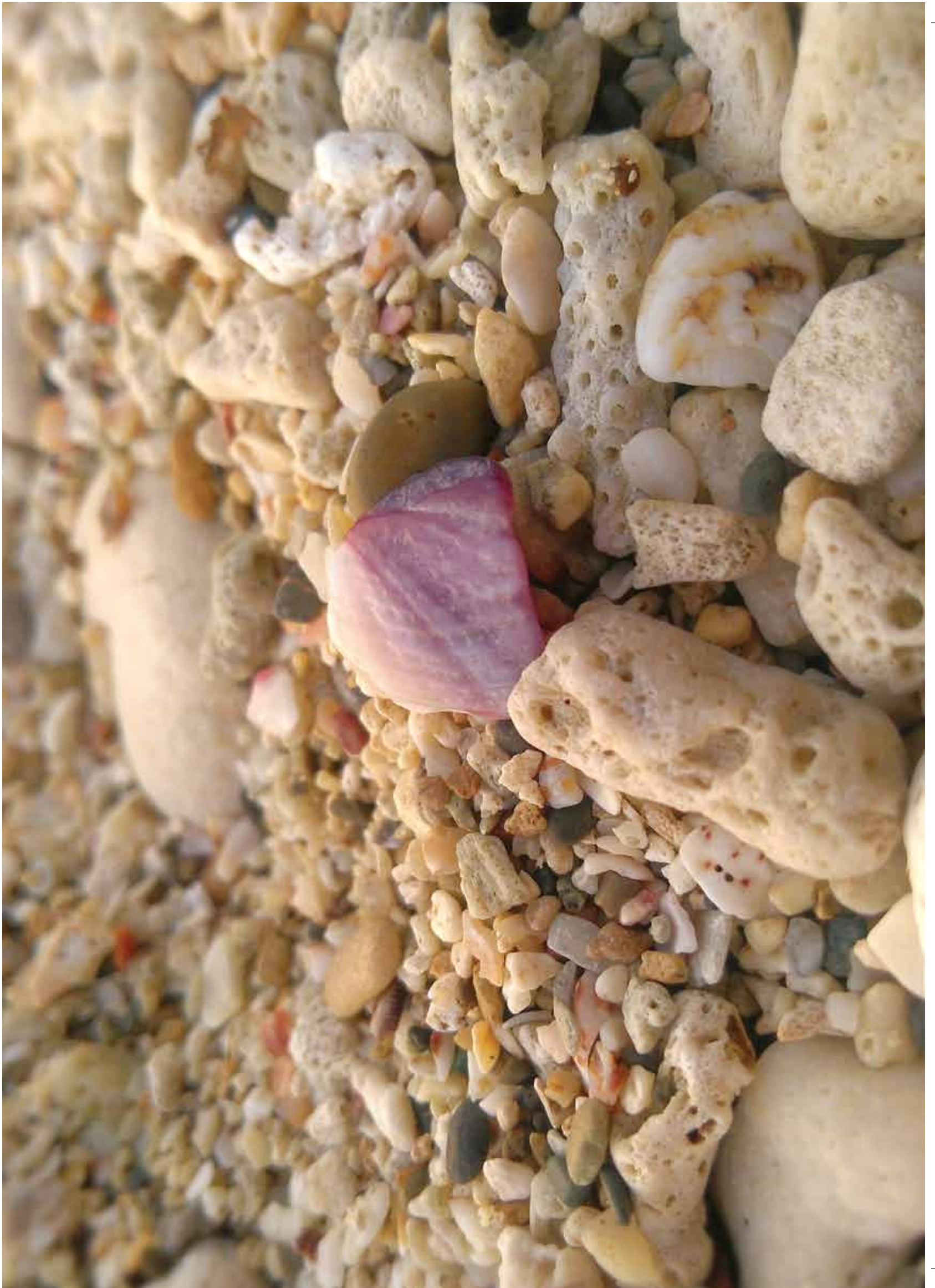
ANIIDCO	Andaman and Nicobar Islands Integrated Development Corporation Limited
A&N	Andaman & Nicobar
ATR	Andaman Trunk Road
Gbps	Gigabytes per second
BE	Budget Estimate
BIS	Bureau of Indian Standards
CGST	Central Goods and Services Tax
CWLW	Chief Wild Life Warden
CRZ	Coastal Regulation Zone
DBFOT	Design Build Finance Operate and Transfer
DFO	Divisional Forest Officer
DGCA	Director General of Civil Aviation
EPF	Employees' Provident Fund
EPS	Employee Pension Scheme
GRIHA	Green Rating for Integrated Habitat Assessment
GST	Goods and Services Tax
EC	Environmental Clearance
EEZ	Exclusive Economic Zone
EMP	Environment Management plan
FSI	Forest Survey of India
HDI	Human Development Index
IATA	International Air Transport Association
IDA	Islands Development Agency
IIMP	Integrated Island Management Plan
IRR	Internal Rate of Return
KLD	Kilo Liters per day
KPIs	Key Performance Indicators
LANIDS	Lakshadweep and Andaman & Nicobar Islands Industrial Development Scheme
Mbps	Megabytes per second





MHA	Ministry of Home Affairs
MICE	Meetings, Incentives, Conferences and Exhibitions
MSMEs	Micro, Small and Medium Enterprises
MW	Mega Watt
NEIDS	North East Industrial Development scheme
NLC	Neyveli Lignite Corporation
NRE	Natural Resources and Environment
NITI	National Institution for Transforming India
NSDP	Net State Domestic Product
NSOP	Non-Scheduled Operator Permit
NTPC	National Thermal Power Corporation
PAMD	Project Appraisal and Management Division
PMAY	Pradhan Mantri Awas Yojana
PMRPY	Pradhan Mantri Rojgar Protsahan Yojana
PMU	Project Management Unit
PRIs	Panchayati Raj Institutions
P2	Public Projects
P3	Public Private Partnership
P4	People Public Private Partnership
PPA	Power Purchase Agreement
PPPAU	Public Private Partnership and Appraisal Unit
PSUs	Public Sector Undertakings
PVTGs	Particularly Vulnerable Tribal Groups
RfQ	Request for Qualification
RoRo	Roll-on/Roll-off
SDG	Sustainable Development Goal
SMART	Specific, Measurable, Attainable, Relevant and Time bound
SGST	State Goods and Services Tax
SRO	Senior Research Officer
STP	Sewage Treatment Plant
SWOC	Strengths, Weaknesses, Opportunities and Challenges
USP	Unique Selling Proposition
UTs	Union Territories
YPs	Young Professionals





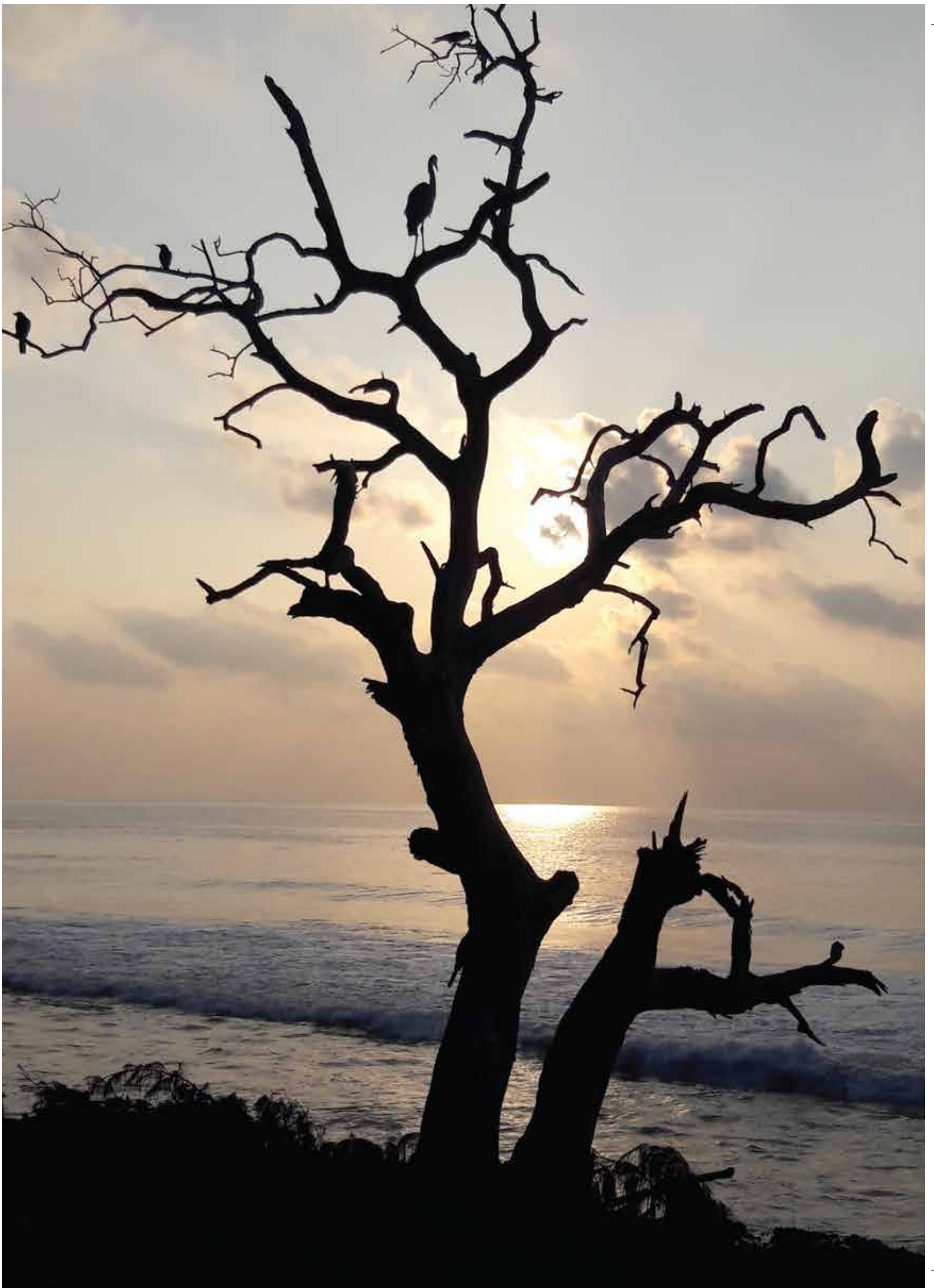
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Executive Summary

The islanders in both Andaman & Nicobar and Lakshadweep expect satisfactory jobs; opportunities for self-employment; sufficient income; affordable state-of-the-art facilities for healthcare; access to high quality education; and adequate air, sea and web connectivity. In order to formulate the best strategies to meet these high and multi-dimensional expectations of the islanders, a planning process with creativity and innovation at its core was adopted. The initiative was named “Holistic Development of Identified Islands” and to begin with, an inspiring vision “Happy and Prosperous Islanders on ecologically-protected Islands” was crafted.

After careful study and analysis of the existing situation, development issues being faced by the islands were identified. In order to solve the identified issues, appropriate strategies were formulated with relevant inputs from existing literature, learning from best practices and constructive debates with sectoral experts over creative ideas and innovative methodologies. Inputs from the SWOC⁶ analysis were highly useful. For example, the SWOC analysis revealed a strong justification for water villas in Lakshadweep, the Coral Paradise of India. Observing from the analysis that Lakshadweep has a large lagoon area of 4,000 sq km, a strategy for water villas at suitable sites in the archipelago was formulated. For promotion of tourism, ‘Water Villas’ were planned in addition to the land-based projects⁷.

SWOC Analysis – An eye opener

- Lakshadweep - Coral Paradise of India
- Lagoon area - 4,000 sq km
- At present, no water villa in the archipelago

For each of the identified islands⁸, carrying capacity was determined, environmental zoning was carried out and a mix of P2 (Public Projects^{8a}), P3 (Public Private Partnership) Projects and P4 (People Public Private Partnership) projects was identified judiciously. The projects were identified for promotion of responsible tourism, development of fisheries, export of seafood and coconut products etc.

⁶ Strengths, Weaknesses, Opportunities and Challenges

⁷ Water Villas were planned for the first time in the country

⁸ Four islands (Aves, Long, Smith and Ross) in Andaman & Nicobar and five islands (Bangaram, Cheriyam, Minicoy, Suheli and Thinnakara) in Lakshadweep

^{8a} Public Project, here, means a project fully financed, owned and operated by the Government



For the identified P3 projects, it was recommended to obtain Environmental clearance (EC) and Coastal Regulation Zone (CRZ) clearance upfront i.e. before finalizing the bids. It was a unique move aimed at creating an environment conducive for investment by the private sector. In case of P4 projects, it was further recommended that the private land for the projects would not be acquired. Instead of that, each landholder would be offered equity share in project ownership⁹. It was another unique move aimed at getting pro-active support of the islanders for the projects in addition to the private sector participation. Our core strategy was to focus on arranging additional investment from the private sector and also from the islanders in addition to the available budgetary support for development of the identified landscape.

Core Strategy

- Budgetary Plan to create optimum public value from say, one rupee
- Our focus on expanding the corpus of the rupee

The core strategy of expanding “the corpus of the rupee” was successfully applied. The additional investment expected from the private sector was worked out and found much more than the Budget Estimates (Capital Section), particularly for Lakshadweep for the year 2018-19. This was the assessment considering only four projects in Andaman & Nicobar and three in Lakshadweep, taken up initially for expeditious implementation. Many more such projects are in the pipeline that would attract investment from the private sector and the islanders.

	Rs. in crore	
	BE - Capital (2018-19)	Additional Investment expected
A&N	600.86	652.00 (4 projects)
Lakshadweep	266.70	788.00 (3 projects)

On detailed appraisal by reputed experts, the identified projects were found technically feasible, economically viable and socially acceptable. Further, for their implementation, requirement of budgetary support was bare minimum limited to infrastructural projects (P2). “Budget +” route was recommended for P 3 projects and “Budget ++” for P4 projects.

Minimum Dependence on Budgetary Resources

- A mix of P2; P3 and P4 projects identified
- B for P2; B+ for P3 projects and B ++ for P4 projects recommended

⁹ In case of ‘Pandaram’ land in Lakshadweep, this may be made applicable after settlement of the land-related issues.



The projects were planned in a way so as to deliver huge dividends to the key stakeholders with minimum budgetary support. Effective implementation of the identified projects was expected to generate additional income for the islanders, attractive profit for the private sector and high revenue for the Government. In fact, the planning exercise created a Win-Win situation for all.

Benefits for the islanders, the private sector and the Government were quantified systematically and the quantification has revealed huge benefits. For example, creation of additional jobs (1,689) after completion of all projects planned for Long Island of Andaman & Nicobar was found to be more than its population (1,032)¹⁰. Economic IRR¹¹ from one key tourism-based project covering 42 ha was found 28.39 per cent. Quantification of significant benefits would motivate all key stakeholders to work together for expeditious implementation of the formulated strategies. For example, after getting aware of job creation potential, the islanders of Long Island would strongly demand for early project implementation.

Win-Win situation for key stakeholders

- Benefits for the Islanders, the Private Sector and the Government quantified - For example in Long Island
 - Economic IRR - 28.39 per cent*
 - Creation of Additional Jobs - 1,689*
 - Annual Concession Fee - Revenue for the Government*
- Creation of additional jobs (1,689) in the island more than its population (1,032)

In addition to tourism-based projects, suitable strategies were formulated for improving inter-islands connectivity for better ease of living in the archipelago. Balanced regional development, development as per land suitability, tourists' inflow within the carrying capacity and strict implementation of the regulatory measures were the key strategies recommended for maintaining a clean, green and healthy environment in the islands. In addition, appropriate interventions were recommended to encourage usage of non-conventional sources of energy for realizing the dream of "Zero Emission". The recommended strategies were in tune with the principle that "a stable and healthy eco-system is always a necessity to sustain economic growth and social prosperity".

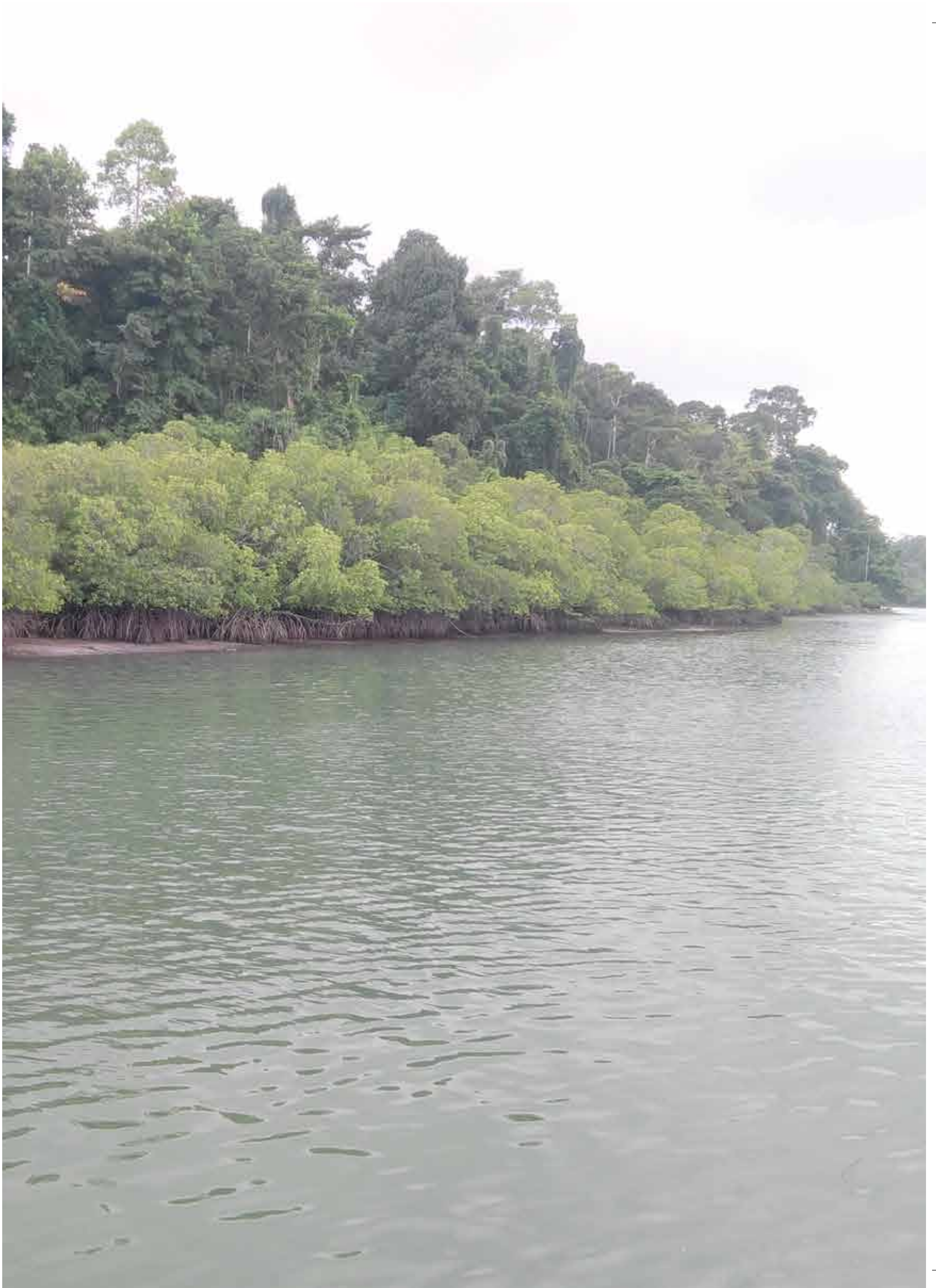
An Institute of Hospitality Management, one each for Andaman & Nicobar Islands and Lakshadweep, was recommended for training the islanders enabling them to get satisfactory jobs in the upcoming tourism-based and other development projects. The Lakshadweep and Andaman & Nicobar Islands Industrial Development Scheme (LANIDS), 2018 was notified to provide incentives for setting up MSMEs¹²

¹⁰ 2011 census

¹¹ Internal Rate of Return

¹² Micro, Small and Medium Enterprises





in the islands. Introduction of advanced deep-sea fishing boats; adequate infrastructure support for timely collection of fish; processing of fish with the latest available technology; proper packaging; and export of finished products were the measures prescribed for development of fisheries. In view of a large area of Exclusive Economic Zone (EEZ) possessed by both Andaman & Nicobar Islands and Lakshadweep, priority was accorded also to deep-sea mining.

The planning exercise has resulted in a set of the best possible “Development Strategies” for “Holistic Development of Identified Islands”. These are the best strategies because their implementation will not only raise the islanders’ income (Social Strategy) but also create productive assets in the public and the private sector to sustain their high income level for a long time (Supportive Strategy). Both Social Strategy having high impact on peoples’ income and Supportive Strategy having high impact on assets creation constitutes our Development Strategy. For details, Figure 11.1 may be referred to.

Best Fit Strategies

- Best Possible Development Strategies recommended
- Strategies to generate additional income for the islanders (Social Strategy) and also to create assets for sustaining their high level of income in the long run (Supportive Strategy)
- Development Strategy = Social Strategy + Supportive Strategy

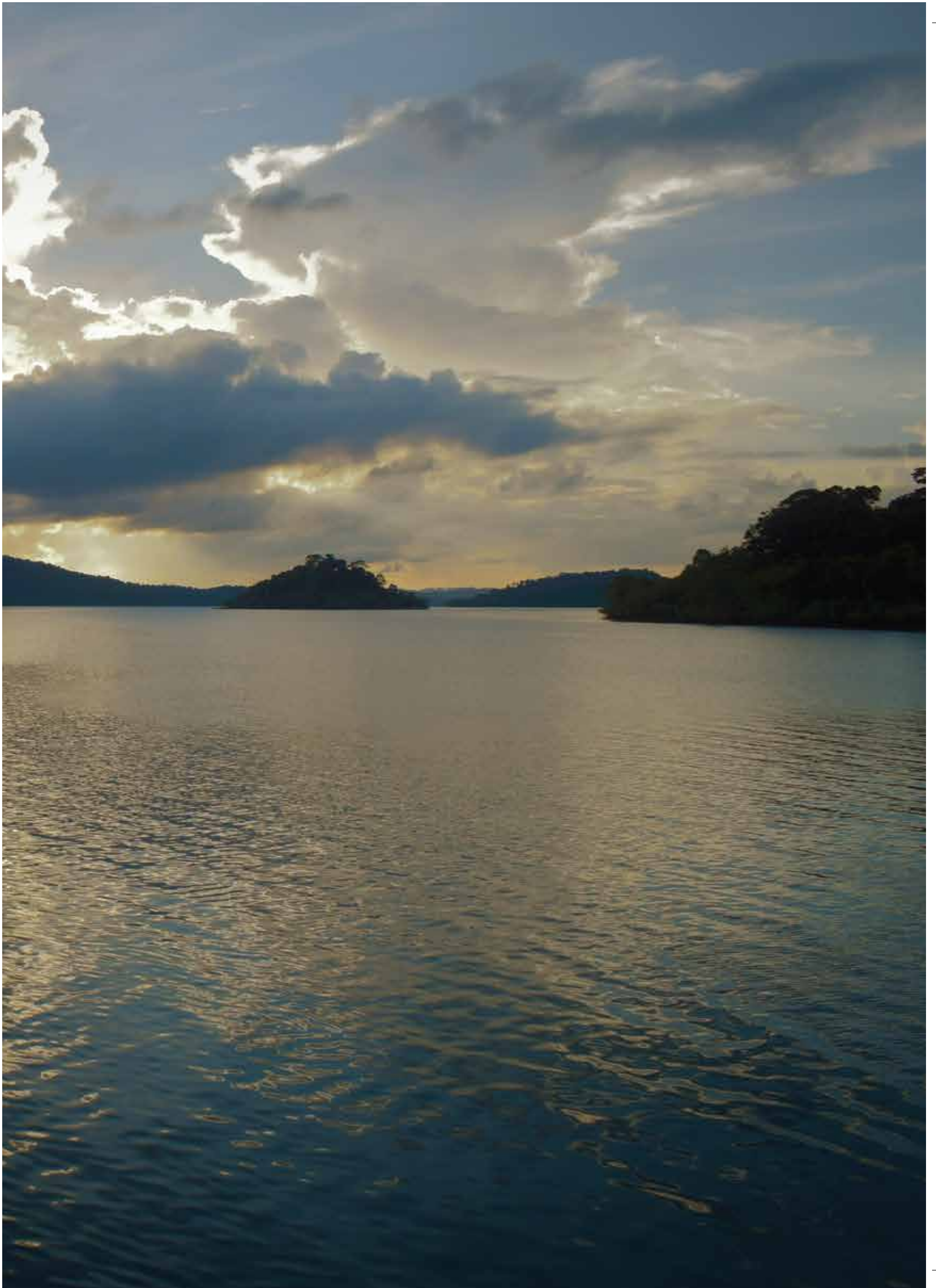
Effective implementation of these well-planned strategies will lead to the creation of a model of high-quality sustainable development in the identified islands. The model has five inherent principles, which may be called “*Panchatantra* Principles of Sustainable Development”¹³. The model may be replicated in other islands and also in other parts of the country. This may be applicable particularly, when we plan sustainable development over a landscape. As budgetary resources are limited, investments from the private sector and the local people need to be encouraged. Only we have to create an environment conducive for investment.

Panchatantra Principles of Sustainable Development

- A mix of P2, P3 and P4 projects
- Budget for P2, Budget+ for P3 and Budget ++ for P4 projects
- Creation of an environment conducive for private sector participation
- Peoples’ participation in equity
- Development Strategy = Social Strategy + Supportive Strategy

¹³ Concept developed by Shri Jitendra Kumar and Shri A. Muralidharan





1. The Underlying Philosophy

The Andaman & Nicobar Islands, a group of picturesque islands in the Bay of Bengal, are blessed with pristine sea beaches, attractive marine life and a large extent of forest cover with rich biodiversity. In the archipelago, 14 islands in North & Middle Andaman district, 7 in South Andaman district and 10 in Nicobar district were reported inhabited carrying a population of 3,80,581 persons (2,02,871 Male and 1,77,710 Female)¹⁴. Lakshadweep is another archipelago of India located in the Arabian Sea. It consists of 36 green islands with blue lagoon, out of which 12 were reported inhabited having the population of 64,473 persons (33,123 male and 31,350 female)¹⁵.

Table 1.1 : Socio-Economic Indicators

Indicator	A&N Islands	Lakshadweep	All India
Population - Male	2,02,871	33,123	623,121,843
Population- Female	1,77,710	31,350	587,447,730
Population - Total	3,80,581	64,473	1,21,05,69,573
Population Density (persons per sq km)	46	2,149	382
ST to Total Population (Percent)	7.50	94.80	8.61
Sex Ratio (Females per thousand males)	876	947	943
Literacy -Male	90.23	95.28	80.89
Literacy - Female	82.43	90.30	64.64
Literacy - Total	86.63	92.30	74.04
Per Capita NSDP (2015-16) ¹⁶	1,24,361	-	94,130
Growth in Per Capita NSDP (Percent)	4.2	-	8.9
IMR ¹⁷ (per 1000 live births)	16	19	34
Forest Cover ¹⁸	81.73	90.33	21.54

Per Capita Net State Domestic Product (NSDP) at current prices (2011-12 series) in Andaman & Nicobar Islands for the year 2015-16 was Rs. 1,24,361, much lower than that in other Union Territories (Chandigarh, Delhi and Puducherry)¹⁹. Annual growth of Per Capita NSDP for Andaman & Nicobar Islands was observed 4.2 per cent, less than the National Average of 8.9 per cent in the year 2015-16. Although Economic Survey, 2017-18 does not include data on per capita net state domestic product for Lakshadweep, the status there is expected to be more or less similar to that in Andaman & Nicobar Islands.

In an inter-connected world, the residents of a State or Union Territory are well aware of per capita income as well as the living standards existing at other places. Being aware of higher standard of living in neighboring countries and also in some of the States and Union Territories of our country, the islanders in both Andaman & Nicobar and Lakshadweep do expect satisfactory jobs; opportunities for self-employment; sufficient income; affordable state-of-the-art facilities for healthcare; access to high-quality education; and adequate air, sea and web connectivity.

¹⁴ Census of India 2011; District Census Handbook, Andaman & Nicobar Islands

¹⁵ Census of India 2011; District Census Handbook, Lakshadweep

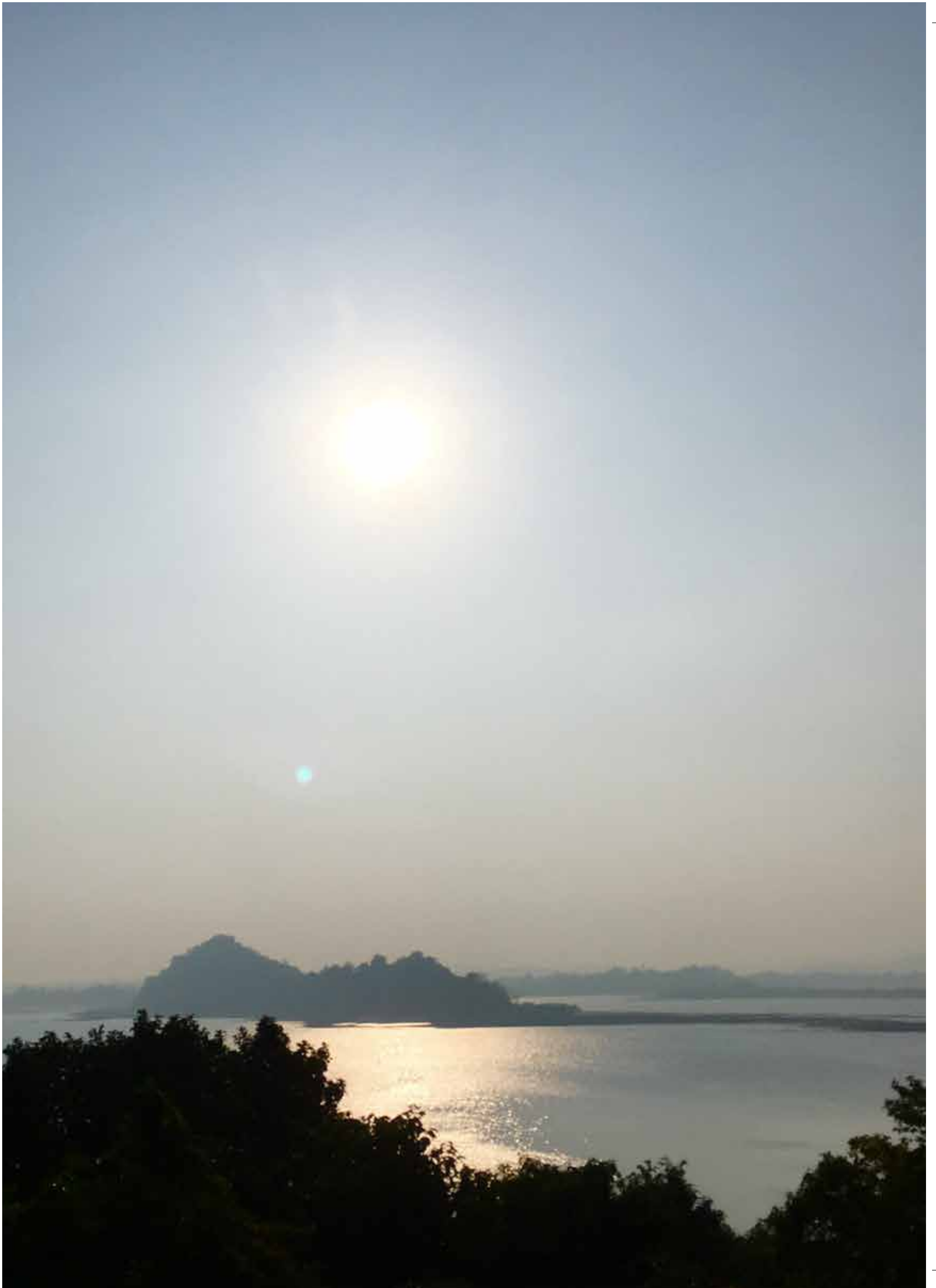
¹⁶ at Current Prices (2011-12 Series)

¹⁷ Infant Mortality Rate, SRS Bulletin, September 2017

¹⁸ percent of geographical area, as per India State of Forest Report 2017

¹⁹ Economic Survey 2017-18; Ministry of Finance, Government of India

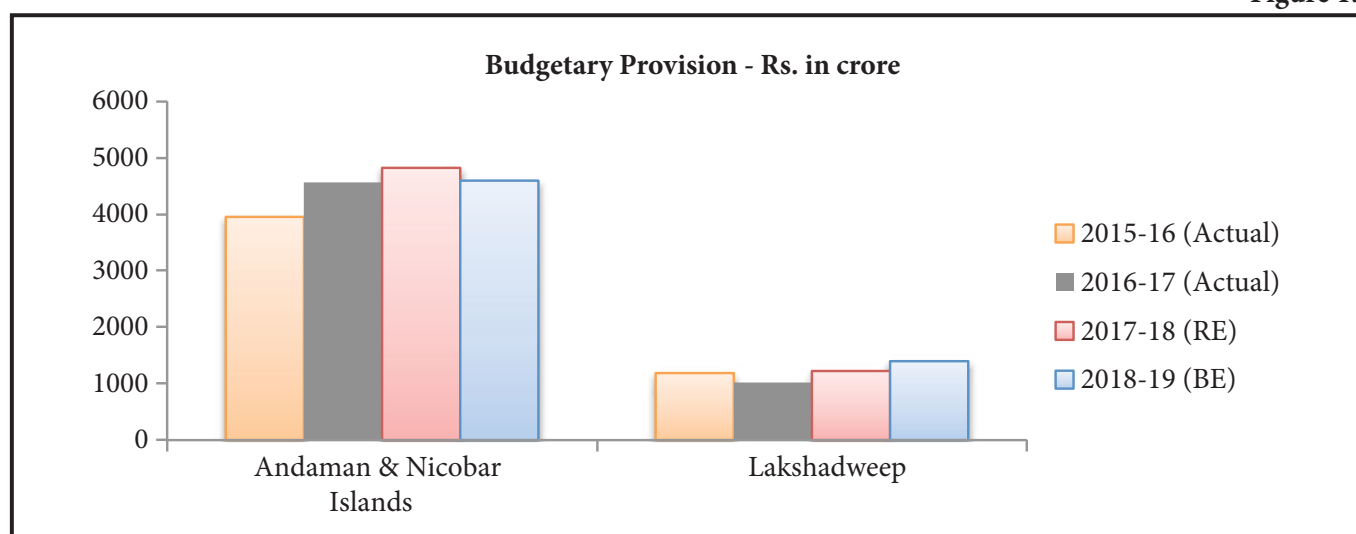




On priority, the islanders expect satisfactory jobs in the islands. However, employment opportunities are not available for all the islanders in both Andaman & Nicobar Islands and Lakshadweep despite their small population and high literacy rate (92.3 percent in Lakshadweep and 86.63 percent in Andaman & Nicobar Islands). Making good-quality job available to all the islanders in the islands is an important issue which needs to be addressed at the earliest. In such a situation, we have to plan differently and in a big way for job creation and also to meet other expectations of the islanders. Undoubtedly, we have to plan for achieving very high level of outcomes in terms of creation of jobs, increase in per capita income, improvement in Human Development Index (HDI) and others.

Each of the expected outcomes needs to be quantified and fixed at a high level with big quantum jump; incremental benefits of 10 percent, 20 percent and so on may not be sufficient. Then, it is required to develop a business plan to achieve the desired outcomes by adopting a proper process of planning. The planning process has to be unique as the situation is unique, demanding high outcomes in a short time. It has to be unique also because of a need for making an assessment of human, technical and financial resources required for planning and implementation of planned projects. For the current year 2018-19, the Budget Estimate of 4593.86 crore for Andaman & Nicobar Islands and Rs. 1397.31 crore for Lakshadweep was approved (Figure 1.1). Funds required in the coming years for implementation of the planned projects needs to be assessed and arranged.

Figure 1.1



Source: Annual Report 2017-18 and Budget at a Glance (2018-19), MHA

In order to formulate suitable strategies for meeting the expectations of the islanders, “planning process having creativity and innovation at its core” was adopted. The underlying philosophy of “creativity and innovation at the core of the planning process” was first applied for naming the project “Holistic Development of Identified Islands”. The Project Title, in itself, is innovative and exciting. It conveys our intention to plan for maritime trade, shipping, fisheries, MSMEs, eco-tourism, undersea mining, oil and gas and other socio-economic activities in the identified islands for islanders’ benefits by following a systematic planning process.



2. The Planning Process

It was required to prepare the plan differently and strategically because of the ambitious goal of meeting high expectations of the islanders with limited resources at hand. Usually, in a strategic planning process, we begin with answering the following questions:-

- (A) Where we are (existing strengths and weaknesses of the islands and external environment in the form of opportunities and challenges - a SWOC²⁰ analysis)?
- (B) Where do we intend to move (vision of success - an emerging picture of the islands when the desired objectives are fulfilled and the stakeholders are satisfied)?
- (C) How to go where we intend to move (set of strategies, set of planned interventions)?

It is like climbing a high peak with limited strength from bottom to top. Resources are limited, time is limited. With the limited resources and within the limited time-period, outcomes are required to be produced meeting the expectations of at least the key, high influence-high interest stakeholders²¹. Also, we cannot afford to select randomly a single available route for travelling from (A) to (B) as efficiency matters. Benefit-cost analysis is a necessity. “At what cost we are going to create public value or can we provide better public services at the same cost”? These are important questions that we have to answer using creativity and innovation. Various solutions need to be worked out and evaluated. We have to select the most cost-effective alternative for reaching (B) from (A).

Fundamentally, in the process of planning to move from (A) to (B), we have to answer the following key questions:-

- (a) What will be the best policy to mitigate or solve a problem in public interest?
- (b) What will be the most effective program to put the policy into effect?
- (c) What will be the most economical set of actions to implement the program?
- (d) What will be the most suitable mode for work-execution to achieve the objective with expected level of quality-standards?
- (e) What will be the best mechanism to monitor the performance against identified success indicators?

The best answers to these questions for the initiative “Holistic Development of Identified Islands” were given by applying creative thinking, carrying in-depth study of available inputs and having constructive group debates with several sector experts. Our focus in that process was to ensure that (1) vision is suitably defined to serve the islanders’ interests effectively, (2) various issues lying on the way of achieving the vision are clearly identified and (3) strategies are logically and technically formulated for managing the identified issues. In addition, mechanism for strategy-implementation and system for performance-evaluation were specified.

²⁰ Strengths, Weaknesses, Opportunities and Challenges

²¹ Stakeholders having high influence over decision making and high interest in project outputs



3. Vision of Success

All successful endeavors normally begin with a vision. In the same way, the project “Holistic Development of Identified Islands” started with an inspiring Vision of Success. “Happy and Prosperous Islanders on ecologically-protected Islands” was the best vision that we could envisage for both Andaman & Nicobar Islands and Lakshadweep by applying creativity and innovation. Additionally, in a unique way, the Vision of Success, so crafted, was quantified with an Index related to Sustainable Development Goals (Figure 3.1). Attaching SDG Index to the Vision offered two major advantages:-

- (1) Economic prosperity, environmental sustainability and ease of living, which we aspired to achieve, were getting reflected in one simple but effective index.
- (2) Sustainable Development Goal (SDG) being an important subject, the aim was to attract more attention of policy-planners and decision-makers in the Government, experts on the related subjects and other key stakeholders.

Figure 3.1

Situation (A)	Situation (B)
Andaman & Nicobar Islands SDG Index - 58 (2018)	Andaman & Nicobar Islands SDG Index - 100 (2030)
Lakshadweep SDG Index - 62 (2018)	Lakshadweep SDG Index - 100 (2030)

Sustainable Development Goal (SDG) India index has been prepared by NITI Aayog for tracking performance of States and UTs against 62 indicators covering all SDGs except Goals 12, 13, 14 and 17)²². The indicators include percentage of population living below National poverty line; rice, wheat and coarse cereals produced annually per unit area (kg/ha); percentage of children under age 5 years who are stunted; Maternal Mortality Ratio; adjusted Net Enrolment Ratio at Elementary (class 1-8) and Secondary (class 9-10) School; Average Annual Drop-out Rate at Secondary Level; Sex Ratio at Birth (female per thousand male); percentage of population having safe and adequate drinking water in rural areas; installed sewerage treatment capacity as a proportion of sewage generated in urban areas; percentage annual groundwater withdrawal against net annual replenishable availability; percentage of households electrified; renewable share of installed generating capacity; annual growth rate per capita (at constant price of 2011-12); average unemployment rate per 1000 persons for males and females; percentage of Gram Panchayats covered under Bharat Net; Palma ratio of household expenditure in urban and rural areas²³; houses completed under *Pradhan Mantri Awas Yojana* (PMAY) as a percentage of net demand assessment for houses; percentage of waste processed; percentage of total land area covered under forest; percentage of births registered; percentage of population covered under *Aadhaar*; and others.

²² NITI Aayog and United Nations, 2018; SDG India Index Baseline Report, 2018

²³ Measures as the ratio of the monthly consumption expenditure of the top 10 percent households to the monthly consumption of the bottom 40 percent households





With all the indicators, the SDG index presents a relative picture of inclusive, higher and sustainable economic growth in the States and the UTs of our country. In the year 2018, both Andaman & Nicobar Islands and Lakshadweep were reported to have the index value of 58 and 62 respectively whereas we should endeavor to achieve 100 by the year 2030 (Figure 3.1). The score of 100 means the achievement of national targets set for the SDGs. The ultimate objective is to make both Andaman & Nicobar Islands and Lakshadweep a model of development for islanders' prosperity with a SDG Index score of 100. By achieving this objective, we can meet the expectations of the islanders and other stakeholders.

4. Stakeholders and their expectations

A stakeholder expects timely delivery of pre-fixed outcomes or services from a program or an organization. If services are delivered in time with desired level of quality, he remains happy otherwise not. Satisfaction of the stakeholders holds the key to success of the program. Ultimately, the stakeholders matter, their satisfaction matters, the success of the program matters and as such, the result matters. Therefore, on priority, it was required to carry out an analysis to identify (1) who are the stakeholders and (2) what are their expectations. The key stakeholders in activities undertaken under the initiative "Holistic Development of Identified Islands" are the Islanders followed by the UT Administrations; the Government of India; the Chamber of Commerce representing industries; the tourists (domestic and foreign); the Public Representatives and the Panchayati Raj Institutions; and the Non-Profit Organizations. The islanders of Andaman & Nicobar Islands and Lakshadweep including the indigenous tribal people are the most valued stakeholder. Their interest are the top priority for all listed key stakeholders (Table 4.1).

Table 4.1 - Stakeholders' expectations

Andaman & Nicobar Islands and Lakshadweep	
Stakeholder's name	Expectations of the stakeholders from the Program
Islanders	<ul style="list-style-type: none"> a. Adequate opportunities to get satisfactory jobs in the islands b. Sufficient income c. Access to safe and adequate drinking water at all times d. State-of-the-art facilities for healthcare e. Reputed educational institutions f. Uninterrupted power supply g. Adequate air, sea and web connectivity
UT Administrations	<ul style="list-style-type: none"> a. Effective implementation of the planned schemes achieving the desired outcomes with expected quality level b. Increased maritime and international trade with priority to exports of products made in the islands c. Increased Tourists inflow (domestic and foreign tourists) but within the carrying capacity of the islands



	<ul style="list-style-type: none"> d. Higher, inclusive and sustainable economic growth e. Ecological balance and environmental stability f. Increased use of solar power and other non-conventional energy sources (de-dieselization) for maintaining a clean, green and healthy environment in the islands g. Protection of the interests of the scheduled tribes h. Disaster preparedness and management
The Government of India	<ul style="list-style-type: none"> a. Security of the islands b. Sustainable development c. Union Territories to be model of economic development for establishing a New India by 2022 d. Achievements of objectives as envisaged for 41 sectors under four sections namely Drivers, Infrastructure, Inclusion and Governance²⁴. e. Universal access and usage of bank accounts
The Chamber of Commerce	<ul style="list-style-type: none"> a. Incentives for industrial promotion b. Ease of doing business
Tourists (domestic and foreign)	<ul style="list-style-type: none"> a. Assured delivery of high-quality tourist services b. Infrastructure that caters to the tourists' expectations c. Digital connectivity d. Disaster preparedness and rescue services
Public Representatives/ Panchayati Raj Institutions (PRIs)	<ul style="list-style-type: none"> a. Peoples' participation in project planning, implementation and monitoring b. Satisfaction of the islanders c. High living standard d. Peaceful environment
Non-Profit Organizations	<ul style="list-style-type: none"> a. Environmental Sustainability b. Satisfactory Human development Index (HDI)

Further, an analysis was required to find out “how would the stakeholders measure the performance of the program implementation? It is well known that the performance of a program is linked to its delivery of services which meets the stakeholders' expectations. The more is the delivery-capacity of the program, the higher is the rating of its performance. The stakeholder evaluates the delivery-capacity in terms of what we call “Success Indicators” or “Performance Indicators”.

²⁴ NITI Aayog; Strategy for New India@75



5. Success indicators

Designing a system for performance evaluation of a program involves two steps namely (1) identification of success indicators and (2) fixation of measurable targets to be achieved against each of the identified success indicators during a specified time-period. Success indicators are identified to measure the outcomes produced by the program which meet the stakeholders' expectations. Performance evaluation on a set of identified success indicators is important as it helps the decision makers and the policy planners to conclude "whether the performance of the program is on track or mid-course corrections are required for better performance".

Satisfactory achievement against identified success indicators implies that the program implementing institution is moving on the right track with the right policy and will be able to meet its mandate, fulfill its mission and achieve its vision. A short-fall in achievement gives an alarming signal on time to the decision makers and the policy planners calling for an urgent need of mid-course correction or intervention by reviewing the policy, the program and the work-plan.

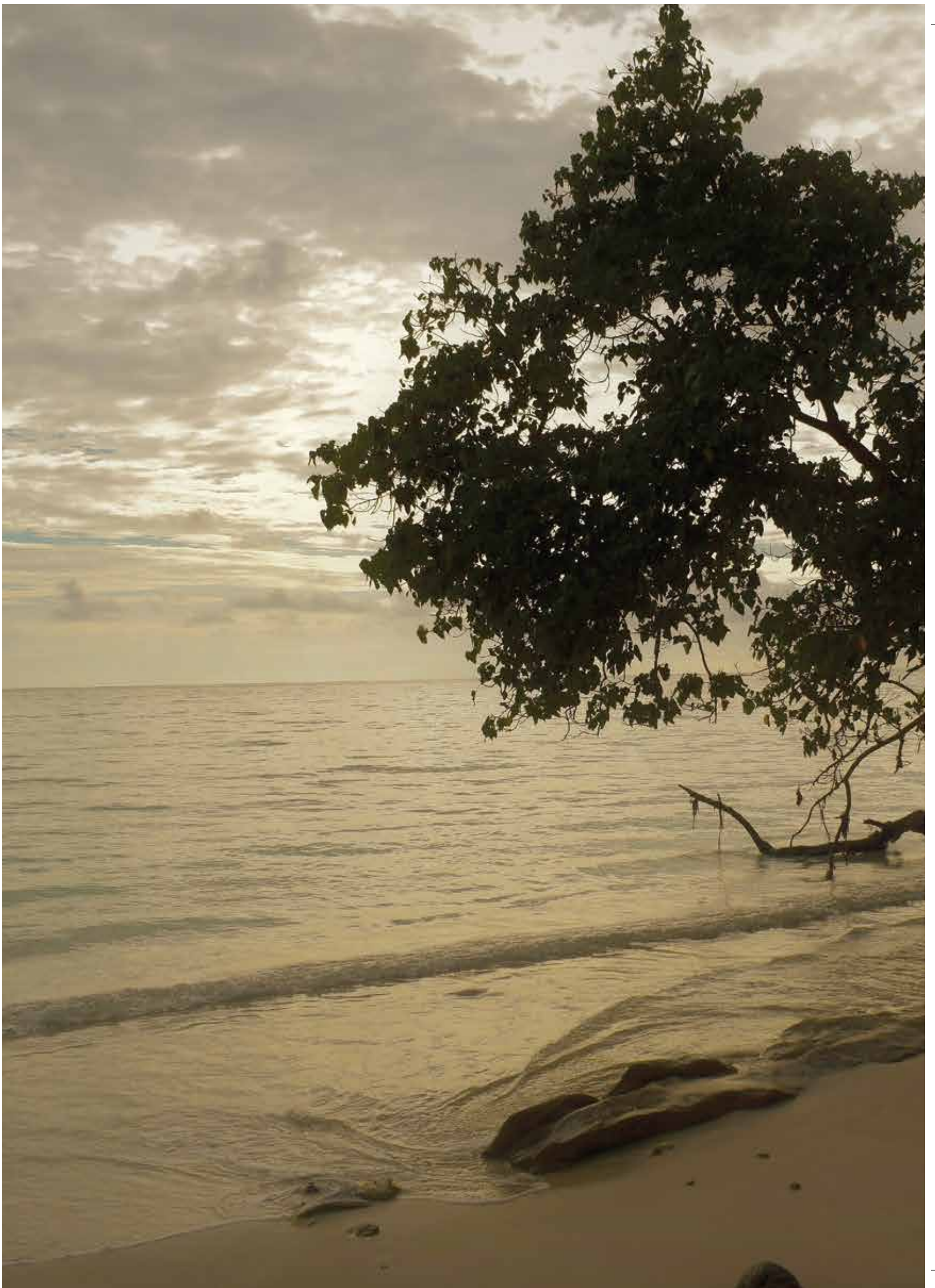
When we assess the progress in achieving the outcomes, the progress in achieving the vision also gets assessed automatically as achievement of outcomes leads to achievement of vision. However, a few key success indicators need to be identified exclusively for facilitating up-front evaluation of progress in achieving the vision. Evaluating performance on such key indicators informs us quickly "How far or how close we are from achieving the vision?" Success indicators were defined for measuring the achievement of expected outcomes from the initiative in consultation with the key stakeholders and the reputed experts. In addition, key performance indicators (KPIs) for measuring achievement of the vision was also defined (Table 5.1).

Table 5.1 - Success Indicators

Andaman & Nicobar Islands and Lakshadweep	
Success Indicators	Creation of Jobs for the Islanders
	Annual Economic Growth
	Per Capita Income
	Productivity - agriculture and allied sectors
	Arrival of domestic tourists
	Arrival of foreign tourists
	Fish production
	Maritime trade – export of products made in the islands
Key Performance Indicators (KPIs)	SDG India Index
	Human Development Index (HDI)

After identifying the "Success Indicators", the target needed to be set, i.e. what can be achieved against each of the identified indicators with available human, technical and financial resources within a specified time-period. The target needed to be SMART (specific, measurable, attainable, relevant and time bound).





On-going schemes in the islands already had well-defined targets. These targets would only get further enhanced with implementation of the interventions recommended through the initiative “Holistic Development of Identified Islands”. For example, the target for tourists’ arrival in Long Island would increase over a period of the next five years up-to its carrying capacity of 1,348 persons. The target for job creation would increase by additional 299 jobs with construction of 50 hotel keys by 2021 in Long Island ²⁵.

Even the enhanced targets would require regular review. A need may arise in future for re-fixation of the targets or introduction of additional measures to achieve the targets, based upon feedbacks from evaluation of the program implementation. Therein lies the importance of monitoring and evaluation. It is a fact that process monitoring, technical monitoring, financial monitoring and impact monitoring as well as concurrent evaluation at regular intervals provide us important inputs for getting maximum public benefits with minimum public resources. Applying that analogy to obtain maximum benefits for the islanders, achievement against “Success Indicators” needs to be measured regularly at short intervals (monthly or quarterly) whereas achievement against KPIs should be measured annually or half-yearly.

Presently, the progress on development of islands is monitored regularly by the UT Administrations, the Ministry of Home Affairs and the NITI Aayog. An Islands Development Agency (IDA) under the Chairmanship of Hon’ble Union Home Minister was also set up in June, 2017 to oversee the comprehensive development of Islands in the country. Five meetings of the IDA have been held so far. Valuable recommendations made by the IDA in its meetings have helped significantly in planning and implementing suitable interventions effectively for islanders’ benefits.

Progress of 42 development schemes/projects/initiatives is also being monitored through a simple but effective e-monitoring system called “Progress Tracker for Union Territories”. The Progress Tracker, a software-based architecture, facilitates monthly monitoring of schemes leading to real time policy interventions, whenever required. Here also, the objective is to make Andaman & Nicobar Islands, Lakshadweep and other Union Territories a role model of sustainable development.

Continuous monitoring of implementation status of the on-going schemes was found highly useful. Further, it was felt necessary to document the situation in the islands - SWOC analysis and the best practices implemented or being implemented in other islands of the world. Such advantageous information would enable key stakeholders to provide workable suggestions for improving the program implementation. Inputs gathered from the SWOC analysis and learning from the best practices are useful also for formulating appropriate interventions to address development issues.

6. SWOC Analysis

The SWOC analysis for Andaman & Nicobar Islands and Lakshadweep provides a glimpse of the strengths and the weaknesses of the islands (Table 6.1 and 6.2). The analysis further provides a sketch on the opportunities available for the UT administrations to achieve the vision and the challenges, they may face in doing so.

²⁵ Draft Master Plan and Infrastructure Plan for Aves, Long, Smith and Ross Islands



Table 6.1 - SWOC analysis (Andaman & Nicobar Islands)

Strengths	Weaknesses
<ul style="list-style-type: none"> • Pristine, white sandy sea beaches • Attractive marine life • Rich biodiversity • Forest and tree cover - 6,777 sq km (82.16 per cent of the geographical area)²⁶ • High Literacy - 86.27 % • High Rainfall - 2,890 mm (2017) • Wetlands - 1,52,809 ha²⁷ • Long Coastline - 1,962 km²⁸ • Exclusive Economic Zone - 6,00,000 sq km²⁹ • Lighthouses • Unexplored destinations • Heritage Sites - Cellular Jail, Netaji Subhas Chandra Bose Dweep, Viper Island etc. • Strategic location - The Great Nicobar Island is only about 90 km away from the western tip of the Malacca Strait, an important shipping route between the Indian Ocean and the South China Sea • Peaceful environment 	<ul style="list-style-type: none"> • Inadequate air and sea connectivity • Inadequate digital connectivity • Unavailability of construction material - High cost of transportation • Scarcity of drinking water • Insufficient power supply • Shortage of skilled manpower in the islands
Opportunities	Challenges
<ul style="list-style-type: none"> • Increasing interest in Cruise Holidays • Medical tourism • Water-based adventure tourism -Scuba diving, Snorkeling, Kayaking, Canoeing, deep sea fishing and windsurfing • Nature Tourism – To relax with nature 	<p>Tourism Sector</p> <ul style="list-style-type: none"> • Tourism Marketing through electronic, social and print media • Introduction of new products to attract tourists like Business-cum-Leisure Tourism, Ayurveda, Nature trails etc • Man-animal conflict <p>Fishery Sector</p> <ul style="list-style-type: none"> • Export of seafood <p>Climate Change, Environment-related</p> <ul style="list-style-type: none"> • Low-lying islands at greater risk of submergence from sea-level rise • Threat of Tsunami

²⁶ Forest Survey of India; State of Forest Report 2017

²⁷ Space application Centre, ISRO; Information Brochure, National Wetland Inventory and Assessment http://www.moef.nic.in/downloads/-public-information/NWIA_National_brochure.pdf

²⁸ Annual Report 2017-18, Ministry of Home Affairs, Government of India

²⁹ Andaman & Nicobar Administration; Basic Statistics, 2016-17



Table 6.2 - SWOC analysis (Lakshadweep)

Strengths	Weaknesses
<ul style="list-style-type: none"> • Pristine, white sandy sea beaches • Attractive marine life • Rich biodiversity • Availability of land in Lakshadweep is limited (about 32 sq km) but the Union Territory is blessed with about 4,000 sq km lagoon area and 4,00,000 sq km Exclusive Economic Zone (EEZ)³⁰ • High Literacy - 92.28 % • High Rainfall – 1739 mm (2017)³¹ • Wetlands - 79,586 ha • Exclusive Economic Zone - 4,00,000 sq km • Historical Site - Minicoy Island Lighthouse, established on 2nd February, 1885 • Lighthouses • Strategic Location of the islands in the Arabian Sea • Peaceful environment • 4 S - Sun, Sea, Sand and Solitude 	<ul style="list-style-type: none"> • Inadequate air and sea connectivity • Inadequate digital connectivity • Unavailability of construction material - High cost of transportation • Scarcity of drinking water • Insufficient power supply • Limited scope for agriculture land expansion • Shortage of skilled manpower in the islands
Opportunities	Challenges
<ul style="list-style-type: none"> • Increasing interest in Cruise Holidays • Medical tourism • Water-based adventure tourism -Scuba diving, Snorkeling, Kayaking, Canoeing, deep sea fishing, and windsurfing • Nature Tourism – To relax with nature 	<p>Tourism Sector</p> <ul style="list-style-type: none"> • Tourism Marketing through electronic, social and print media • Introduction of new products to attract tourists like Business-cum-Leisure Tourism, Ayurveda, Nature trails etc <p>Fishery Sector</p> <ul style="list-style-type: none"> • Export of seafood <p>Climate Change</p> <ul style="list-style-type: none"> • Low-lying islands at greater risk of submergence from sea-level rise • Andrott, Kalpeni and Minicoy in a cyclone belt³²

³⁰ Lakshadweep Tourism Policy, 2016

³¹ India Meteorological Department, Ministry of Earth Sciences; Report No. ESSO/IMD/HS/Rainfall Report/ 01(2018)/24

³² Department of Environment and Forestry, Union Territory of Lakshadweep, supported by UNDP; Lakshadweep Action Plan on Climate Change





CUTHBERT BAY BEACH



MORICEDERA BEACH



AAMKUNJ BEACH



LALAJI BEACH- LONG ISLAND



YERRATTA CREEK

To achieve the desired objectives, it is necessary to exploit the available opportunities and address the challenges through well-planned strategies. In the process, strengths need to be used and weaknesses to be overcome. It is not so easy to convert existing situation (A) to envisaged situation (B) (Figure 3.1). The task is tough and outstanding efforts are required to do it. A process-chain covering policy, program, set of actions, institutional and financial arrangements, implementation schedule and monitoring mechanism is required to be designed systematically and for which, it is imperative to be creative and innovative. The need for placing a proper process-chain into effect attracts the attention of the policy planners in the Government as situation (B) has the potential to offer maximum public benefits. Conversion of situation (A) into situation (B) will lead to establishment of a “Prosperous Green Economy” in the islands.

7. The Initiative “Holistic Development of Identified Islands”

For moving towards situation (B), the initiative “Holistic Development of Identified Islands” was accorded high priority by the Government and NITI Aayog was mandated to steer the process. In consultation with the UT Administrations, the concerned Central Ministries/ Departments and other stakeholders, 10 islands namely Aves, Long, Little Andaman, Smith and Ross in Andaman & Nicobar and Bangaram, Cheriya, Minicoy, Suheli and Thinnakara in Lakshadweep were initially identified for sustainable development. Subsequently, 17 more islands (12 in Andaman & Nicobar and 5 in Lakshadweep) were identified for coverage under the initiative. These include North Passage, Cinque, Inglis, Viper, Shaheed Dweep (Bharatpur Beach), Ramnagar Beach, Karmatang Beach, Dhaninallah Beach, Kalipur Beach, Rutland, North Bay and Great Nicobar (B Quarry) in Andaman & Nicobar and Kalpeni, Kadmat, Agatti, Chetlat and Bitra in Lakshadweep.

Further, potential sites for sustainable development in Little Andaman and Great Nicobar, outside Tribal Reserves, are being identified separately for coverage under the initiative “Holistic Development of Identified Islands”. These islands carry importance because of their size and strategic location (Figure 7.1). A committee has been constituted by NITI Aayog to recommend a suitable road map for harnessing the development potential of these two islands. To provide inputs to the Committee, studies on the following subjects have been arranged:-

WAPCOS Limited:-

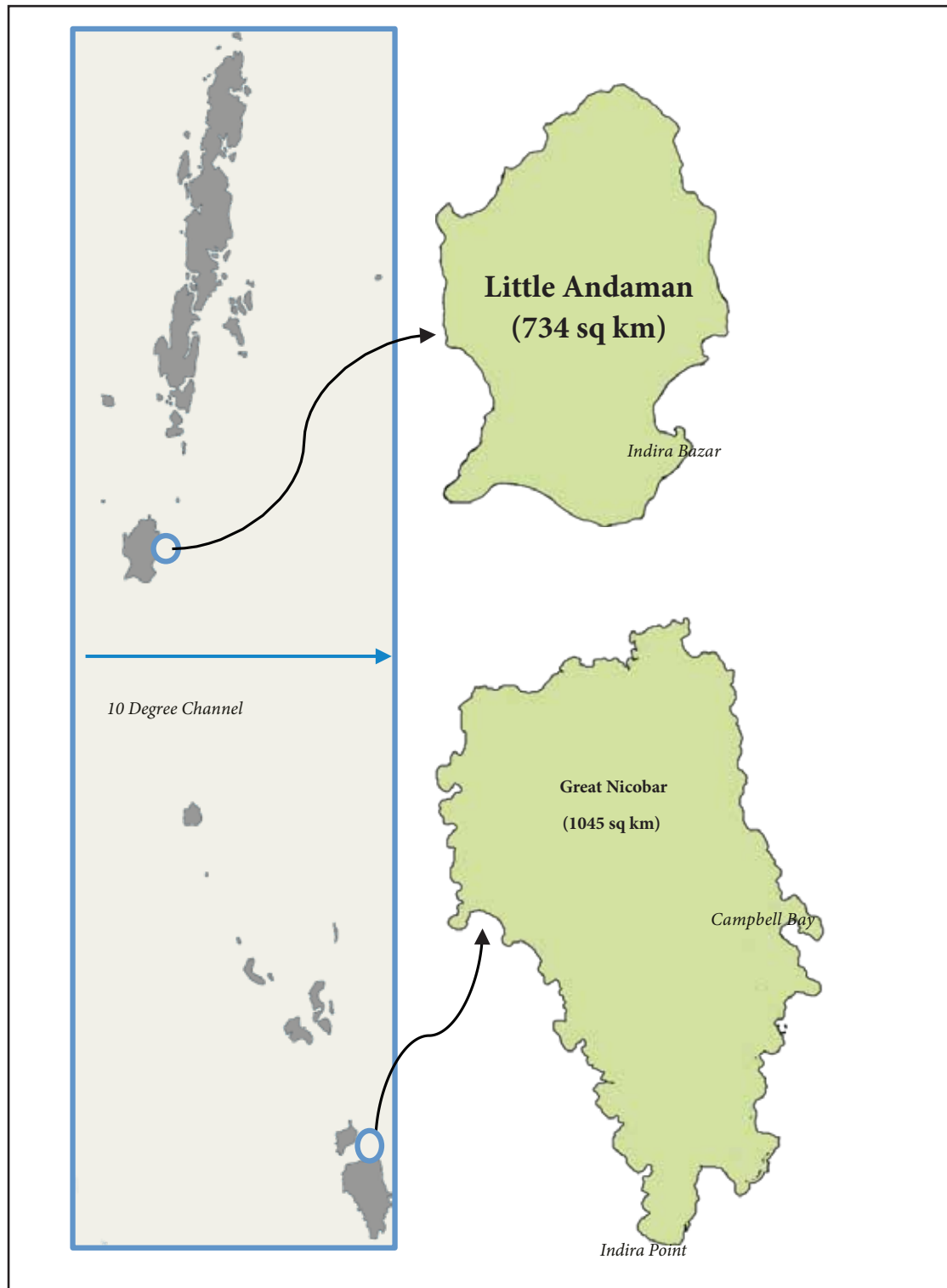
- a. Development of Water Resources in Little Andaman and Great Nicobar Islands
- b. Reclamation of Land in Little Andaman and Great Nicobar Islands

Forest Survey of India (FSI):-

- a. Land Use - Land Cover Mapping of Little Andaman Island on large scale using very high resolution satellite data for development planning with emphasis on forest conservation
- b. Land Use - Land Cover Mapping of Great Nicobar Island on large scale using very high resolution satellite data for development planning with emphasis on forest conservation



Figure 7.1



‘Site Development Potential Reports’, ‘Vision and Conceptual Master Plans’ and ‘Master Plans for Holistic Development and Infrastructure Plans’ have been prepared for Aves, Long, Smith and Ross Islands of Andaman & Nicobar and Bangaram, Cheriyam, Minicoy, Suheli and Thinnakara Islands of Lakshadweep. Inspiring vision was crafted for each of these islands (Table 7.1).

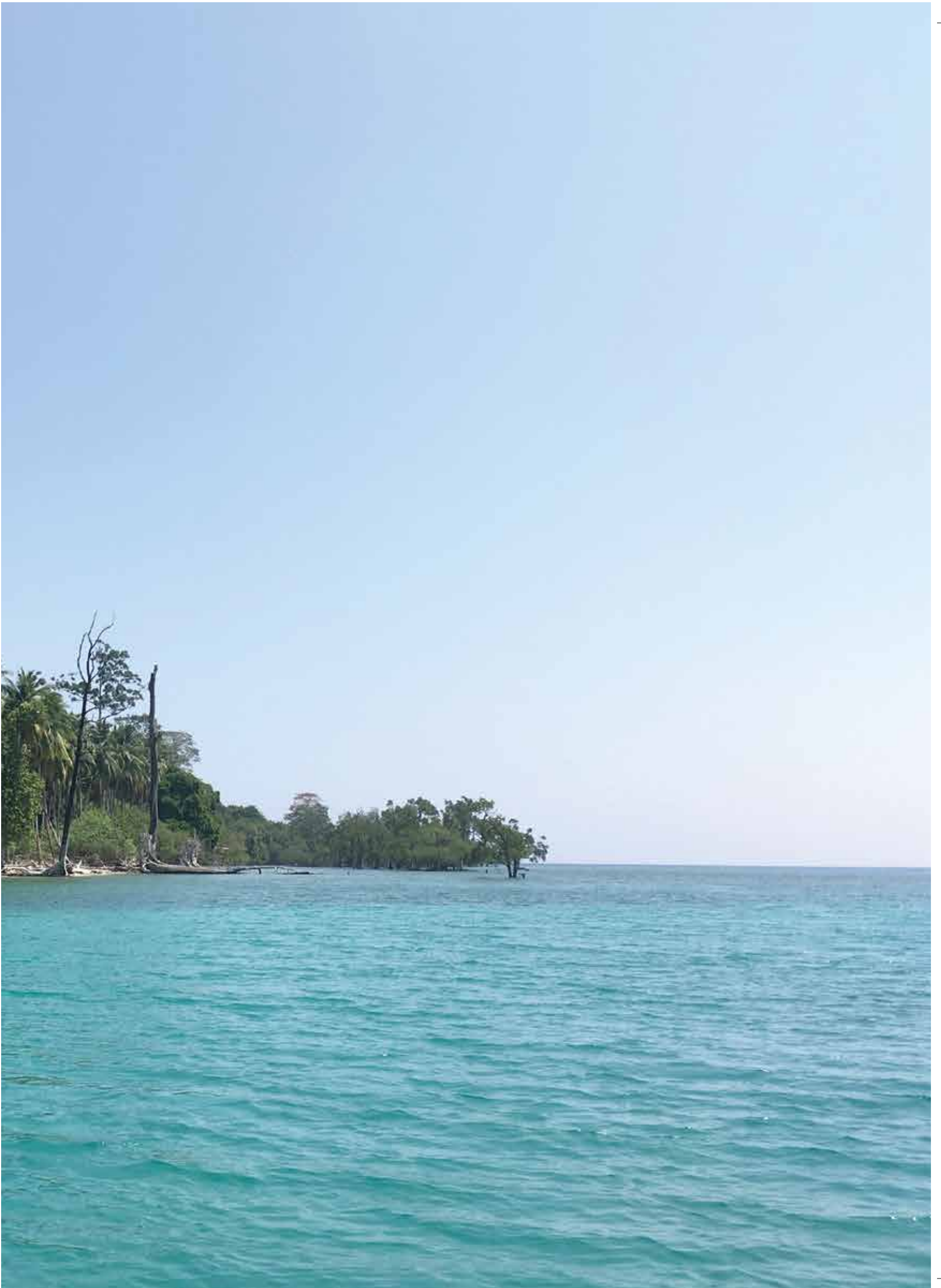
Table 7.1 – Holistic Vision for Project Islands

Name of the Island with Vision	Key Objective
Andaman & Nicobar	
Smith and Ross Islands – Nature/Wild Escapade	To develop Smith Island as a nature-based tourism destination
Aves Island – Romantic Gateway	To develop Aves Island into an eco-tourism gateway/honeymoon destination
Long Island – Experiential Tourism	To develop Long Island as a unique model of emission free village and promote cultural tourism
Lakshadweep	
Bangaram Island – Paradise of Waters Sports	To develop Bangaram Island as an international destination for water sports
Cheriyam Island – Simply Exquisite	To develop Cheriyam Island as a place to relax with pristine ecological beauty
Minicoy Island - Maritime Trade Centre	To develop Minicoy Island for maritime trade, particularly for export of seafood and other products made in the island
Suheli Island – The Regal Gateway	To develop Suheli Island for amazing experience of coral watching
Thinnakara Island – Event-based Tourism	To develop Thinnakara Island as wedding destination, corporate retreat and MICE Tourism.

Identifying each of the islands with a unique brand such as “Smith Island - Wild Escapade”, “Aves Island - Romantic Gateway”, “Cheriyam Island - Simply Exquisite”, “Suheli - The Regal Gateway” and so on was the first step towards “Brand Marketing”. Making these islands popular with their brand identification through electronic, print and social media would create a miraculous effect in the national and international tourism markets. Nature-loving tourists, leisure-seeking tourists and adventure enthusiasts would develop temptation to visit these islands. To meet their expectations, it would be required to create high-quality tourism-based facilities in the islands. Moving in that direction, existing situation in the identified islands was first assessed.

Existing socio-economic base covering important sectors such as demographic profile, agriculture, animal husbandry, fisheries, tourism, transportation and connectivity (airways, waterways and roadways), power availability, water supply, solid waste management, sanitation, drainage, digital connectivity, health, education and civil supplies was assessed for all these islands. Environmental profile covering topography, climate, hydrology, forest, mangrove, coral reef, inter-tidal mudflat, fish wealth and avian diversity was also prepared. In addition, vulnerability of these islands to natural hazards was mapped. All these information and the details emerging from the SWOC analysis were used for identifying the development issues and formulating suitable strategies to address the identified issues.





8. Identification of Strategic Issues

An organization plans a journey to elevate its status. While moving on the way, it has to cross several hurdles; it has to face several issues. Prior identification of issues, formulation of suitable strategies to address identified issues and proper implementation of formulated strategies hold the key to a successful journey from the present situation to a prosperous future. Strategic issues are required to be identified and treated properly to reach the desired destination. The critical question here is “how to identify the strategic issues carefully?”

There are several ways and techniques available for issue-identification. In the present case, vital inputs for identifying relevant development issues were generated by learning from past experience, analysis of external environment including market survey, culture audit, insights of key stakeholders and guidance of the planning experts. Issues were narrated in question form to keep focus on getting the best answer i.e. the best solution for mitigating each of the identified issues. Some of the important issues, so identified, for both Andaman & Nicobar Islands and Lakshadweep are as given below:-

- (a) What can be done to restrict entry of tourists to an island within its carrying capacity?

Sustainability of economic development is closely linked to protection of the environment. In order to protect the eco-system of the island, it is required to assess its carrying capacity scientifically and restrict entry of tourists into the island within its carrying capacity. Tourists' inflow in an island beyond its carrying capacity may cause irreparable damage to the ecological balance existing in the island for a long time.

- (b) How the flow of tourists to both Andaman & Nicobar Islands and Lakshadweep can be increased, but within the carrying capacity?

The arrival of domestic tourists in Andaman & Nicobar Islands increased significantly from 2,02,221 in the year 2011 to 3,84,552 in 2016. However, the inflow of foreign tourists to the islands has been stagnant at around 15,000. It was 15,814 in the year 2011; 17,538 in 2012; 14,742 in 2013; 17,235 in 2014; 14,674 in 2015; and 15,466 in 2016³³. Tourist arrival in Lakshadweep was only 5,675 (5,277 domestic and 398 foreign tourists) in 2013-14 and 7,752 (7,315 domestic and 437 foreign tourists) in 2014-15³⁴. This is in spite of the fact that globally, there is a high demand for eco-tourism, adventure tourism (water sports and game fishing) and cruise tourism. The demand provides an opportunity of better tourism-based development in the islands. By creating high-quality tourism facilities, tourists' inflow can be increased up-to the level of carrying capacity to meet the demand.

- (c) What measures are required to fully protect the island eco-system?

Based upon scientific inputs related to seismicity, tectonic set up and earthquake occurrence, earthquake-prone regions of the country have been classified by the Bureau of Indian Standards

³³ Ministry of Tourism, Government of India; India Tourism Statistics.

³⁴ Lakshadweep Key Indicator – 2015, Lakshadweep Administration <https://lakshadweep.gov.in/document-category/reports/>



(BIS) into four seismic zones namely Zone II, III, IV and V³⁵. Zone V is highly vulnerable to earthquake whereas zone II is the least vulnerable. Andaman & Nicobar Islands are located in seismic zone V and Lakshadweep in Zone III. Further, the islands lie in the open sea and confront storms, cyclones and heavy rainfall quite often. In addition, they are vulnerable to rise in the sea level, an effect of global warming and climate change. The islands also face threat due to storm surges and tsunami waves. Heavy damage was caused by Great Tsunami of 2004 in Andaman & Nicobar Islands and by Cyclone Ockhi of 2017 in Lakshadweep. The island, being ecologically fragile and environmentally sensitive, requires suitable interventions to fully protect its eco-system. A stable and healthy ecosystem is a necessity also to sustain the development initiatives.

(d) How to protect the interests of the tribal people living in the islands for a long time?

Andaman & Nicobar Islands are home to four 'Negrito' tribes namely Great Andamanese (Strait Island), Onges (Little Andaman), Jarawas (South and Middle Andaman) and Sentinelese (North Sentinel Island) and two 'Mongoloid' tribes namely Shompens (Great Nicobar) and Nicobarese (Car Nicobar, Chowra, Teressa, Bampuka, Katchal, Kamorta, Nancowrie, Trinket, Little Nicobar, Kondul, Pilomilo and Great Nicobar). The population of scheduled tribes in Andaman & Nicobar Islands was found 28,530 persons (14,731 Male and 13,799 Female)³⁶. It constitutes 7.5 percent of the total population in the Union Territory. As per 2011 census in Lakshadweep, the total population of scheduled tribes was 61,120 persons constituting 94.8 percent of the total population. The interests of the scheduled tribes in both Andaman & Nicobar Islands and Lakshadweep including those of Particularly Vulnerable Tribal Groups (PVTGs) need to be fully protected. Out of 75 tribal groups categorized as PVTGs, five (Great Andamanese, Onges, Jarawas, Sentinelese and Shompens) are in Andaman & Nicobar Islands³⁷.

(e) How to improve road, air and sea connectivity in the Islands?

Presently, there is only one airport at Port Blair in Andaman & Nicobar Islands which is operational for civilian aircraft. Inter-island connectivity is provided by ships and helicopter services. Andaman Trunk Road is also used by the islanders and the tourists for travelling to tourism sites in South Andaman and North & Middle Andaman districts. As for Lakshadweep, the archipelago has only one airport in Agatti Island which is operational for ATR 72 and other smaller aircrafts. Ships and helicopters, which are used for inter-island connectivity, remain grounded quite often particularly during the rainy season. Road, air and sea connectivity needs to be adequate for benefits of the islanders and also for promotion of tourism. For the purpose, it is required to plan and implement suitable interventions for improving connectivity, particularly inter-islands

³⁵ Press Release, Ministry of Earth Sciences (19th July, 2017) <http://pib.nic.in/newsite/mbErel.aspx?relid=168661>

³⁶ 2011 Census Data for Andaman & Nicobar Islands

³⁷ Ministry of Tribal Affairs, State-wise List of Particularly Vulnerable Tribal Groups (PVTGs) <https://tribal.nic.in/Divisions-Files/SwLPVTGs.pdf>



connectivity in both Andaman & Nicobar Islands and Lakshadweep.

(f) How to promote industrialization in the islands?

As per the information available up-to 31.03.2015, there were only 2,433 industrial units registered in Andaman & Nicobar Islands providing employment to 12,348 persons³⁸. In Lakshadweep, only 72 industrial units were found registered up-to the year 2014-15³⁹. In order to create more jobs for the islanders, it is required to encourage setting up of IT-based, marine resources-based, tourism-based and coir-based industries in the islands.

(g) How to manage man-animal conflict with reference to salt water crocodile in Andaman & Nicobar Islands?

Saltwater crocodile (*Crocodylus porosus*) is found in all the three districts of Andaman & Nicobar Islands. During the period 2005 to 2017, 26 cases of attack by saltwater crocodile on the human being were reported. A total of 16 persons died in those incidences of man-animal conflict. Incidence of death due to attack by saltwater crocodile is a serious concern. Even sighting of the animal near the coastline, close to tourist sites and human habitations, over a period of say, 4-5 years, can affect tourism and other economic activities adversely. It is urgently required to address the issue of man-animal conflict to protect lives of the islanders and the tourists in Andaman & Nicobar Islands.

9. Formulation of Strategies

A creative and analytical process was followed for formulation of appropriate strategies, short-term as well as long-term, to address the identified issues. External environment consisting of opportunities and challenges emerging from the SWOC analysis were carefully assessed. The strategies were designed based upon the principle that “efforts made to accept the challenges and exploit the opportunities pay dividends”. Strategies for tourism promotion were formulated to achieve the vision and also the objectives of Andaman & Nicobar Tourism Policy - 2015⁴⁰ and Lakshadweep Tourism Policy – 2016.

³⁸ Industrial Profile of Andaman & Nicobar Islands, Ministry of MSME, Government of India http://dcmsme.gov.in/dips/state_wise_dips/State%20Industries%20Profile%20of%20A&N%20Islands.pdf

³⁹ Brief Industrial Profile of Lakshadweep, Ministry of MSME, Government of India <http://dcmsme.gov.in/dips/Lakshadweep%20Profile.pdf>

⁴⁰ Ministry of Tourism, Government of India; Incredible India Tourism Investors Summit 2016





Objectives of Andaman & Nicobar Tourism Policy – 2015

The objective is to promote sustainable tourism in the islands in such a way that it would benefit the local community by generating employment and contribute to the economic growth of the Union Territory without disturbing the ecological balance. To this end, the administration would endeavor to:-

- i. Promote eco-tourism with a view to protect the fragile eco-system;
- ii. Harness the Unique Selling Proposition (USP) of the islands being gifted with excellent scuba diving sites;
- iii. Project a tourist-friendly image to the domestic market and the world at large as one of the best island tourism destinations in the world;
- iv. Become the number one Indian tourist destination in terms of per capita visitor's expenditure;
- v. Focus on international tourism by networking these islands with South East Asian tour packages;
- vi. Develop world class infrastructure i.e. hotels, resorts, transport and communication;
- vii. Identify 5-6 islands for focused development;
- viii. Identify potential sites for nominations as World Heritage Sites under the category of natural heritage; and
- ix. Promote traditional artisans and the handicraft sector.

Objectives of Lakshadweep Tourism Policy – 2016

- i. To promote tourism in such a way, which is economically viable, environmentally sustainable, socially acceptable and culturally desirable;
- ii. To promote tourism with the main objective of creating meaningful employment opportunities to local unemployed people of Lakshadweep;
- iii. To promote tourism to unlock the entrepreneurial potential of local people and make them a part of tourism promotion in Lakshadweep; and
- iv. To attract investment both public and private in promoting sustainable tourism in Lakshadweep.

All possible interventions or solutions for treating the identified issues were explored first by creative thinking, having constructive dialogue with stakeholders, consulting experts for suggestions, studying useful literature and analyzing available data. It was a coordinated team work. The best possible solution was adopted based upon the criteria of technical feasibility, economic viability and social acceptability. The formulated strategies have been illustrated in the forthcoming paras.

9.1 Assessment of Carrying Capacity

The Carrying Capacity of an island for tourism promotion means the maximum number of tourists, it can support without disturbing its ecological balance. As ecological stability is necessarily required to sustain



development initiatives, tourists' footprints in an island should be restricted to its scientifically-determined carrying capacity. Realizing the importance of putting a restriction on tourists' inflow for sustainable development, carrying capacity was assessed systematically for Aves, Long, Smith and Ross Islands of Andaman & Nicobar and Bangaram, Cheriyam, Minicoy, Suheli and Thinnakara Islands of Lakshadweep. Physical environment, social compatibility and ecological concerns were duly considered for arriving at carrying capacity of these Islands.

For each island, carrying capacity was assessed separately as activities-based and land-based. Activities-based assessment was related to inland activities, water-based activities and beach activities. Inland activities included camping and forest trek; water-based activities covered snorkeling, scuba diving, motorized water sports and non-motorized water sports whereas beach activities covered beach visit, sun bathing and beach sports. Tourism activities, found practicable in an island as per its topographical features, were first listed out. After that, maximum number of tourists that can be engaged in tourism activities was determined for that island systematically in four steps as given below:-

- (1) Suitable area available for undertaking each of the listed activities in the island was calculated.
- (2) Physical carrying capacity i.e. number of tourists which can be accommodated in the area identified for each activity was worked out by applying standard methodology.
- (3) Social carrying capacity i.e. a qualitative assessment on engagement of tourists in various activities was carried out based upon the views expressed by the islanders, the tourists at the site and the local businessmen of the tourism sector. Household survey was also carried out for the purpose.
- (4) Based upon physical and social carrying capacity, so assessed, activities-based carrying capacity was worked out for the island ensuring sustainable management of all the listed activities.

Land in the island found suitable for development was reserved first, on priority for needs of the island's inhabitants and infrastructural projects. The remaining part of the identified suitable land was earmarked for tourism-based projects. Based on the availability of land for tourism development, carrying capacity of the island was determined. This was land-based assessment for carrying capacity of the island, addressing the ecological concerns.

Both land availability and possible tourism activities were the key factors in finalizing the carrying capacity of the islands. Due to variation in these two factors for the islands, a sharp variation in carrying capacity was also observed. In identified islands of Lakshadweep, the assessed Carrying Capacity was found varying from 82 keys in Cheriyam Island to 246 keys⁴¹ in Thinnakara Island (Table 9.1). In Andaman & Nicobar Islands, carrying capacity of 159 - 246 keys was finally assessed for Aves Island, 674 keys for Long Island and 669 keys for Smith Island (Table 9.2).

⁴¹ One key means one room for two persons

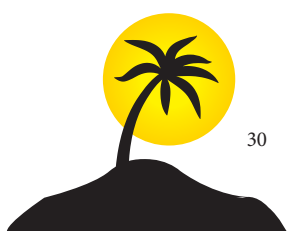


Table: 9.1 – Carrying Capacity (Islands in Lakshadweep)

Name of the Island	Carrying Capacity Assessment			Final Carrying Capacity (Tourism promotion)	
	Activities-based	Land-based (Residents)	Land-based (Tourists)	Our Assessment ⁴²	As per IIMP ⁴³
Minicoy	359	36,496	180 keys	180 keys	179 keys
Cheriyam	163	-	82 keys	82 keys	99 keys
Suheli Cheriyakara	443	-	222 keys	221 keys	74 keys
Suheli Valiyakara	390	-	195 keys	195 keys	-
Thinnakara	492	-	246 keys	246 keys	114 keys
Bangaram	335	-	168 keys	168 keys	144 keys

Table 9.2 – Carrying Capacity (Islands in Andaman & Nicobar)

Name of the Island	Carrying Capacity Assessment			Final Carrying Capacity (Tourism promotion)	
	Activities-based	Land-based (Residents)	Land-based (Tourists)	Tourism promotion	Residents
Long	1348	7,773	674 keys	674 keys	7,773
Smith	1339	2,083	669 keys	669 keys	2,083
Aves	492	-	159 – 246 keys	159 - 246 keys	-

9.2 Environmental Zoning – Green Development

Protection of ecologically-sensitive areas of the island through effective implementation of regulatory measures was the key strategy for ensuring green and sustainable development. First of all, sensitivity of the land to environment was analyzed based upon topographical, vegetative, hydrological and geological features. With reference to its sensitivity to the environment, the land was classified into three zones as given below:-

- Low Sensitive Zone;
- Medium Sensitive Zone; and
- High Sensitive Zone.

In the identified islands of Lakshadweep, area under ‘High Sensitive Zone’ was observed varying from 20 percent in Suheli Valiyakara Island to 39 percent in Cheriyam Island (Figure 9.1). It was found very high 92 percent in Ross Island of Andaman & Nicobar (Figure 9.2). In High Sensitive Zone, focus of the planning exercise was conservation of the nature and full protection of the regional eco-system. Conservation-oriented activities were recommended for implementation in this zone.

⁴² Assessment made by Project Consultant

⁴³ Integrated Island Management Plan prepared by National Centre for Sustainable Coastal Management, Chennai



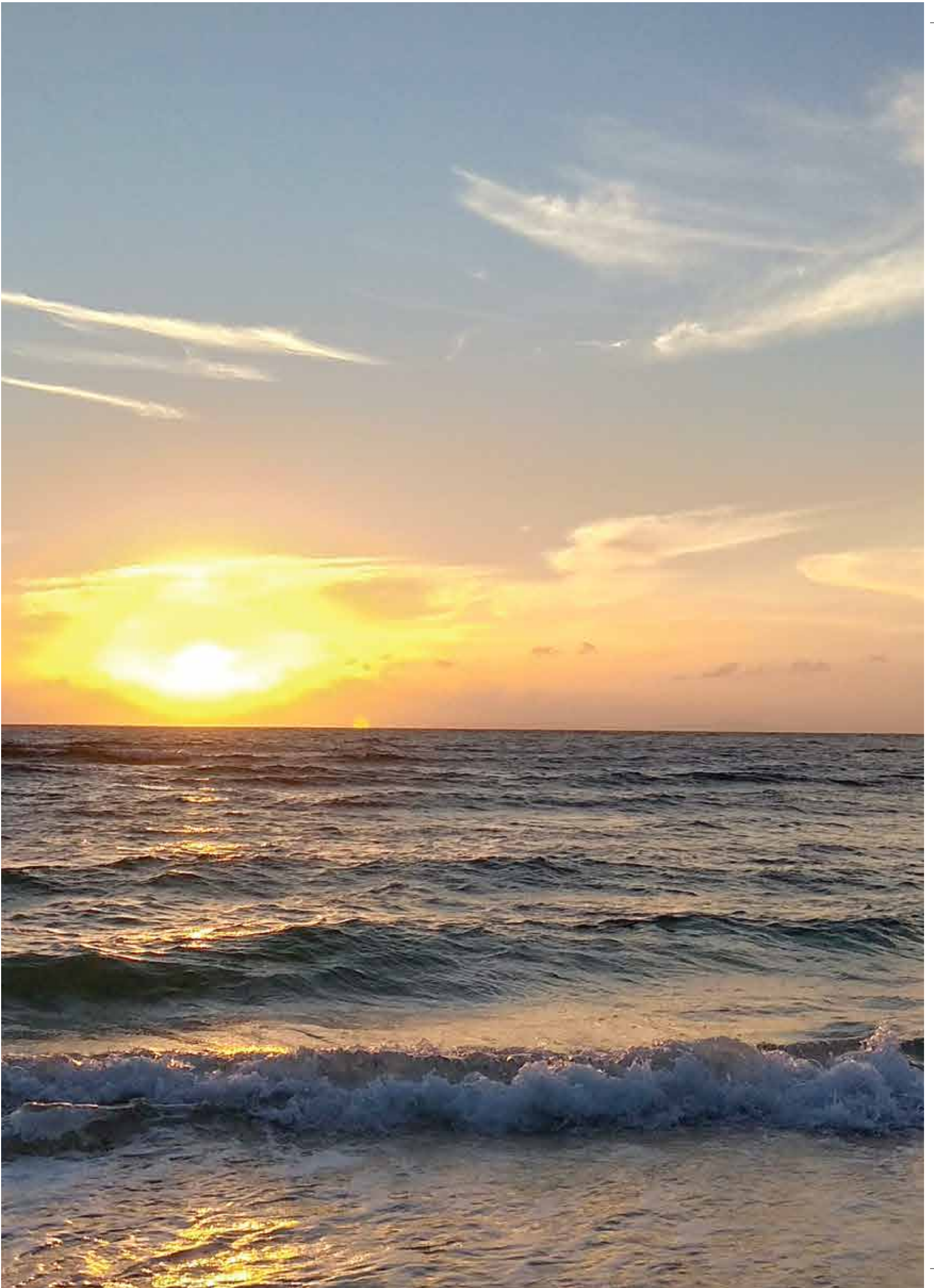


Figure 9.1 – Environmental Zoning (Islands in Lakshadweep)

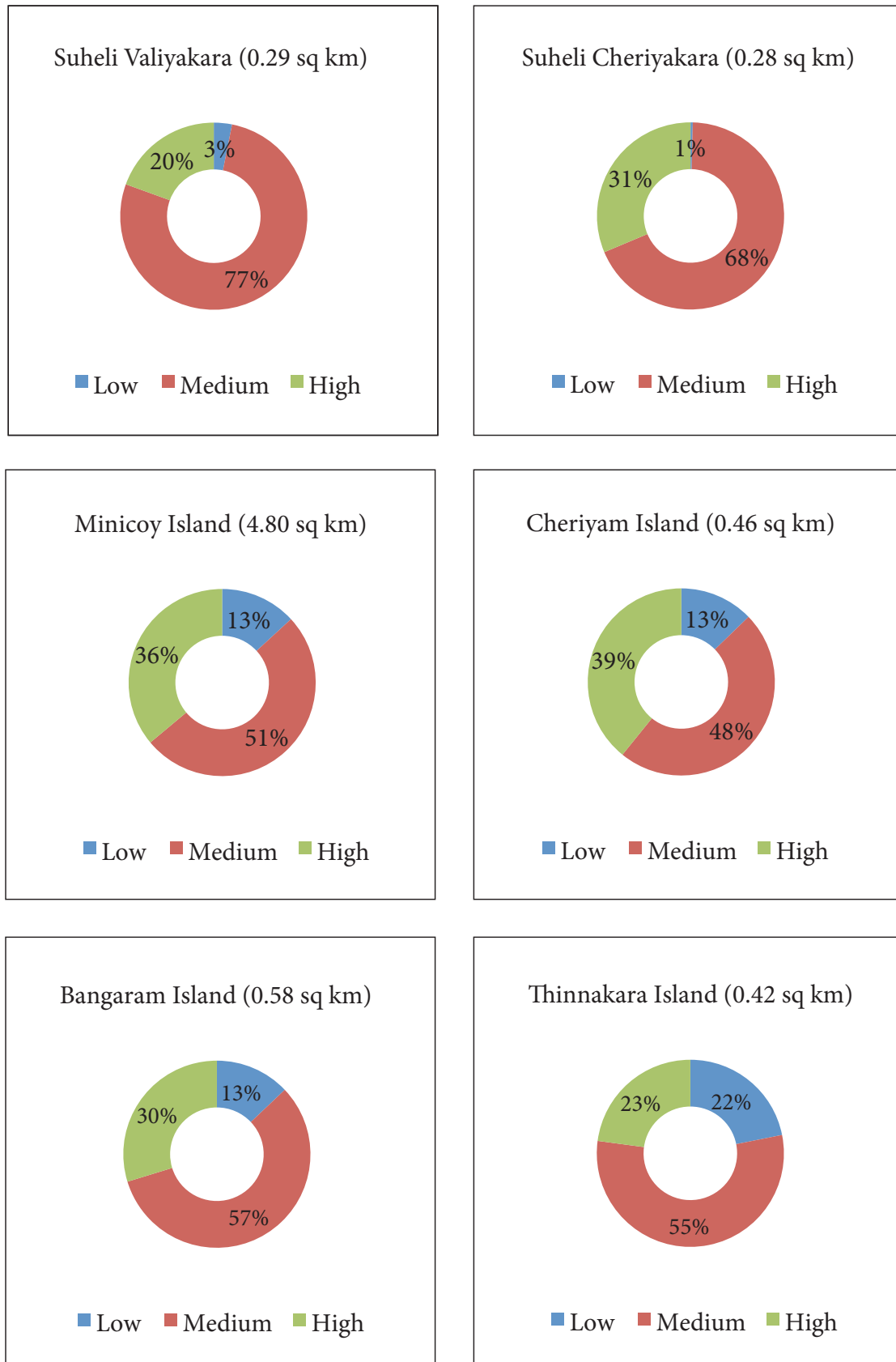
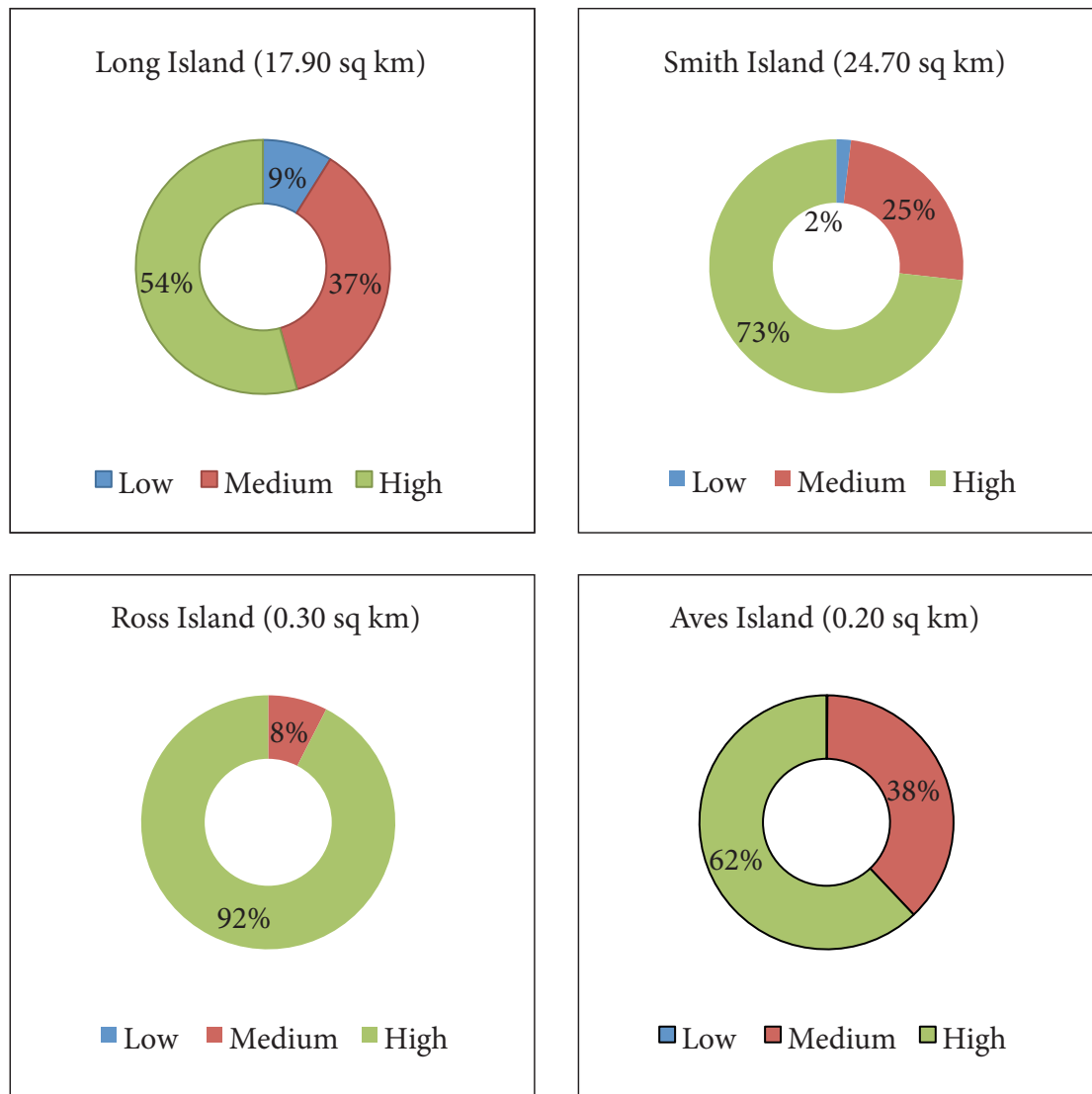


Figure 9.2 – Environmental Zoning (Islands in Andaman & Nicobar)



Responsible, Low-Impact and Quality Tourism was proposed in Low and Medium Sensitive Zones and outside the National Parks, the Wildlife Sanctuaries, the Notified Forests and the Tribal Reserves. It is a fact that environmental responsibility is a critical pillar of ‘Responsible Tourism’ in addition to economic responsibility and social responsibility (Figure 9.3). Towards that responsibility, sufficient regulatory measures particularly for waste management and desalination plants were designed as an integral component of the development project.

Figure 9.3 - Responsible Tourism



Acts and Rules applicable in the islands for maintaining a clean, green and healthy environment were listed. For compliance to various provisions of these Acts and Rules, regulatory measures were planned for timely implementation. For example, a comprehensive Environment Management plan (EMP) was prepared for the project covering 42 ha in Long Island. Strict implementation of the prescribed measures would lead to zero discharge of untreated effluents into the environment and thereby zero pollution.

Environment-related Acts and Rules applicable in the Islands

- (1) Air (Prevention and Control of Pollution) Act, 1981
- (2) Air (Prevention and Control of Pollution) (Union Territories) Rules, 1983
- (3) Biological Diversity Act, 2002
- (4) Biological Diversity Rules, 2004
- (5) Compensatory Afforestation Fund Act, 2016
- (6) Disaster Management Act, 2005
- (7) Environment (Protection) Act, 1986
- (8) Environment (Protection) Rules, 1986
- (9) Wetlands (Conservation and Management) Rules, 2010
- (10) E-waste (Management) Rules, 2016
- (11) Plastic Waste (Management) Rules, 2016
- (12) Bio-Medical Waste (Management) Rules, 2016
- (13) Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016
- (14) Construction and Demolition Waste (Management) Rules, 2016
- (15) Regulation of Lead Contents in Household and Decorative Paints Rules, 2016





- (16) Forest (Conservation) Act, 1980
- (17) Forest (Conservation) Rules, 2003
- (18) Water (Prevention and Control of Pollution) Act, 1974
- (19) Water (Prevention and Control of Pollution) Rules, 1975
- (20) Wild Life (Protection) Act, 1972
- (21) Wild Life (Protection) Rules, 1995
- (22) Island Protection Zone Notification, 2011
- (23) Coastal Regulation Zone Notification, 2011

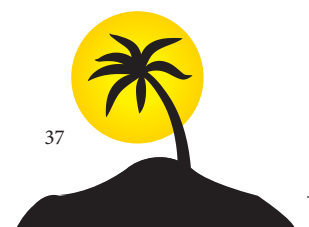
Presently, most of the tourists going to Andaman & Nicobar visit Swaraj Dweep and Shaheed Dweep. Swaraj Dweep (113 sq km), about 39 km away from Port Blair, has an incredibly astounding beach namely Radhanagar beach. Shaheed Dweep, about 37 km away from Port Blair, has Laxmanpur Beach where sunset view is highly attractive. By the year 2034, approximately 10,000 tourists at Swaraj Dweep and 4,000 tourists at Shaheed Dweep are expected on a day in addition to the projected residents' population of about 12,000 and 4,300 for these Islands respectively⁴⁴. Tourism-based projects planned in Aves, Long, Smith and Ross Islands will help in restricting tourists visit to both Swaraj Dweep and Shaheed Dweep within their carrying capacity thereby protecting the Islands' eco-system.

Similarly, in Lakshadweep, most of the tourists visit Bangaram Island (0.58 sq km) located about 17 km away from Agatti airport. Development initiatives taken up in other islands of Lakshadweep will help significantly in restricting the tourists' inflow to Bangaram Island within its carrying capacity which is critical for ecological stability in the region. Balanced regional development helps in addressing not only social concerns but also ecological issues in a better way. The principle of balanced regional development, which is suitable for sustainable development, was adopted for planning projects under the initiative "Holistic Development of Identified Islands".

Further, high-quality, healthy and energy-efficient tourist cottages with maximum use of locally-available eco-friendly material would be constructed to attract nature-loving and environment-conscious tourists. GRIHA⁴⁵ would be used, as far as possible, for certification of the tourist facilities planned in the identified islands. Balanced regional development; development as per the land suitability (Environmental Zoning); tourists' inflow within the carrying capacity; eco-friendly cottages; and strict implementation of the regulatory measures were the five strategies planned exclusively for stability of the island eco-system. With effective implementation of these strategies, a clean, green and healthy environment would be maintained in the islands to support high economic growth for islanders' prosperity.

⁴⁴ Town and Country Planning Unit, APWD; Master Plan for Havelock and Neil Islands 2034

⁴⁵ Green Rating for Integrated Habitat Assessment



9.3 Projects for implementation through PPP (up-front clearances)

With focus on sustainable development, a set of projects was identified for implementation in the identified islands. The projects were in three categories:-

1. Public Project – P 2, for infrastructural support
2. Public Private Partnership Project – P 3, tourism-based projects
3. People Public Private Partnership Project – P 4 , Projects on private land in Kadamat Island and “Pandaram Land⁴⁶” in other identified islands of Lakshadweep

In order to attract investment as well as technical and management expertise from the private sector, seven tourism-based projects (four in Andaman & Nicobar Islands and three in Lakshadweep) were identified for implementation through public-private partnership (PPP) mode (Table 9.3).

Table 9.3 – Identified Projects

Andaman & Nicobar Islands					
Name of the Island	Land-Based Villas		Water-based Villas		Project Cost (cr)
	Area (ha)	No. of Keys	Area (ha)	No. of Keys	
Aves	2.75	50	-	-	38
Long	42.2	220	-	-	379
Smith	25	70	-	-	65
Shaheed Dweep	9.7	120	-	-	170
Lakshadweep					
Kadamat	5.49	75	6	35	227
Minicoy	8.54	110	6	40	302
Suheli	3.82	60	6	50	234

For expeditious project implementation, it was recommended to obtain clearances required for the projects upfront i.e. before inviting or finalizing the bids for private sector participation. This was a unique strategy adopted for P3 projects and also a model example of ‘Ease of Doing Business’. It was recommended that Environmental Clearance (EC) for the project in Long Island, Coastal Regulation Zone (CEZ) clearance for the remaining six projects and other required clearances would be obtained by the concerned UT administration. Necessary action in this direction has already been initiated. Clearances, particularly EC and CRZ clearances for the projects are expected to be accorded soon by the concerned authorities. Obtaining clearances upfront would add significant value to the bid. An environment conducive for participation of the private sector (reputed bidders) in project implementation would also be created.

⁴⁶ Government land under the possession of the islanders who have been given, long back, permanent and heritable rights for agriculture; but the rights are not transferable through lease or sub-lease



Land suitable for tourism-based development under possession of the Government was found limited in Kadamat, Minicoy and Suheli Islands of Lakshadweep (Table 9.4). More land was required for better economic viability of the projects identified in these islands. In view of that, it was recommended to develop the project in Kadamat Island also on the private land subject to its suitability for tourism-based projects and willingness of the landowners for development on their land.

Table 9.4 – Project Areas

Name of the Island	Area of the Island (sq km)	Identified Project	
		Covered area (ha)	Developable area (ha)
Kadamat	3.20	5.49	2.80
Minicoy	4.80	8.54	4.00
Suheli Cheriyaakara	0.28	3.82	1.84

Development on the private land will be as per the agreement acceptable to the landowners and the bidder. The agreement may be annual/quarterly lease or ownership in the project through equity shares or payment for a specified period. However, the ownership of the land will continue to lie with the islanders as per the existing Act on the subject. For the projects in Minicoy and Suheli Islands, it will be possible to take similar initiative after settlement of the land-related issues of ‘Pandaram’ land. However, development over the land under possession of the Government and the private or Pandaram land has to be limited and within the carrying capacity assessed for the islands.

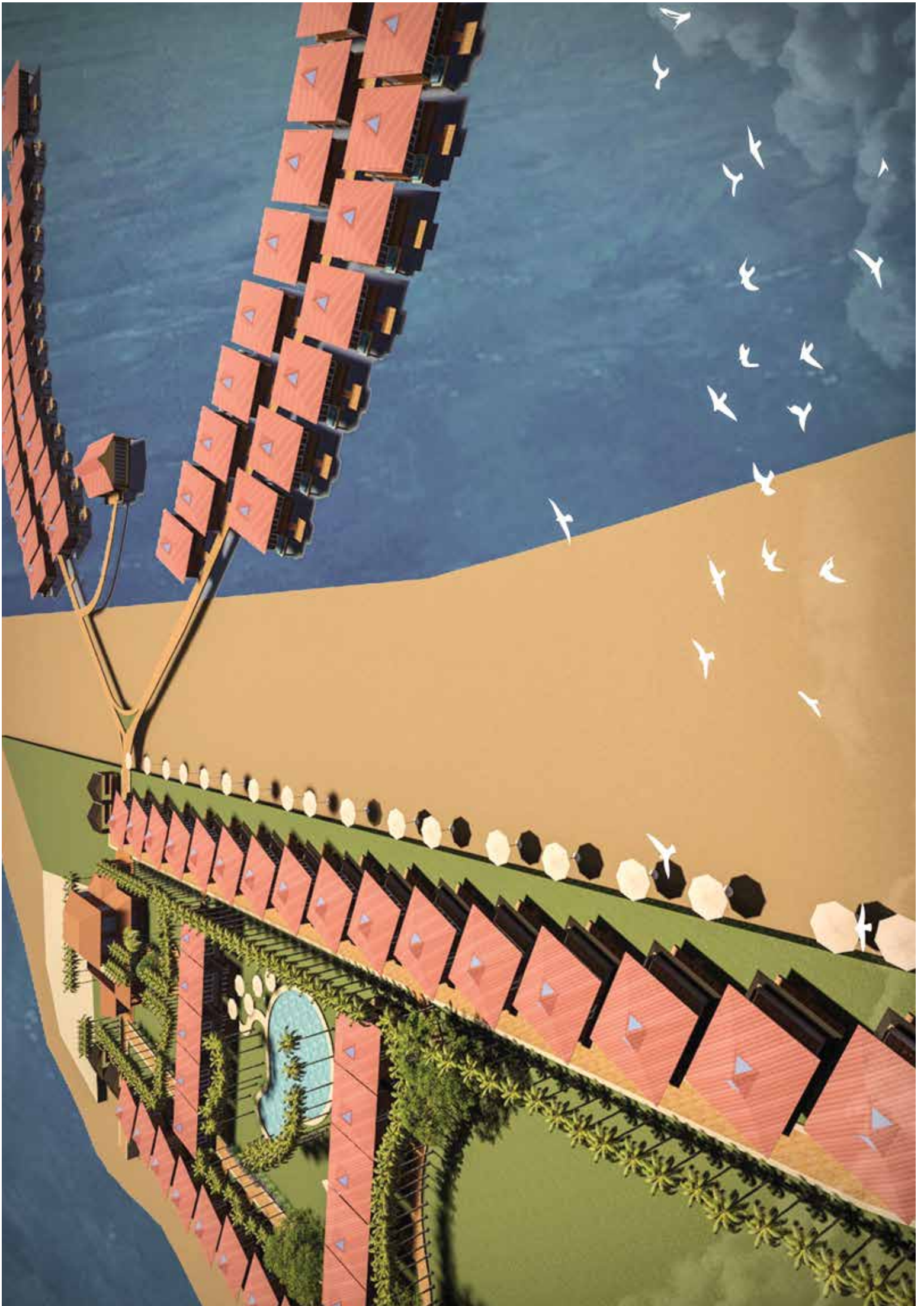
9.4 P4 Model

After carrying out systematic analysis, five tourism-based projects on ‘Pandaram’ land under the possession of the islanders were identified in Bangaram, Cheriyaam, Minicoy, Suheli and Thinnakara Islands of Lakshadweep (Table 9.5).

Table 9.5 – P4 Projects

Island	Land (ha) under possession of		Land-based Project		Water Villas
	Government	Islanders	Area (ha)	No. of Keys	No. of Keys
Bangaram	2.5	12.7	15.2	148	30
Cheriyam	3.7	31.5	35.2	99	-
Minicoy	-	17.4	17.4	50	-
Suheli	-	4.1	4.1	147	-
Thinnakara	1.5	14.2	15.7	150	30





Thinnakara Island is very close to Bangaram Island where tourists presently visit and only 17 km away from Agatti Island where the airport in Lakshadweep is located. Geographical location of the island makes it suitable for high-quality development as a responsible Eco-Tourism Centre which can be used as Wedding Destination, Corporate Retreats and MICE Tourism⁴⁷. In fact, a model Tourism Circuit consisting of suitably-identified sites in Agatti, Bangaram, Thinnakara and Pareli Islands should be planned. It will be a highly valuable asset for the Lakshadweep administration. Further, Cheriya Island, an uninhabited Island located about 287 km away from Kochi, can be developed as an ideal place to relax in the lap of nature. It is connected to Kalpeni Island, an inhabited island, through a sand bar.

Sites identified for the projects included Pandaram lands which are in the possession of the local islanders who have permanent and heritable rights for agriculture, but without any right to transfer the land through lease or sub-lease. For taking up development project on such land, two important issues namely transfer of rights to other islanders, if needed, and change in land use from agriculture to tourism-based activities were involved. A Committee was constituted for recommending a suitable 'Resolution Model' to address the land-related issues for taking up development projects in identified islands of Lakshadweep.

The Committee recommended for setting up community tourist home either independently or in partnership with reputed private investors, local or otherwise. As per the recommendations of the Committee, each landholder will receive equity share in a community tourist home in proportion to the market value of the land contributed by her or him, while the private investor will have equity share in proportion to the value of capital invested. Alternatively, equity share between the landholders and the investor may be as mutually agreed upon i.e. as per agreement acceptable to the private investor and the local islanders having possession of the land. The equity share of community members can be traded only among themselves i.e. the local islanders. Under no circumstances, the land ownership/rights of the local islanders should be transferred to private investors (i.e. investors other than local tribal land holders). A transparent process needs to be put in place by the UT Administration for setting up either Community Tourist Resorts or Joint Stock Tourist Resorts or Joint Venture Companies while fully protecting land rights of the local islanders.

The recommendations of the Committee are highly valuable and based upon these recommendations; it is prudent to adopt P 4 - People, Public and Private Partnership - for implementation of the identified projects. P 4, a unique model envisaged for project implementation in the islands for the first time, will have participation of the people through a consortium of the land holders. Public participation will be through the UT Administration. The P 4 model has the major advantage that the project implementation will get pro-active support from the local islanders and technical expertise from the private sector.

⁴⁷ Meeting, Incentive, Conference and Exhibition Tourism





9.5 Water Villas

In Lakshadweep, the Coral Paradise of India, the lagoon area is about 4,000 sq km but presently, we have no 'Water Villa' there. Observing that situation, possibility of constructing 'Water Villas' at proper sites on pilot basis was explored. With inputs from Integrated Island Management Plans (IIMPs), coral reef maps prepared by the Forest Survey of India and ground verification, suitable sites were identified in Kadamat, Suheli and Minicoy Islands for 'Water Villas'. The sites were identified in a way that construction of 'Water Villas' at these sites would have virtually no adverse impact on the coral eco-system. Project details were then prepared. It was proposed to construct 'Water Villas' of 35 keys in Kadamat Island, 40 keys in Minicoy Island and 50 keys in Suheli Island (Table 9.6).

Table 9.6 – Water Villas

Island	Lagoon Area (ha)	No. of Keys
Kadamat	6.0	35
Minicoy	6.0	40
Suheli	6.0	50

For better project viability, it was recommended to club land-based villas and water-based villas on an island into one project. Further, it was recommended to use eco-friendly construction material and implement suitable measures strictly for waste management to ensure the stability of both the land eco-system and the coral eco-system.

9.6 Usage of Non-conventional Sources of Energy (De-dieselization)

'Clean and Green Energy Initiatives' have been taken up in both Andaman & Nicobar Islands and Lakshadweep. In Andaman & Nicobar Islands, solar power projects for 37 MW, 20 MW by Neyveli Lignite Corporation (NLC) and 17 MW by National Thermal Power Corporation (NTPC), have been approved and are under implementation. In addition, LNG-based power plant for 50 MW is being established by NTPC. To further reduce dependency on diesel for power generation, priority has been accorded to improvement in energy efficiency and solid waste management through 'Cold Plasma Pyrolysis Technology'. For controlling vehicular emission, 20 electric vehicles are being procured initially in the first phase by the UT administration.

For zero-pollution in the islands, it is required to phase out diesel-based power plants with use of solar and other non-conventional sources of energy. As land availability is limited particularly in Lakshadweep, wind turbines, re-powering of existing ground-mounted solar projects and roof-top solar plants should be encouraged. All new government buildings should be built with provision of solar roof-top system.

In addition, floating solar power projects should be set up at suitably-identified locations in the lagoon areas with private sector participation on Design Build Finance Operate and Transfer (DBFOT) basis. For the

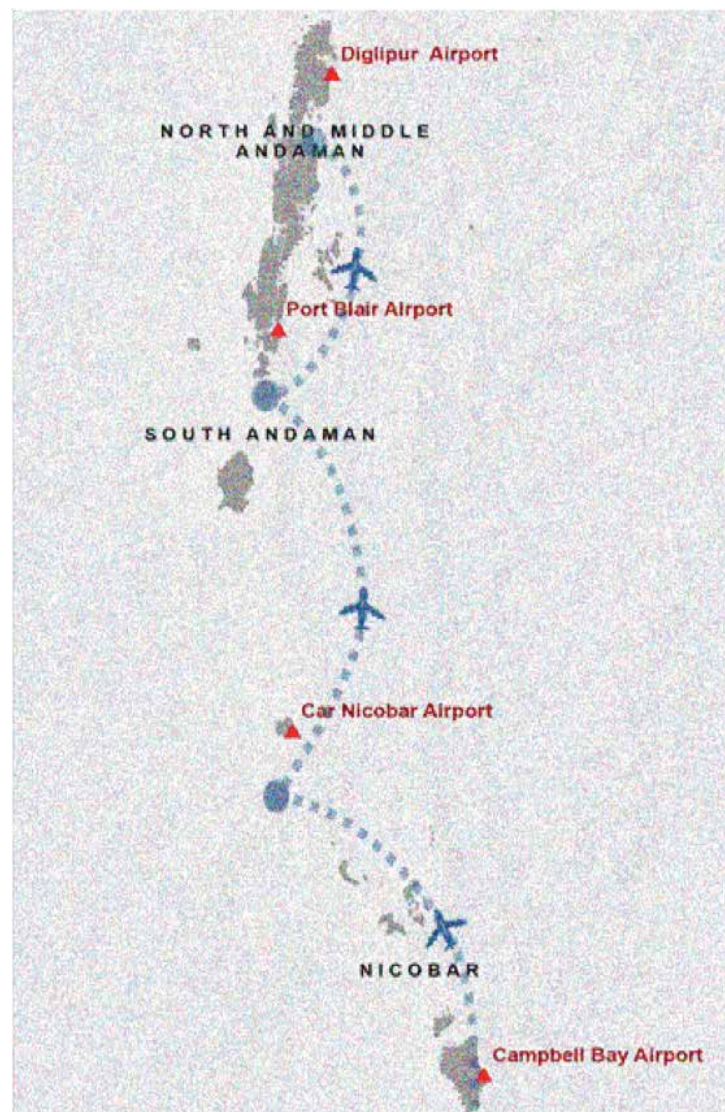


purpose, state-of-the-art technology should be adopted for optimum power generation without affecting the coral eco-system. A Power Purchase Agreement (PPA) for purchasing power from the private developer at pre-fixed rate may also be put in place for long-term viability of the project.

9.7 Inter-Islands Connectivity

The Andaman Trunk Road (333.00 km), which is being upgraded, provides significant benefits to the islanders residing in North & Middle Andaman and South Andaman districts of Andaman & Nicobar Islands. Coastal Regulation Zone (CRZ) clearance has been accorded for the 'Middle Strait Bridge' on Andaman Trunk Road. Travel time will get reduced with construction of the bridge. An air circuit using Port Blair, Car Nicobar, Campbell Bay and Diglipur Airports; strengthening of heli-services using the existing helipads (17 Nos.) effectively; and introduction of sea planes connecting the identified locations in Swaraj Dweep, Shaheed Dweep, Hutbay and Long Islands will boost much-required inter-Island air connectivity in Andaman & Nicobar.

Figure 9.4: Air circuit connecting Campbell Bay, Car Nicobar, Port Blair and Diglipur



Introduction of Roll-on/Roll-off (RoRo) ships will enhance inter-islands sea connectivity. All these measures will provide immense benefits to the tourists and the islanders. It is also required to start international flights from Veer Savarkar International Airport, Port Blair at the earliest. In case of Lakshadweep, the construction of the proposed airport in Minicoy Island needs to be expedited and the existing Jetty at Kavaratti needs to be modernized. Also, it is required to start the proposed seaplane services connecting Kavaratti, Agatti and Minicoy Islands at the earliest.

9.8 Skill Development for Responsible Tourism

An Institute of Hospitality Management may be set up for Lakshadweep in Calicut where land is available with the Lakshadweep administration. At the Institute, vocational training may be provided and also academic courses may be offered to the islanders in the field of water sports, resorts management, ship operations etc. Similar Institute may also be set up in Andaman & Nicobar Islands. Skill development at these institutes will help the islanders in getting satisfactory jobs in the upcoming tourism-based projects. Besides, it will make trained manpower available for other socio-economic and infrastructure projects planned in the islands.

9.9 Incentives for setting up Industries

In the third and fourth meetings of the Island Development Agency (IDA) held on 24th April, 2018 and 30th June, 2018 respectively, it was decided to examine extension of the incentives as contained in the North East Industrial Development scheme (NEIDS), 2017 to Andaman & Nicobar Islands and Lakshadweep for promotion of Industries, particularly IT based and Micro, Small and Medium Enterprises (MSMEs). In pursuance to that, Lakshadweep and Andaman & Nicobar Islands Industrial Development Scheme (LANIDS), 2018 was notified by the Ministry of Commerce and Industry (Department of Industrial Policy & Promotion), Government of India on 1st January, 2019. The scheme is mainly to provide specified incentives to new industrial units and existing industrial units undertaking substantial expansion in manufacturing and services sector.

As per the notified scheme, all eligible industrial units will be entitled to benefits limited to the total investment in plant and machinery, subject to a maximum limit of Rs. 200 crore per unit. The following incentives will be provided to the eligible industrial units on reimbursement basis:-

- (a) Central Capital Investment Incentive for access to credit - 30 percent of the investment in plant and machinery with an upper limit of Rs. 5.00 crore;
- (b) Central Interest Incentive - All eligible industrial units shall be given an interest incentive @3% on working capital credit advanced by Scheduled Banks or Central/ State financial institutions for first five years from the date of commencement of commercial production/operation.
- (c) Central Comprehensive Insurance Incentive - All eligible industrial units will be eligible for reimbursement of 100 percent insurance premium on insurance of building, plant and machinery for a maximum period of five years from the date of commencement of commercial production/operation.



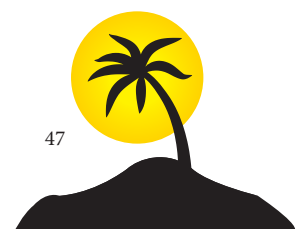


- (d) Goods and Services Tax (GST) Reimbursement – All eligible industrial units shall be eligible for reimbursement of GST paid on finished products manufactured up-to the extent of central share of the CGST and the IGST for a period of 5 years from the date of commencement of commercial production/operation. The amount of GST reimbursed shall be a sum total of 58 percent of the Central tax paid and 29 percent of the integrated tax paid.
- (e) Income Tax Reimbursement – The industrial unit set up under this scheme can claim reimbursement of central share of income tax for first five years including the year of commencement of commercial production by the unit.
- (f) Transport Incentive – All eligible industrial units can avail incentive on transportation of only finished goods through shipping, railways or railway public sector undertaking, inland waterways or scheduled airlines for a period of five years from the date of commencement of commercial production/operation. The terms and conditions of transport incentives through different modes will be as given below:-
- 20 percent of the cost of transportation through shipping from the port nearest to the location of the industrial unit to the mainland port directly or via the main port of the island;
 - 20 percent of the cost of transportation including the incentive currently provided by the Railways or the Railway PSUs for movement of finished goods by rail from the railway station nearest to the mainland port to the railway station nearest to the location of the buyer.
 - 33 percent of the cost of transportation by scheduled airlines and non-scheduled operator permit (NSOP) holders, approved by DGCA, for perishable items/goods (as defined by IATA) from the airport nearest to the location of industrial unit to any airport within the country, nearest to the location of the buyer.
- (g) Employment Incentive – Ministry of Home Affairs (MHA) shall be paying additional 3.67 percent of the employer's contribution to Employees' Provident Fund (EPF) in addition to Government bearing 8.33 percent Employee Pension Scheme (EPS) contribution of the employer in the Pradhan Mantri Rojgar Protsahan Yojana (PMRPY).

The incentives as contained in the LANIDS, 2018 will certainly encourage setting up of IT-based, coir-based, tourism-based, marine resources-based and other MSMEs in the islands creating additional jobs and generating additional income for the islanders. With these incentives and improved digital connectivity because of satellite bandwidth augmentation and laying of optical fibre cable, reputed investors may set up IT-based industries in the islands.

9.10 Managing Man-Animal Conflict

As an innovative intervention, it was recommended to classify marine areas around islands in Andaman & Nicobar into three management Zones namely Crocodile Conservation Zone, Human Crocodile Co-existence Zone and Crocodile Free Zone. In the 'Crocodile Conservation Zone', the crocodile habitats are to be fully protected. In the 'Human Crocodile Co-existence Zone', Rapid Response Teams consisting of trained experts are to be constituted equipped with speed boat and crocodile handling equipment.



Well-designed Crocodile Exclusion Enclosures may also be constructed at suitable locations in this zone. Controlled Eco-tourism may be permitted in identified areas of both Crocodile Conservation Zone and Human Crocodile Co-existence Zone.

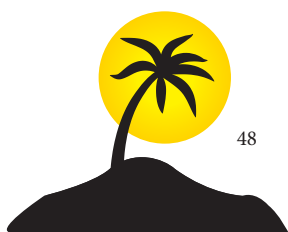
Areas important for livelihood of the islanders and permitted tourism sites will be covered in the 'Crocodile Free Zone'. Sufficient measures need to be taken to ensure the presence of 'no crocodile' in this zone. For full safety of the islanders and the tourists, it will be required to adopt a Standard Operating Procedure (SoP). A specimen of the SoP is given below:-

- a. The Chief Wild Life Warden (CWLW) as provided in Section 11 of the Wildlife (Protection) Act, 1972 shall authorize the concerned Divisional Forest Officer (DFO) to declare the crocodile dangerous, if it is sighted in the 'Crocodile Free Zone'.
- b. The CWLW shall also authorize the concerned DFO to order any person or a team of persons to remove the animal from the 'Crocodile Free Zone' either by capture and translocation and if that is not possible, then by killing as per provisions of section 11 of the Wildlife (Protection) Act, 1972. The team, so formed, shall include at least one veterinary officer.
- c. The moment the crocodile is sighted in the 'Crocodile Free Zone' by a person or through camera or with sensor, the DFO as authorized by the CWLW shall declare the crocodile dangerous within 2 hours of receiving the information about crocodile sighting in the Crocodile Free Zone and order the person or the team as designated or constituted by him or by the CWLW for removal of the dangerous crocodile from 'Crocodile-free zone' immediately.
- d. All the Divisional Forest Officers, having Crocodile Free Zone in their jurisdiction, shall keep a team ready for removal of the crocodile from the Crocodile Free Zone as mentioned in paras (b) and (c) above and as per provisions of the Act.
- e. The team shall take the action required for removal of the dangerous crocodile from Crocodile Free Zone within one hour of getting the order and complete the entire operation of crocodile removal within the next 4 to 5 hours. So, the crocodile will be removed from the 'Crocodile Free Zone' within 8 hours of its sighting in the 'Crocodile Free Zone'.

Mapping of the marine areas delineating three management Zones i.e. Crocodile Conservation Zone, Human Crocodile Co-existence Zone and Crocodile Free Zone and charting out a Standard Operating Procedure were two innovative recommendations made for mitigating man-animal conflict in Andaman & Nicobar Islands. Effective implementation of these innovations will lead to protection of the crocodile habitats and also safety of the islanders and the tourists – a 'win-win' situation for all.

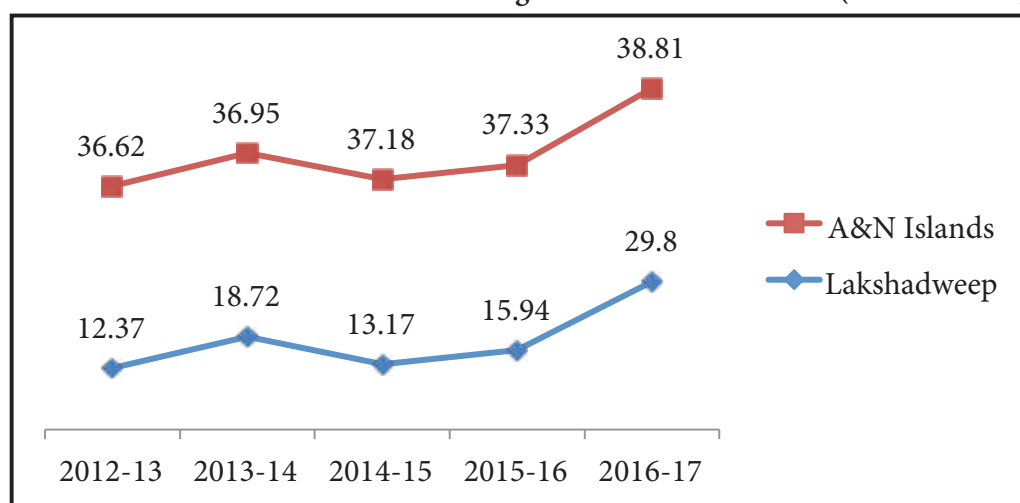
9.11 Blue Revolution in the Islands

Fish Production in Andaman & Nicobar Islands increased from 36,620 tonnes in 2012-13 to 38,810 tonnes in 2016-17. In Lakshadweep, it increased from 12,370 tonnes in 2012-13 to 29,800 tonnes in 2016-17 (Figure 9.5). However, huge potential for substantial increase in fish production exists in both Andaman & Nicobar Islands and Lakshadweep in view of a large area of Exclusive Economic Zone and a long coastline that they



possess. In Lakshadweep, estimated potential of marine fishery resources is about one lakh tonnes of tuna and tuna like fishes and about an equal quantity of shark⁴⁸. A comparison with other similar States and Union Territories also reflect the scope for increase in fish production in the islands. During the year 2016-17, fish production was 1,17,890 tonnes in Goa (coastline – 104 km) whereas it was only 38,810 tonnes in Andaman & Nicobar Islands having 1,962 km coastline and 29,800 tonnes in Lakshadweep having 132 km coastline⁴⁹.

Figure 9.5 : Fish Production (in '000 tonnes)



Introduction of advanced deep-sea fishing boats; adequate infrastructure support for timely collection of fish; processing of fish with the latest technology; proper packaging; and export of finished products need to be promoted. For the purpose, assistance available under the scheme “Blue Revolution: Integrated Development and Management of Fisheries” may be leveraged by the UT administrations. The scheme has been introduced by the Government of India with the following objectives:-

- To increase the overall fish production in a responsible and sustainable manner for economic prosperity;
- To modernize the fisheries with special focus on new technologies;
- To ensure food and nutritional security;
- To generate employment and export earnings; and
- To ensure inclusive development and empower fishermen and aquaculture farmers.

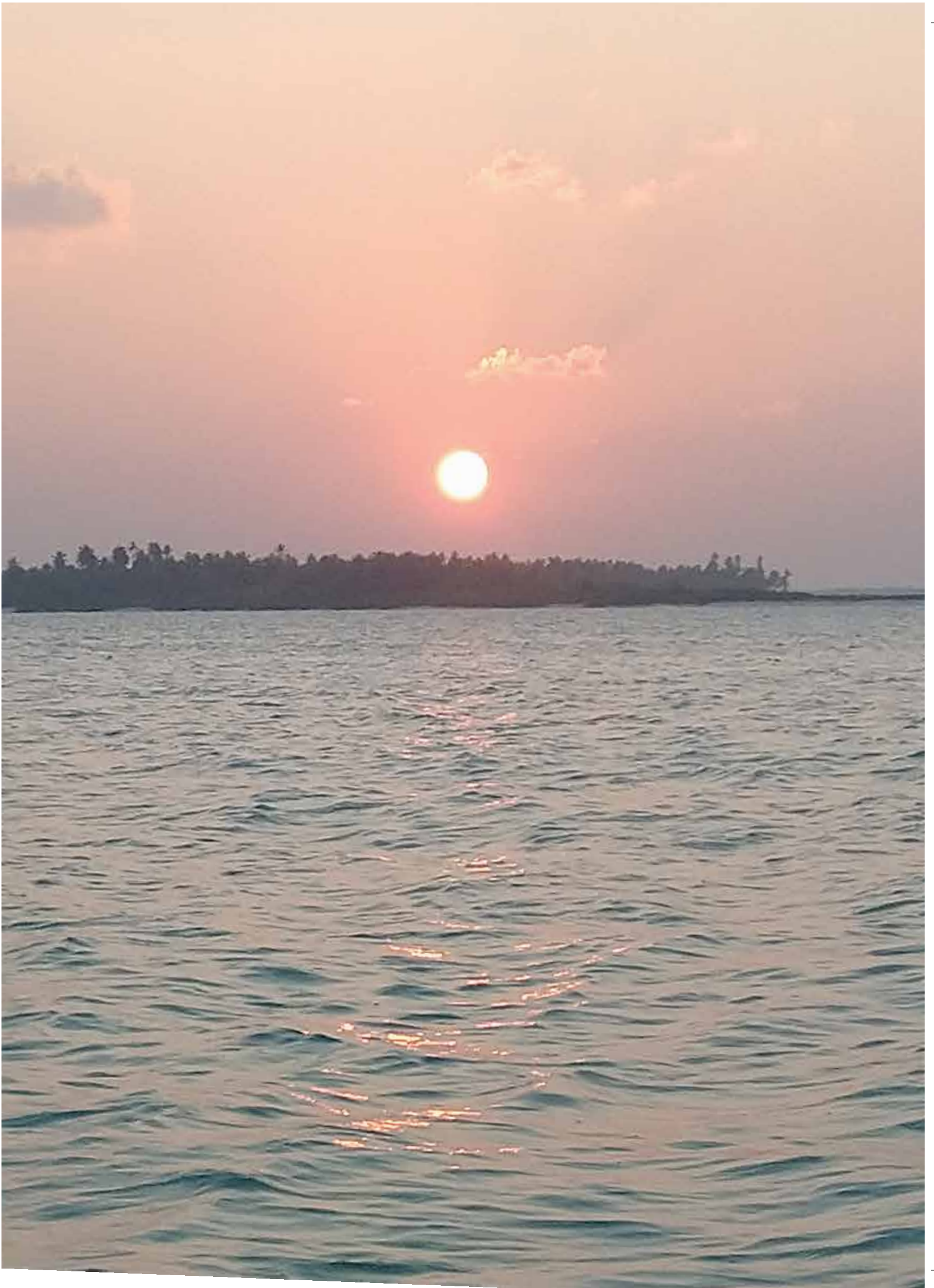
Assistance for deep-sea fishing for traditional fishermen (Development of Marine Fisheries, Infrastructure and Post-Harvest Operations) is an important component of “Blue Revolution”.

Feasibility study for sustainable utilization of Tuna fish in Minicoy Island was carried out. Procurement of 10 modern fishing boats, development of Tuna Processing Plant through Public Private Partnership (PPP) and promotion of “Lakshadweep Tuna” as a brand for international marketing were recommended in the

⁴⁸ Lakshadweep administration, <https://lakshadweep.gov.in/departments/fisheries/>

⁴⁹ Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture and Farmers Welfare, Government of India; Annual Report 2017-18.





study. Tuna Canning Factory existing in Minicoy Island of Lakshadweep may be re-developed, as an economic model, with participation of the private sector and with application of the latest processing-technology. The model, so developed, may be replicated in other islands of Andaman & Nicobar and Lakshadweep.

9.12 Organic Farming

The islands do not have a large area, suitable for cultivation. The 'Net Sown Area' was reported about 15,000 ha in Andaman & Nicobar Islands and 2,000 ha in Lakshadweep⁵⁰. However, the islands have the potential for high-value crops such as spices, fruits, vegetables, medicinal plants, floriculture etc. Organic farming of high-value crops should be encouraged. For irrigation, harvesting of rain water through appropriate soil and moisture conservation works without adversely affecting the island eco-system may be the preferred option.

9.13 Deep Sea mining

Polymetallic nodules, which are found in the deep ocean, have economically valuable metals such as Copper, Cobalt, Nickel and Manganese. In view of high demand for these metals in national and international markets, there is a need for deep dive for deep sea mining. An integrated mining system for deep sea mining of polymetallic nodules should be developed. Both Andaman & Nicobar Islands and Lakshadweep can provide suitable platforms to facilitate deep sea mining thereby providing employment to the islanders.

9.14 Maritime Trade

The Great Nicobar Island is only about 90 km away from the western tip of the Malacca Strait, an important shipping route between the Indian Ocean and the South China Sea. Being at close aerial/shipping distance to a number of countries (Indonesia, Myanmar and Thailand) and the Malacca Strait, Andaman & Nicobar Islands have the potential of enhanced maritime trade. Similar potential exists also for the islands of Lakshadweep. Minicoy Island lies near nine-degree channel, one of the busiest shipping routes and is only about 130 km away from the northern-most island of Maldives. Taking advantage of the strategic location, suitable strategies need to be implemented for export of seafood and coconut-based products from the islands of both Andaman & Nicobar and Lakshadweep.

9.15 Employment Projections

"Creation of satisfactory jobs in the islands for the islanders in a stable eco-system" was the main focus of the planning exercise. Six sectors carrying significant potential for job creation were identified. These were tourism & hospitality; construction & services; agriculture and allied activities; fisheries; household industries; and infrastructure services. Additional employment opportunities were expected mainly in the following areas:-

⁵⁰ Agriculture Statistics at a Glance, June 2014, Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare



PROJECT CONCEPT

Local eco-friendly
materials to be used



Proposed layout



Proposed elevation



Proposed elevation

- Management of tourist resorts, cottages and tents
- Operation and maintenance of tourist facilities
- Water sports
- Organic farming of high-value crops
- Fish collection using advanced deep-sea fishing boats, processing of fish with the latest technology, proper packaging and marketing;
- IT-based and other MSMEs

With completion of the planned projects, 1,689 jobs would be created in Long Island and 1,752 in Smith and Ross Islands (Table 9.7). Creation of more jobs would improve 'Work Participation Rate⁵¹' in the islands substantially. 'Work Participation Rate' was found 31.4 percent in Long Island and 33.7 percent in Smith Island as compared to 40.08 percent for the entire Union Territory of Andaman & Nicobar Islands and 39.79 per cent for the country (Census, 2011).

Additional jobs, mainly in the tourism sector, would also be created in Aves Island of Andaman & Nicobar and Bangaram, Cheriya, Minicoy, Suheli and Thinnakara Islands of Lakshadweep, with successful implementation of the projects planned for these islands. In Minicoy Island, not only tourism sector but also the fishery sector was found having high potential for job creation. With increase in maritime trade, the islanders would also get opportunities for self-employment in export of seafood and coconut products. In this way, the 'Work Participation Rate', which was found only 29.09 percent for Lakshadweep as per 2011 census, would improve substantially.

Table 9.7 – Creation of Jobs (in numbers)

Island	Tourism & hospitality	Construction & services	Agriculture and allied activities	Fisheries	Household industries	Infrastructure services	Total
Andaman and Nicobar Islands							
Aves	474	-	-	-	-	-	474
Long	1487	35	68	41	30	28	1689
Smith & Ross	1475	28	160	36	30	23	1752
Lakshadweep							
Bangaram	288	-	-	-	-	-	288
Cheriyam	198	-	-	-	-	-	198
Minicoy	300	-	100	8526	180	18	9124
Suheli Cheriya-kara	220	-	-	-	-	-	220
Thinnakara	228	-	-	-	-	-	228

Source : Assessment by the Project Consultant (IPE Global Limited in consortium with others) for Master Plan and Infrastructure Plan

⁵¹ Work Participation Rate: Percentage of workers (main + marginal) to total population



10. Implementation Status

The challenge was early delivery of the planned strategies on the ground. The linkage from the laboratory to the field was to be established to gain more trust of the key stakeholders. For the purpose, seven tourism-based projects having potential to drive the desired economic growth in the islands were identified as ready-to-launch projects. One key project each in Aves Island, Long Island, Shaheed Dweep and Smith Island of Andaman & Nicobar and Kadamat Island, Minicoy Island and Suheli Island of Lakshadweep was taken up for expeditious implementation through public private partnership (PPP) mode.

Financial feasibility and project structuring reports were prepared for all the ready-to-launch projects. Survey and demarcation of project areas were completed. ANIIDCO⁵² was engaged as Project Management Unit (PMU) for the projects in Andaman & Nicobar and SPORTS⁵³ for the projects in Lakshadweep. Investors meet was held in July, 2018 putting important information related to the projects in the public domain. In-principle approved for implementation of the projects was accorded by the concerned Government authorities. An advertisement inviting Request for Qualification (RfQ) application from interested bidders to undertake development, operation and maintenance of the projects in Aves Island (50 keys), Smith Island (70 keys) and Long Island (220 keys) was issued by the UT administration.

A pre-bid meeting was also held at Port Blair for providing more clarifications on the projects to the bidders. As per the advertisement issued, the project in Long Island has the concession period of 60 years and the projects in Aves and Smith Islands has the concession period of 30 years. The construction period was prescribed three years for the project in Long Island and two years for the projects in Aves and Smith Islands. Annual Concession Fee linked to the Wholesale Price Index (WPI) is the bidding parameter, which will be the revenue for the Government.

Concession period and other project - details are further being modified suitably to attract more and more reputed bidders (Table 10.1).

⁵² Andaman and Nicobar Islands Integrated Development Corporation Limited

⁵³ Society for Promotion of Nature Tourism and Sports

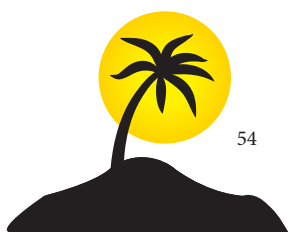


Table 10.1 – P3 Projects of Andaman & Nicobar

Parameter	Long Island	Aves Island	Smith Island	Neil Island
Type	Eco-Tourism Resort	Eco-Tourism Tents	Eco-Tourism Tents and Tree Houses	Eco-Tourism Resort
Star Category	5	4	5	5
Land (ha)	42.00	2.75	25.00	9.7
Developable Area (ha)	35.70	NA	8.10	NA
Infrastructure	Floating jetty, 180 KLD desalination plant, 120 KLD rain water harvesting plant, 2.4 MW solar power plant, 0.6 MW DG Set, 255 KLD STP	Floating jetty, 27 KLD desalination plant, 18 KLD rain water harvesting plant, 0.43 MW solar power plant, 0.1 MW DG Set, 38 KLD STP	Floating jetty, 52 KLD desalination plant, 35 KLD rain water harvesting plant, 1.2 MW solar power plant, 0.3 MW DG Set, 67 KLD STP	Floating jetty, desalination plant, rain water harvesting plant, solar power plant, DG Set, STP
Concession Period*	70-75 years	45-55 years	45-55 years	70-75 years
Construction Period*	3-5 years for 25 keys and the balance within 15 years	2-4 years for 25 keys and the balance within 15 years	2-4 years for 35 keys and 15 years and the balance within 15 years	3-5 years for 50% works the balance within 15 years

* alternate view

Technical and financial details for the project planned in Shaheed Dweep have been finalized. For each of the three tourism-based projects planned in Lakshadweep, project layout has been mapped and project details including safeguards for stability of the island eco-system have been prepared carefully. These details would be useful not only for inviting bids for private sector participation but also for amendment in IIMPs and CRZ clearances.

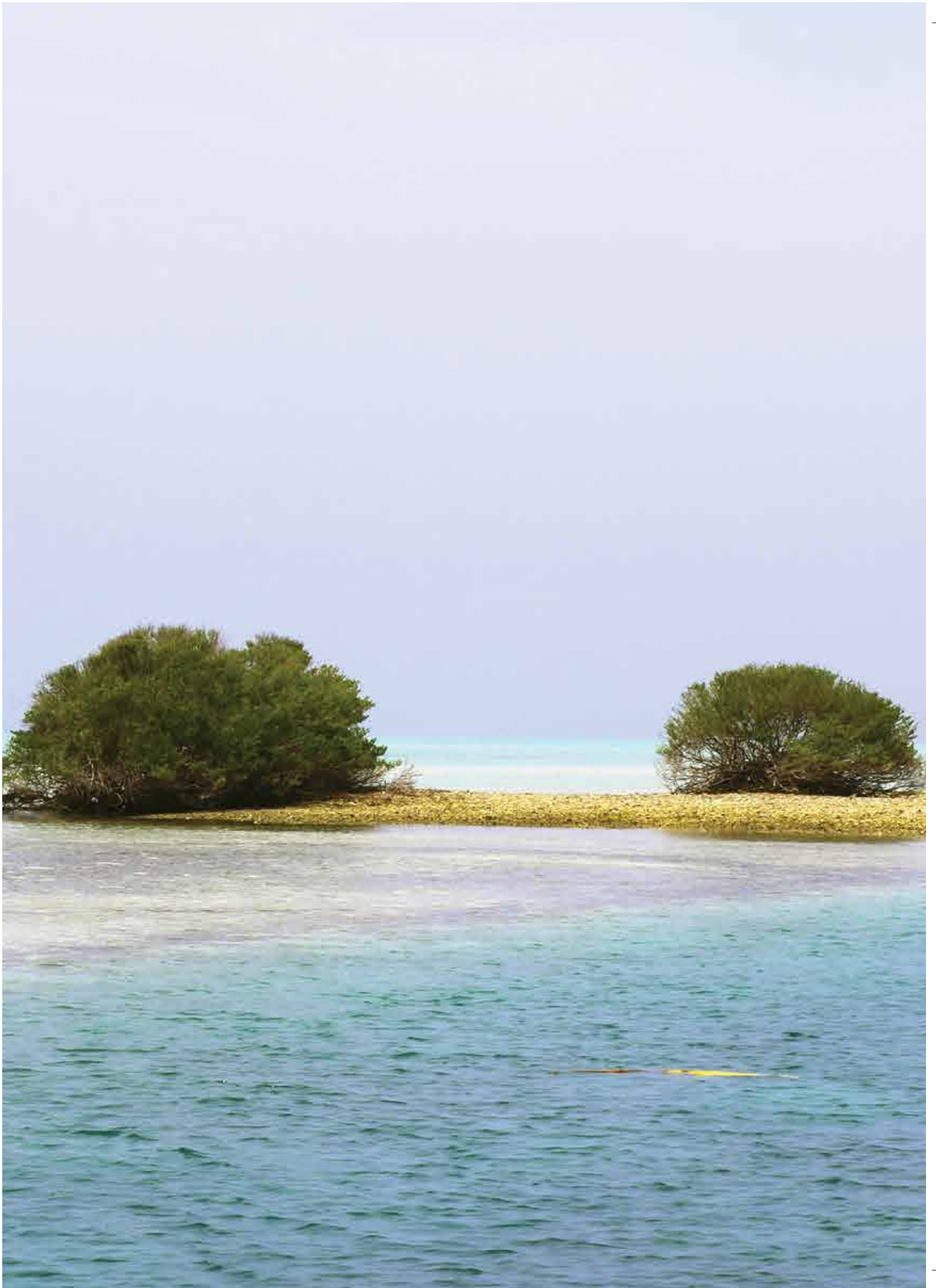
In a way to improve air connectivity in Andaman & Nicobar Islands, civil works at Diglipur Airport (Shibpur) have been completed and the airport is likely to be made operational soon for civilian aircraft. For operation of sea planes, four locations have been identified. In Lakshadweep, construction of the proposed airport at Minicoy will enhance inter-island connectivity. There also, feasibility of sea plane operations is being explored.

For improving web connectivity, augmentation of satellite bandwidth from 1.118 Gbps to 2.118 Gbps has been taken up in Andaman & Nicobar Islands. In Lakshadweep, the augmentation of bandwidth from 318 Mbps to 1.71 Gbps was approved by the Telecom commission. All these measures for connectivity improvement would provide immense benefits to the islanders.

11. The Summing up

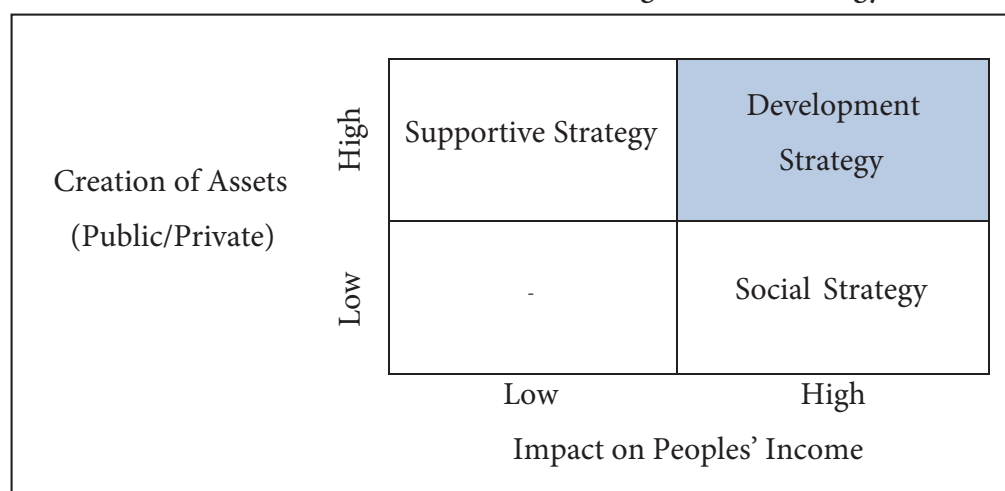
Strategies have been formulated for “Holistic Development of Identified Islands” with inputs from existing literature; analysis of past experience; learning from best practices; constructive group debates; and deliberation over creative ideas. These strategies are not idealistic, they are technically feasible, economically profitable and socially acceptable. Further, these strategies are in the category of Social Strategy + Supportive





Strategy = Development Strategy which is aimed at islanders' prosperity with creation of valuable assets in the islands to support their prosperity for a long time (Figure 11.1). The strategies, formulated as such, remain the best fit for expeditious implementation.

Figure 11.1 – Strategy Evaluation



Another uniqueness of these strategies is that requirement of budgetary support will be bare minimum for implementation of the planned projects. “Budget +” route has been recommended for P 3 projects and Budget ++ for P4 projects. For P3 tourism-based projects, investment is expected from the private sector whereas in P 4 projects, investment will also be made by the local islanders towards the land in addition to private sector investment. Limited budgetary support is required only for creation of basic infrastructural facilities (P2 – Public Projects).

Initially, four projects in Andaman & Nicobar Islands and three in Lakshadweep have been identified for implementation with private sector participation. The investment expected from the private sector in these projects has been estimated and found more than the Budget Estimate (Capital Section) for the current year 2018-19 (Table 11.1). Up-front Environmental clearance (EC) and Coastal Regulation Zone (CRZ) clearance has been recommended which is a unique move aimed at creating much-needed conducive environment for the private entrepreneurs to invest.

Table 11.1 – Investment expected from the Private Sector (Rs. in crore)

	Budget Estimate (BE) for 2018-19 ⁵⁴ (Rs. in crore)			P3 Projects	
	BE	Revenue Section	Capital Section	No. of projects	Investment expected
Andaman & Nicobar Islands	4593.86	3993.00	600.86	4	652.00
Lakshadweep	1397.31	1130.61	266.70	3	788.00

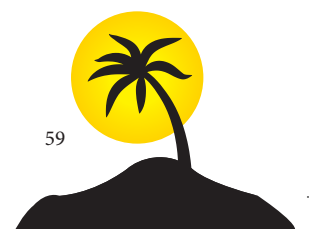
⁵⁴ Detailed Demand for Grants (Vol. II) of Ministry of Home Affairs (UTs) for 2018-2019

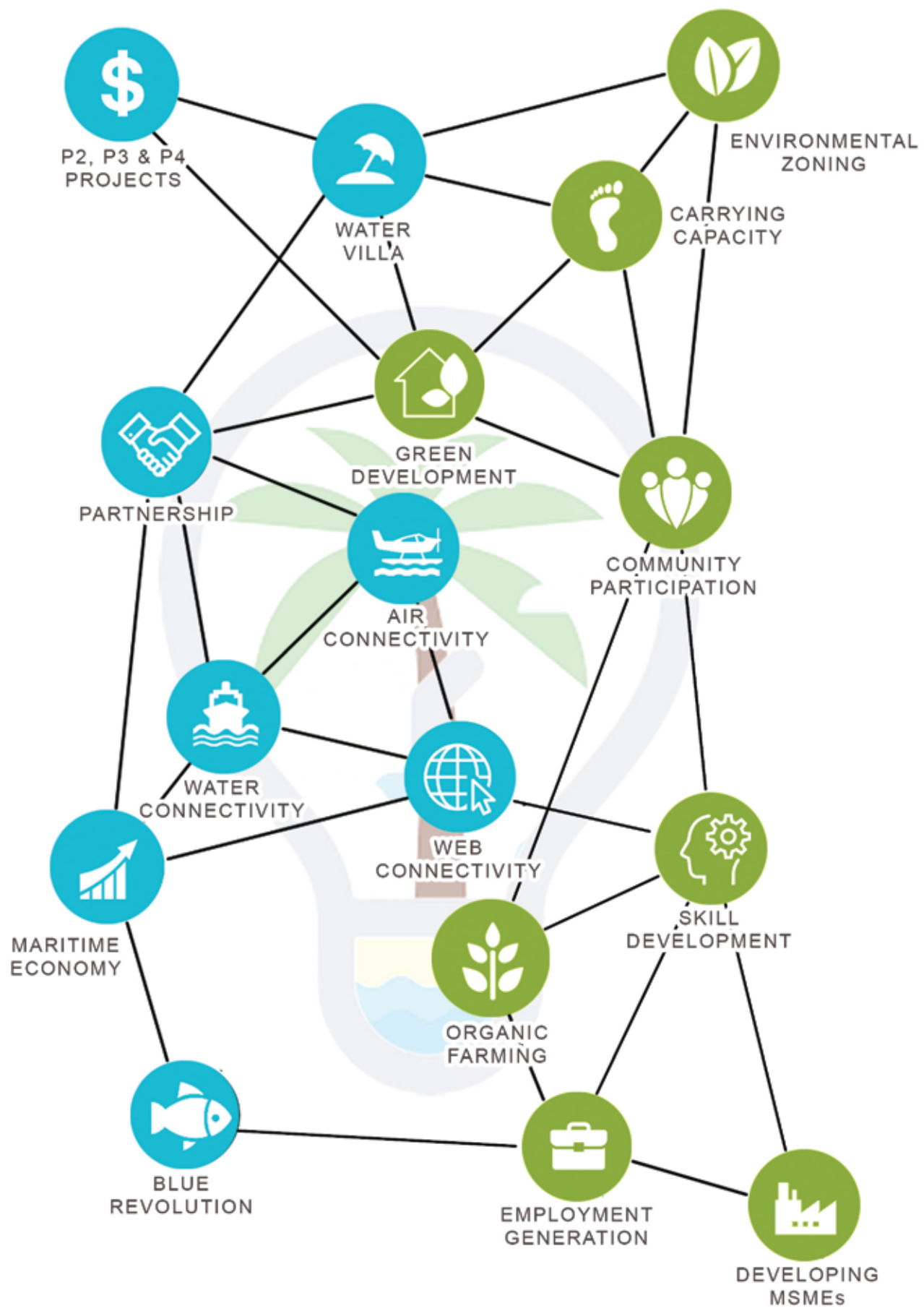


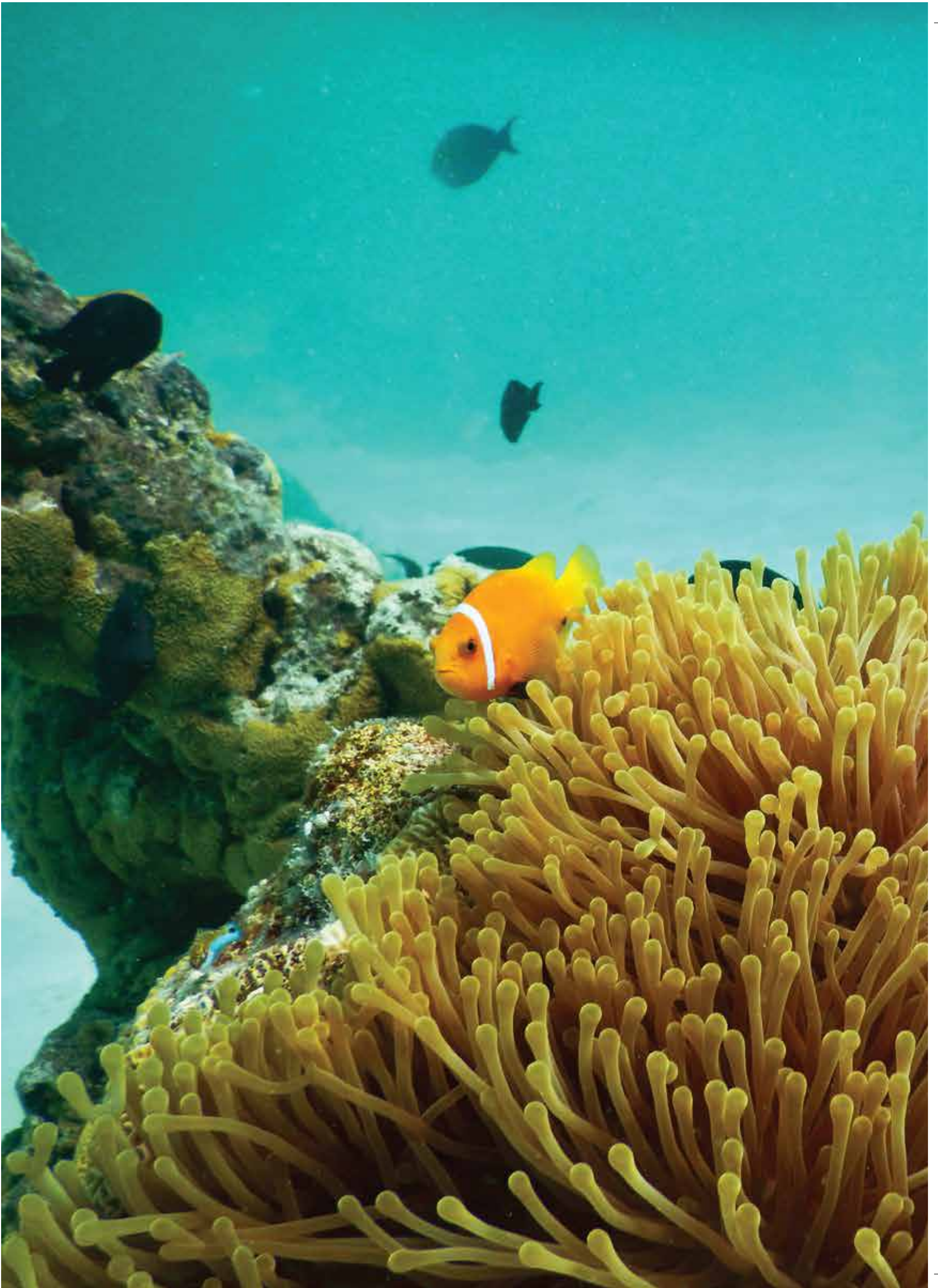


Application of creativity and innovation has produced a win-win-win situation for the Government, the islanders and the private sector, all expecting to get high dividends. Return is expected to be huge in terms of creation of jobs and generation of additional income for the islanders, profit for the private sector as well as revenue for the Government exchequer. Another important benefit is ecological security which has been accorded high priority. Development of the island will be supported by a stable island eco-system.

It is expected that the Vision of “Happy and Prosperous Islanders on ecologically-protected Islands” will be achieved. In fact, expeditious implementation of the formulated strategies and the planned projects with participation of the islanders and the private sector will make the identified islands a role model of sustainable development, which can be replicated in other islands or even in other parts of the country.









NITI Aayog