



THIRD-PARTY EVALUATION OF
COASTAL SECURITY
SCHEME PHASE-II [CSS-II]



INDIAN INSTITUTE OF PUBLIC ADMINISTRATION

Report on
Third Party Evaluation of Coastal Security Scheme Phase-II (CSS-II)

Project Head

Dr. Surabhi Pandey

Research Officers

**Shaurya Singru
Surabhi Khullar
Yumna Jamal**



सत्यमेव जयते
Ministry of Home Affairs

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Director, IIPA

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LIST OF ACRONYMS AND ABBREVIATIONS

A&N – Andaman & Nicobar
AIS – Automatic Identification System
AMC – Annual Maintenance Contract
BM – Border Management
BPR&D – Bureau of Police Research and Development
CAG – Comptroller and Auditor General
CCS – Cabinet Committee on Security
CIP – Community Interaction Programme
CMO – Customs Marine Organisation
CPS – Coastal Police Stations
CRZ – Coastal Regulation Zone
CSS – Coastal Security Scheme
D/o – Department of
DATs – Distress Alert Transmitters
DG – Director General
EEZ – Exclusive Economic Zone
ELINT – Electronic Intelligence
EO – Electro-Optical
GIS – Geographical Information System
GoI – Government of India
GPS – Global Positioning System
HFDF – High Frequency Direction Finding
ICG – Indian Coast Guard
ICP – Integrated Check Posts
IDSA – Institute for Defence Analyses and Studies
IEC – Information Education Communication
IIPA – Indian Institute of Public Administration
IR – Infrared
ISRO – Indian Space Research Organisation
JMSDF – Japan Maritime Self Defence Force
JOC – Joint Operation Centers
LRMP – Long Range Maritime Patrol
LV – Large Vessels
MCS – Monitoring, Control, and Surveillance
MEA – Ministry of External Affairs
MHA – Ministry of Home Affairs
MOC – Marine Operational Centers
MoD – Ministry of Defence
MPOC – Marine Police Operational Centers
NACP – National Academy of Coastal Policing
NCSMCS – National Committee for Strengthening Maritime and Coastal Security
NMA – National Maritime Authority
NSA – National State Authorities

POC – Proof of Concept
POL – Petrol, Oil, and Lubricants
QR – Quick Response
RIB – Rigid Inflatable Boats
SCRCS – Steering Committee for Review of Coastal Security
SDR- Software Defined Radio
SEZ – Special Economic Zone
SIGINT- Signals Intelligence
SOP – Standard Operating Procedures
SOSUS- Sound Surveillance System
SURTASS- Surveillance Towed Array Sensor System
SPM – Single Point Mooring
UAS – Unmanned Aircraft System
UT – Union Territory

EXECUTIVE SUMMARY

Ministry of Home Affairs (MHA) entrusted IIPA for the Third-Party Evaluation of Coastal Security Scheme (Phase-II) [CSS-II] of the Border Management (BM) Division of the Ministry. The terms of reference for this evaluation study, as mandated by MHA are as below.

TERMS OF REFERENCES

The main aim of the study is to evaluate the effectiveness of the Scheme and whether the Scheme has been successful in achieving its objective of strengthening infrastructure of Marine Police Force for patrolling and surveillance of coastal areas, particularly in shallow areas close to the coast.

The Study will focus on the following objectives:

- Performance of the Scheme-based on the output/outcome indicators.
- Coverage of beneficiaries
- Implementation mechanism
- Training/capacity building of administrators/facilitators
- IEC activities
- Assets/service creation & its maintenance plan
- Benefits and gaps in achievement of outcomes
- Convergence with Scheme of own or another Ministry/Department
- Key bottlenecks & challenges
- Input use efficiency
- Suggestions and recommendations to suggest way forward

1. BACKGROUND

The **Ministry of Home Affairs (MHA)** has been implementing a comprehensive **Coastal Security Scheme (CSS)** to strengthen the security infrastructure in the Coastal States in India. The Ministry formulated the Scheme in the context of the fast-changing coastal security scenario after the Mumbai incident on 26/11, which was followed by a vulnerability/gap analysis carried out by coastal States and UTs projecting additional requirements for strengthening the coastal security infrastructure.

The CSS was constituted based on the recommendations of the Group of Ministers in 2000, on 'Reforming the National Security System', and in consultation with all agencies concerned, such as, the Indian Navy, the Indian Coast Guard, the nine coastal States and the four coastal Union Territories (UTs). The Scheme was necessitated since neither the Coast Guard nor the States/UTs were equipped to patrol the shallow waters in close coastal areas.

The Department of Border Management, MHA has been implementing the Coastal Security Scheme in the nine coastal States of Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Odisha, West Bengal and four coastal Union Territories of Daman & Diu, Puducherry, Lakshadweep and Andaman & Nicobar Islands, in phases.

Phase-I

The Phase-I of the Coastal Security Scheme was approved by the Cabinet Committee on Security (CCS) in January 2005 for implementation over a period of 5 years starting from 2005-06 and extended up to March 31, 2011. The Scheme had an outlay of Rs.400 crore and Rs.151 crore for meeting the non-recurring expenditure and the recurring expenditure (5 years on fuel, repairs and maintenance of the boats and training of Marine police personnel, etc.), respectively. The aim of the Phase-I of the Coastal Security Scheme was to aid the nine coastal States and four coastal Union Territories in strengthening of their infrastructure for marine policing. The Scheme provided setting up of 73 coastal police stations (CPSs), 97 check posts, 58 outposts and 30 operational barracks and to equip them with 204 boats/vessels, 153 jeeps and 312 motorcycles for mobility on the coast and in close coastal waters.

Phase-II

The Phase-II of the Scheme has been completed as of 31.03.2020. It was initially approved by the Cabinet Committee on Security (CCS) for implementation w.e.f. 01.04.2011 to 31.03.2016 with

an outlay of Rs. 1579.91 crore. The CSS Phase-II had further granted extension up to 31.03.2020 with the approval of the CCS.

Specifications

As on date, all 131 CPS are operational, 117 CPS have been constructed, 10 CPS are under construction, 38 Jetties have been constructed/upgraded, 131 Four wheelers and 242 Two wheelers have been procured, and one MPOC has been constructed. However, all 10 Marine Police Operation Centres (MPOC) are operational.

2. METHODOLOGY

The study team applied a balanced approach of quantitative and qualitative tools methodology. The research study encompassed the identification of primary and secondary sources of information.

The detailed evaluation pertaining to research methodology followed by the study team, are as under:

Scope of the Study

For the evaluation of the CSS (Phase-II), the nine coastal States, namely Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Odisha and West Bengal, and the four coastal Union Territories, namely Daman & Diu, Lakshadweep, Puducherry, and Andaman & Nicobar Islands, were studied.

Data Analysis

The subsequent information entails the qualitative and quantitative aspects of the methodology used for the study.

Qualitative Analysis

The qualitative analysis of CSS was performed, by evaluating the scheme brief, reports and documents provided by MHA. The Agenda Points, and scheme related documents shared by the respective dignitaries of the departments were also a part of the analysis made by the study team.

Quantitative Analysis

The quantitative analysis of the Scheme was done based on the data provided by BM Division Officials. Primary data was collected in the form of questionnaires. Considering the evaluation study was carried out during the pandemic, data was largely collected from BM Division through personal interviews and visits.

The quantitative data analysis was performed using Microsoft Excel. The qualitative data was acquired from multiple sources and was thoroughly analysed and discussed by research members before applying them in the study.

3. SUMMARY OF FINDINGS

The study team observed and derived the following findings while analysing the data pertaining to the scheme:

- **Infrastructure & Finance:**

- A total of Rs. 1580.5578 Crores were approved for CSS-II. Out of this, Rs. 1155.56 Crores formed the non-recurring component, whereas Rs. 425 Crores formed the recurring component. However, most of the non-recurring component (Rs. 1023.5 Crores) was approved for procurement of boats in CSS-II, which was not pursued because of inadequate utilisation of boats procured under CSS-I. Thus, the actual fund that was released amounted to Rs. 131.41 Crores for the construction of coastal police stations and the procurement of police station furniture and equipment (lump sum of Rs. 15 lakh), as well as two-wheelers, four-wheelers, and construction of jetties. An additional amount of Rs. 64.58 Lakhs was released for upgradation of jetties in Maharashtra, which made the total amount disbursed to the coastal States and UTs as Rs. 132.06 Crores. The recurring component of Rs. 425 Crores consisted POL expenses, AMC provision, and training expenses. Since there have been no procurement of boats in CSS-II, POL expenses and AMC expenses weren't made. Hence, only an amount of Rs.1.3 Cr has been disbursed for Training expenses out of Rs.25 Cr. allocated for this purpose in the recurring expenditure (i.e. Rs.425 Cr.)
- A total of 131 coastal police stations were sanctioned and operationalised in CSS-II. 117 coastal police stations have completed construction so far, whereas 10 are undergoing construction and 4 are yet to be constructed. However, all are operational.
- Tamil Nadu and Andaman & Nicobar Islands received highest amount of fund disbursement (around Rs. 27 Crores each) and together accounted for 41.18% of total funding disbursed, whereas Goa, Karnataka, Lakshadweep, Puducherry, and Daman & Diu had relatively the least amounts of disbursement (between Rs. 2.42 Crores and Rs. 3.85 Crores) and together accounted for just 12.68% of funding disbursed.

- Out of all the coastal States/UTs, Tamil Nadu utilised the highest amount of funds (Rs. 20.5 crore), while Lakshadweep utilised the least amount of funds (Rs. 49 lakhs). Maharashtra, Daman & Diu, Kerala, and Odisha each used up more than 90% of the funds disbursed to them.
- Every State/UT utilised at least 50% of its disbursed fund except for Lakshadweep, which utilised a mere 14%. Each State/UT, on average, utilised 73.22% of its disbursed funds.
- From the analysis of the no. of infrastructure elements per 100km data, we observe that Puducherry had the highest no. of coastal police stations, motorcycles, and jeeps available per 100km of its coastline (a little over 12 coastal police stations and 6 four wheelers and 6 two wheelers per 100km), whereas Andaman & Nicobar Islands had the least number of CPS (almost 1 per 100km) and Gujarat had the least number of two-wheelers and four-wheelers (almost 1 each per 100km).
- Highest numbers of jetties were sanctioned to Tamil Nadu (12) followed by A&N Islands (10). Although, 5 and 8 were jetties constructed by Tami Nadu and A&N Islands respectively. Maharashtra had the highest number of jetties upgraded (14) against construction of 3 sanctioned jetties. On the other hand, Andhra Pradesh, Karnataka, Gujarat and West Bengal each had no jetties constructed.
- 89.31% of all coastal police stations and 10% of all Marine Police Operating Centres have been constructed. 63.33% of all jetties have been constructed/upgraded. Coastal Police, Maharashtra is utilizing the 14 Jetties of Maharashtra Maritime Board (MMB) on full -time basis against the 03 sanctioned jetties for which an additional grant of Rs.64.58 lakh has been released to the State. 100% of all coastal police stations, 63.33% of all jetties and 100% of all Marine Police Operating Centres have been made operational. If we consider all three of these, we may conclude that 89.06% of all infrastructure has been made operational, and 77.61% of all infrastructure has been constructed:

$$\underline{131/131 + 38/60 + 10/10 = 0.89055 = 89.06\%}$$

$$\underline{117/131+38/60+01/10= 0.77612 = 77.61\%}$$

Out of the total Rs. 132.06 Crores, Rs. 82.59 Crores have been utilised by the States/UTs for implementing completion of infrastructure and procurement of equipment, jeeps, bikes, etc. Out of the total disbursed amount, Rs. 10.62 Crores were provided for vehicles. Thus, accounting for just the cost provision and utilisation of infrastructure, we can say that approximately Rs. 71.97 Crores would have been utilised out of Rs. 121.44 Crores. Thus, with just 59.26% utilisation of the cost provision for infrastructure, all States and UTs have been able to construct 77.61% of infrastructure.

▪ **Manpower Strength :**

- According to BPR&D's Standard Operating Procedure (SOP) for Coastal Police Stations, each coastal police station must have manpower of 81 and each boat must have manpower of 6. Only 51.49% of staff has been employed in coastal police stations and 44.02% of technical crew has been employed in boats. It shows a serious shortage of manpower required to effectively run and maintain coastal police stations and boats.
- Lack of police staff and technical crew have made it difficult to both optimum utilisation and maintenance of available boats. It is evident that the inadequate utilisation of boats from Phase-I of CSS has continued throughout Phase-II, and may be resolved in the future with adequate trained manpower.
- From the analysis of the boat data, we find that the overall average running hours of all the boats of Gujarat, Andhra Pradesh, Maharashtra, Tamil Nadu, and Andaman & Nicobar Islands is merely 361.4 hours as against to the set standard of 1800 hours per annum. This indicates almost each boat is operating less frequently than it is expected to, or is performing at a lower capacity. Only 46.36% of the boats are currently operational.
- After analysis of POL expenses data, it is apparent that only 2.62% of fund has actually been released to the States/UTs. The fact that there isn't enough manpower to run the boats for 1800 hrs and maintain these boats effectively. This could be one of the reasons why the all boats have such low annual operating hours, low proportion of operational boats, and why coastal States/UTs have claimed a very small percentage of eligible POL expense reimbursement.

4. MAJOR ACHIEVEMENTS/INITIATIVES

- **Status of Completion**

CSS (Phase-II) has seen most of its infrastructure been completed over the course of the Scheme. Approximately 89.06% of all infrastructures have been made operational, and 77.61% of all infrastructures have been constructed. This includes Coastal Police Stations, jetties, and Marine Police Operating Centres that have been constructed and are operational.

- **Inter-Agency Coordination**

The integration of all maritime stakeholders is imperative for effective and efficient functioning of the scheme. The development is attributed to joint coastal exercises conducted by all stakeholders concerned.

- **Monitoring, Control and Surveillance of Fishermen**

The following measures have been taken with respect to Monitoring Control and surveillance:-

- 1. Installation of Satellite-based Transponders on fishing boats below 20 meters in lengths to track the movement fishing boats at sea.**

Proof of Concept (POC) project for installation of 1050 satellite-based transponders in sub 20 meter fishing vessels registered in Tamil Nadu & Gujarat (500 terminals each) and Puducherry (50 terminals) have been successfully completed by ISRO/Indian Navy. D/o. Fisheries has been requested to expedite the finalization of National Marine Fisheries (Regulation & Management) Bill, 2020 for further course of action in regard to Installation of Satellite-based Transponders on fishing boats below 20 meters in length. Action in this regard is awaited. The matter is elaborated at para 1.6 of the report.

- 2. Legal Provisions for various requirements of MCS**

D/o. Fisheries has been requested to make legal provisions for fitment of tracking/communication device on fishing boats, carrying of QR enabled Aadhaar Cards by fishermen while venturing into sea, including penal provisions for non-compliance.

3. Issuance of Biometric ID cards to fishermen for verifying the antecedents of fishermen at sea.

Department of Fisheries issued Biometric ID Cards to fishermen and RGI, MHA provided 4000 smart card readers to Navy, Coast Guard, and other coastal security agencies in coastal areas for verifying the antecedents of fishermen at sea. However, security agencies were confronted with the problem of scanning the biometric cards due to absence of internet at sea. Due to this problem, a possible solution was worked out for, henceforth, Aadhar Card with QR codes can be used a substitute for the Biometric card as the former can be scanned without using internet.

4. SAGARA App

The monitoring of Fish Landing points and fishing harbours through technological solutions to overcome the shortage of staff in fisheries has been initiated in Kerala wherein they have developed SAGARA APP for monitoring the exit/ entry of fishermen from fish landing centres whose trials are in progress which may be replicated in all Coastal States/UTs.

5. Village Security Committees

Coastal States/UTs have been requested to consider establishing Village Security Committees like the Karnataka model of setting up of Karnataka Niyantarak Dal (KND).

- **Training for State Police Personnel**

Tapping the potential of the manpower for the Coastal Police Stations, training is imparted at the National Academy of Coastal Policing (NACP) in Gujarat. In addition, all coastal states/UTs have been requested to include a Marine Capsule Course in the “Basic Training” for developing sea orientation in the maritime security personnel.

- **Strengthening Manpower**

Several State/UT Governments appointed ex-service men from Indian Navy and Indian Coast Guard to Coastal Police Cadre.

- **Other initiatives undertaken to foster the achievements of the scheme are:**

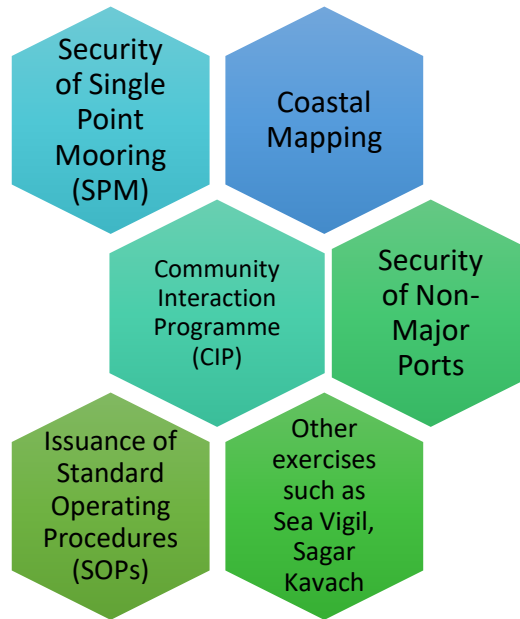


Figure E.1: Key initiatives attributing to Coastal Security Achievements

5. RECOMMENDATIONS AND SUGGESTIONS BY IIPA

The team of IIPA strongly recommends continuation of the Coastal Security Scheme, as it upholds an extremely vital role in the field of national coastal security. In order to make the scheme more effective, the study team of IIPA has the following suggestion points for consideration to the competent authorities.

Detailed recommendations and suggestions are given below:

1. Manpower Requirement in the Coastal States/UTs

Under the scheme, Government of India provided funds for meeting the training requirements of the marine police personnel but the manpower for the marine police personnel including technical crew for the boats is provided by the concerned coastal States and UTs.

The 204 boats supplied to the States/UTs have been inadequately utilized & maintained by the coastal States/ UTs, due to acute shortage of technical manpower and crew to be employed for manning the boats and various other reasons. The staff of the Coastal Police stations is also drawn from the regular police cadre who go back to the parent cadre after the end of the tenure thereby causing a lack of consistency/continuity.

In view of the above, all Coastal States/UTs may establish a separate cadre, at least till the rank of constable to look after the matters of coastal security. Dedicated manpower towards coastal security is necessary for establishing the foundation of strong coastal security.

2. Training of Coastal Police Personnel

The Government of India has approved the setting up of Marine Police Training Institute renamed as National Academy of Coastal Policing (NACP) to be located at Dist.: Devbhoomi Dwarka, Gujarat. In the interim, a temporary campus of the Academy has started functioning in District Dev Bhoomi Dwarka, Gujarat w.e.f 29th October, 2018.

A total of 147 coastal police / customs personnel in three batches have completed the Marine Police Foundation Course. In addition, all coastal states/UTs have been requested to include a Marine Capsule Course in the “Basic Training” for developing sea orientation in the maritime security personnel.

3. Latest Technologies for Coastal Security

A typical Coastal Security Management System required to address the security concerns would be through a mix of technology facilitating (i) surveillance, (ii) identification, and (iii) command and control applications. Most of these technological installations fit under the three aforesaid categories.

For coastal borders and ports security, artificial intelligence and machine learning-based maritime analytics can play a bigger role by taking information from centralized systems like Automatic Identification System (AIS), Geographic Information System (GIS) etc., and can inform the authorities in advance about any suspicious vessels/ships/ boats before they even enter national waters.

India can take help of the following technologies for enhancing its marine borders.

- **Unmanned Aircraft Systems (UAS)** for Maritime Operations and Surveillance. UAS has its usage for ship detection, red tide detection and monitoring, border patrol and hurricane monitoring. UAV can easily fly over dangerous and hazardous areas, thus saving the time of guarding forces.
- **Software-defined Radios can be used** for robust, future proof, un-hack able communication. A Software Defined Radio (SDR) is a flexible technology that enables the design of adaptive communications systems for coastal zones.
- **Maritime Analytics** to detect and catch the suspicious vessels before entering national waters. Several countries are using maritime analytics in securing their marine borders.
- **Laser Technology** refers to using long range acoustic device with good acoustic capabilities which enables a person sitting in a far-away location from the sea to give command to the personnel patrolling the sea. Such a technology can go a long way in empowering the Coastal Police Personnel to give command directly using laser technology.
- **Use of Observation towers** equipped with their own power supply, adequate perimeter fencing of the sensitive area around the towers. For enhancing coordination, wide band wireless communication system for every coastal surveillance zone should be used. It will go a long way in cementing active cooperation among all the Coastal Police Stations of the country. However, these observation towers should be installed at strategic points.

4. Strengthening of Coastal Security Infrastructure

Under the scheme total of 131 coastal police stations were sanctioned and operationalised in CSS-II. Total 117 coastal police stations have completed construction so far, whereas 10 are undergoing construction and 4 are yet to be constructed. Total 77.61% of all infrastructures have been completed in all the Coastal states / UTs. This includes Coastal Police Stations, jetties, and Marine Police Operating Centres that have been constructed and are operational.

As per data analysis, highest numbers of jetties were sanctioned to Tamil Nadu (12) followed by A&N Islands (10). Although, 5 and 8 were jetties constructed by Tamil Nadu and A&N Islands respectively. Maharashtra had the highest number of jetties upgraded (14) against construction of 3 sanctioned jetties. On the other hand, Andhra Pradesh, Karnataka, Gujarat and West Bengal each had no jetties constructed.

In view of the above, the infrastructure available with all the Coastal States/UTs for coastal patrolling and surveillance needs to be continuously enhanced and strengthened proportionately.

5. Implementation of Phase-III of the Coastal Security Scheme

The Department of Border Management, Ministry of Home Affairs has been implementing the Coastal Security Scheme in phases. Phase-I of the Scheme was completed during 2005-2011. Phase-II was completed during 2011-2020.

All Coastal States/UTs have furnished their proposals for the Coastal Security Scheme. While working out the contours of Phase-III of the Coastal Security Scheme by the Committee constituted under the Chairmanship of Special Secretary (BM), it was decided that Coastal States/UTs may take up various measures for consolidation of existing infrastructure, assets & manpower towards achieving a robust coastal security mechanism.

In view of the above, it is stated that the Phase-III of the Coastal Security Scheme may be implemented upon establishment of a fully trained separate cadre for Coastal Police in all Coastal States/UTs.

CHAPTER 1: INTRODUCTION

1.1. Background

India's coasts have always been vulnerable to anti-national activities and interests. Numerous cases of the smuggling of gold, narcotics, chemicals, explosives, arms, and ammunition, as well as the infiltration of terrorists and illegal immigration into the country through these coasts have been reported over the years. The Government had been aware of the activities that are carried out through the country's coasts and had been implementing corrective measures from time to time. Maritime security is one of the most imperative factors under the realm of international security. Owing to the multi-fold increase in maritime activities, traditional and non-traditional security issues related to maritime security have also increased rapidly.

India has a coastline of 7,516.6 km. bordering the mainland and the islands with Bay of Bengal in the East, the Indian Ocean on the South and the Arabian Sea on the West. There are nine States viz. Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Odisha and West Bengal and four Union Territories viz. Daman & Diu, Lakshadweep, Puducherry, and Andaman & Nicobar Islands situated on the coast. The length of coastline, including islands, in these States and UTs is given below.

Table 1.1: Length of Coastline of Coastal States and UTs

State/UT	Coastline Length (in kilometres)
Gujarat	1214.70
Maharashtra	652.60
Goa	101.00
Karnataka	280.00
Kerala	569.70
Tamil Nadu	906.90
Andhra Pradesh	973.70
Odisha	476.40
West Bengal	157.50
Daman & Diu	42.50
Puducherry	47.60
Lakshadweep	132.00
A&N Islands	1962.00
TOTAL	7516.60

Phase-I

The Phase-I of the Coastal Security Scheme was approved by the Cabinet Committee on Security (CCS) in January 2005 for implementation over a period of 5 years starting from 2005-06. The Scheme had an outlay of Rs.400 crore and Rs.151 crore for meeting the non-recurring expenditure and the recurring expenditure (5 years on fuel, repairs and maintenance of the boats and training of Marine police personnel, etc.), respectively. The Scheme was extended up to March 31, 2011 with an additional provision of Rs. 95 crore towards the non-recurring expenditure.

The aim of the Phase-I of the Coastal Security Scheme was to aid the nine coastal States and four coastal Union Territories in strengthening of their infrastructure for marine policing. The Scheme provided setting up of 73 coastal police stations (CPSs), 97 check posts, 58 outposts and 30 operational barracks and to equip them with 204 boats/vessels, 153 jeeps and 312 motorcycles for mobility on the coast and in close coastal waters. A lump sum assistance of Rs. 10 lakh per coastal police station was also provided for equipment, computers and furniture. The Phase-I Scheme was completed on 31st March 2011.

Phase-II

The Phase-II of the Scheme has been implemented during 01.04.2011 to 31.03.2020.

The CSS (Phase-II) was initially approved by the Cabinet Committee on Security (CCS) for implementation w.e.f. 01.04.2011 to 31.03.2016 with an outlay of Rs. 1579.91 crore. The CSS Phase-II had further granted extension up to 31.03.2020 with the approval of the CCS.

Specifications

Under the Phase-II of the Scheme, Coastal States/UTs have been sanctioned with 131 Coastal Police Stations (CPS), 60 jetties, 131 Four wheelers, 242 Two Wheelers, 10 Marine Police Operation Centres (MPOC) & 225 boats.

As on date, all 131 CPS are operational, 117 CPS have been constructed, 10 CPS are under construction, 38 Jetties have been constructed/upgraded, 131 Four wheelers and 242 Two wheelers have been procured, and one MPOC has been constructed. However, all 10 Marine Police Operation Centres (MPOC) are operational.

Purpose

MHA formulated the Coastal Security Scheme with the objective of strengthening infrastructure of Marine Police Force for patrolling and surveillance of coastal areas, particularly shallow areas

close to the coast. The scheme also aimed at establishing institutional arrangements at State and district level for coordination among various agencies including the Coast Guard and the Navy.¹

1.2. Implementation Status of Phase-II of Coastal Security Scheme

All the coastal States/UTs have initiated the process of land identification and land acquisition, for operationalization and construction of coastal police stations & jetties. State/UT-wise details are given below:

Table 1.2: Details on Coastal Police Stations

State/UT	COASTAL POLICE STATIONS				
	Sanctioned	Operational	Constructed	Construction Underway	Construction Pending
Gujarat	12	12	11	1	0
Maharashtra	7	7	4	0	3
Goa	4	4	1	2	1
Karnataka	4	4	4	0	0
Kerala	10	10	10	0	0
Tamil Nadu	30	30	30	0	0
Andhra Pradesh	15	15	15	0	0
Odisha	13	13	11	2	0
West Bengal	8	8	6	2	0
Daman & Diu	2	2	2	0	0
Puducherry	3	3	2	1	0
Lakshadweep	3	3	1	2	0
A&N Islands	20	20	20	0	0
TOTAL	131	131	117	10	4

¹ <https://www.deccanchronicle.com/nation/current-affairs/270816/phase-ii-of-coastal-security-scheme-still-incomplete.html>

1.3. Evolution of Coastal Security

The phase-I of the Coastal Security Scheme was approved by the Cabinet Committee on Security (CCS) in January 2005 for implementation over a period of 5 years starting from 2005-06. The scheme began with an outlay of Rs.400 crore for meeting the non-recurring expenditure and Rs.151 crore for meeting the recurring expenditure for 5 years on fuel, repairs and maintenance of the boats (surveillance mechanism) and training of Marine police personnel. However, the scheme was extended up to March 31, 2011 with an additional provision of Rs.95 crore towards the non-recurring expenditure. The Scheme in its first phase created 73 Coastal Police Stations (CPS), 97 Check Posts, 58 Out-Posts and 30 Operational Barracks with a fine marine surveillance infrastructure in the form of 204 boats/vessels, 153 jeeps and 312 motorcycles for Marine Police Personnel for mobility on the coast and in close coastal waters.

Since the 26/11 terror strike in Mumbai in 2008, coastal security has been a priority in India's national security agenda, the coastal security arrangement have been thoroughly reviewed by the Government of India. Several important decisions were taken in this regard. The coastal States/UTs were asked to carry out a vulnerability/gap analysis in consultation with Coast Guard to firm up their additional requirements for formulation of Phase-II Scheme of the Coastal Security. After getting detailed proposals from the coastal States/UTs, the Coastal Security Scheme (Phase-II) has been approved.²

The scheme is being implemented over a period of 5 years starting from April, 2011 with a total financial outlay of 1579.91 crore, (1154.91 crore for nonrecurring expenditure and 425 crore for recurring expenditure) through 9 coastal States and 4 Union Territories.

1.4. The Three –Tier Arrangement of Coastal Security Scheme

The three-tier security arrangement under the Coastal Security Scheme (Phase II) encompasses the (i) Indian Navy (ii) Indian Coast Guard (iii) Marine Police force and sometimes other Central and State agencies. The Indian Navy is designated as the main authority responsible for overall maritime security viz-a-viz onshore and off-shore security. In assistance, the Indian Coast Guard is additionally responsible for coastal security in territorial waters including areas to be patrolled

² <https://timesofindia.indiatimes.com/india/second-phase-of-coastal-security-scheme-to-be-implemented-soon/articleshow/6253010.cms>

by Coastal Police. Furthermore, with the aim of having effective coordination between the Central and State agencies, the DG of ICG has been designated as Commander Coastal Command and is responsible for overall coordination between the agencies in all matters relating to coastal security.

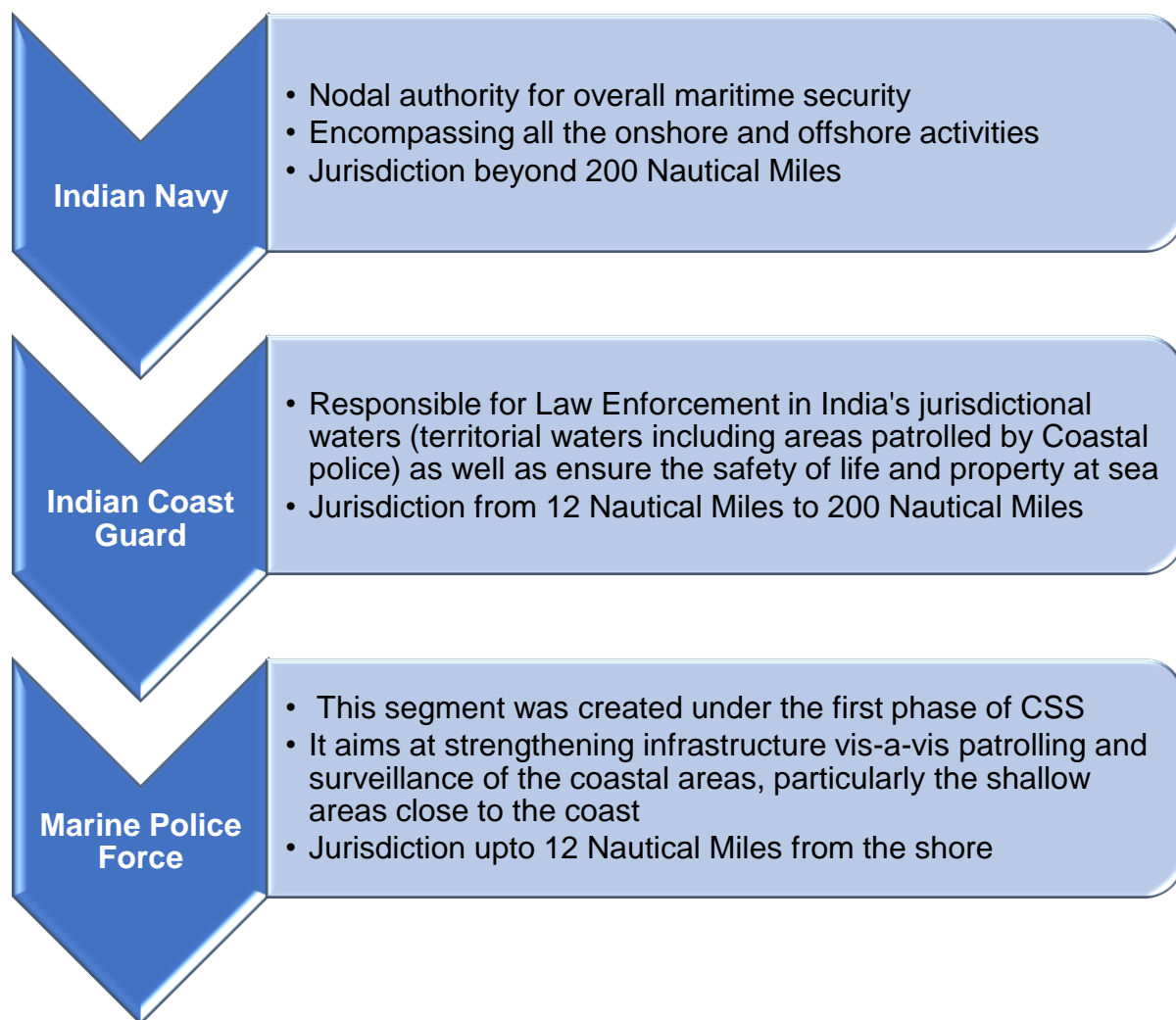


Figure 1.1: The three-tier Coastal Security Arrangement

1.5. Coastal Security Scheme II

Coastal Security Scheme's Phase II began to address the growing security concerns of the coastal areas in the wake of terrorist attacks, most notably the terrorist attack on Mumbai in 2008. Coastal States and Union Territories analysed the gaps in the then existing coastal security system and consented for making additional requirements for strengthening the coastal security infrastructure. Consequently, the Cabinet Committee on Security (CCS) approved the Phase II of the Coastal

Security Scheme with an outlay of 1579.91 crore for the period of 2011-2016, however, the scheme was extended up to March 31, 2020.³

COMPONENTS OF THE CSS PHASE II:

1. Establishment of Coastal Police Stations in the coastal states and Union Territories

Phase II provides for establishment of 131 additional Coastal Police Stations, a greater weightage was given to Andaman & Nicobar Island where upgradation of the existing 20 Coastal Police Stations is done

2. Marine Operational Centres in Andaman & Nicobar Islands

Andaman & Nicobar Islands occupy a special place in the Indian Ocean due to its peculiar geographical position that makes it vulnerable to foreign threats and anti-state actors taking shelter in the deep creeks of the far off uninhabited islands. To address this problem, the scheme sought to establish ten Marine Operational Centres to carry out patrolling, surveillance and raids in the scattered islands. These centres are fully operational and actively working to resolve the security concerns of the Island group.

3. Boats for Coastal Patrolling

204 boats have been provided to all the coastal states/ UTs under Phase-1. No boats have been procured in the Phase II of the scheme.

4. Vehicles for each Coastal Police Station

Under the phase II of the scheme 1 four-wheeler and 2 two-wheelers are provided to every Coastal Police Station with the exception of Andaman & Nicobar Islands which has been sanctioned 1 four wheeler and 1 two wheeler for each Coastal Police Station.

5. Equipment and Furniture etc for every Coastal Police Station

A lump sum amount of 15 lakh per Coastal Police Station has been provided to the Coastal States and Union Territories for enhancing operational capabilities.

³ https://www.mha.gov.in/sites/default/files/BM_II_CostalSecurity_18062019.pdf

6. Jetties

Jetties are an important component of the Phase-II CSS Scheme, 60 jetties at a lump sum indicative amount of Rs 50 lakhs per jetty have been sanctioned in Phase II. So far, 38 jetties have been constructed/upgraded.

7. Training Expenses for Marine Personnel

State governments are responsible for providing the manpower for Coastal Police Stations in the CSS; however, the training expense for the manpower is borne by the Central Government.

1.6. Significance of Coastal Security

India's coasts are known for a diverse range of topography with the presence of creeks, small bays, back waters, rivulets, lagoons, estuaries, swamps, mudflats, as well as hills, rocky outcrops, sandbars, beaches and small islands. The waters bodies and river channels run deep inside the coasts, making the shoreline highly indented and vulnerable to attacks. Coastal zones remain poorly guarded, leaving them as the ideal spots for the clandestine landings of arms, explosives and infiltration by terrorists. The creeks along the coasts of Gujarat and West Bengal's Sundarbans are the most preferred routes for infiltration and smuggling. External challenges emanating from across the border such as infiltration, illegal migration, smuggling, terrorism etc. aggravate the internal security problem. Most notably, India's neighbours aggravate the problems at sea by continuously distorting the order maintained by the coastal security forces.

Indian Ocean is one of the main transportation zone that witnesses large scale sea traffic, the seas around India are one of the busiest shipping lanes in the world and known for transportation of 75% of world's maritime trade and half the world's daily oil consumption. As per UNCLOS III (United Nations Convention on the Laws of the Sea)⁴, India has claim over huge adjacent sea space in multiple maritime zones with enforcement rights. It has sovereign jurisdiction over territorial waters that extends up to 12 nautical miles from the coast, criminal jurisdiction in matters like smuggling, immigration, pollution, etc. over contiguous zone which extends to 24 nautical miles from the coast and jurisdiction over vast Exclusive Economic Zone (EEZ)⁵ for economic exploitation which extends up to 200 nautical miles from the coast and continental shelf

⁴ <https://geographyandyou.com/exclusive-economic-zone-seas-around-india/>

⁵ <http://legislative.gov.in/sites/default/files/A1976-80.pdf>

beyond it. The EEZ is spread over 3.1 million sq. km with untapped potential for exploring, exploiting, conserving and managing ocean resources like fishing, ocean mining, drilling for oil and gas etc. With a vast EEZ including Lakshadweep Islands and Andaman & Nicobar Islands, India cannot take its coastal security for granted, exploring marine resources and utilizing the same for socio-economic development of the country is greatly dependent to the extent India strengthens its marine borders notwithstanding that marine boundaries often become the centre of conflict between India and its neighbours. It cannot be denied that vast coastal sea area is a reservoir of natural resources like sea-food items and petroleum and natural gases. India has large number offshore infrastructure in coastal water. Such infrastructures include manned and unmanned platforms, oil wells, oil rigs, large number of different types of support vessels. Such structures become very attractive targets for terrorists. Thus, India's development is closely linked to maritime environment and hence it is logical to ensure security and sea governance of coastal areas, thus, coastal security becomes important in this regard.

India's coasts have been vulnerable to anti-national activities like smuggling of goods, gold, narcotics, explosives, arms and ammunition as well as infiltration of terrorists into India through these coasts. Government is implementing corrective measures from time to time in the form of strengthening coastal security by enacting a game changer scheme- Coastal Security Scheme (CSS). Since its inception to its successful implementation in two phases, the scheme has come a long way in creating milestones that were unthinkable. Not only does it safeguards strategic assets located in the peninsular India, but also paved way for the creation of trained police personnel manning the marine police stations. The new limits of 200 nautical miles for land police add greater depth to the patrolling. The extension was an important development in allowing a greater say to local police while dealing with cases of smuggling and terrorism.

The Indian coasts also have strategic installations such as naval bases, power plants, satellite and missile ranges, ports. The eastern, western, southern and far eastern naval commands are located in Vishakhapatnam, Mumbai, Kochi, and Port Blair respectively. Nuclear power plants at Kudankulam (Tamil Nadu) , Kalpakkam (Tamil Nadu), Tarapur (Maharashtra) have close proximity to the sea. Most importantly, our satellite launching and missile testing facilities are located along the coast. Major ports of India such as Kandla, Jawaharlal Nehru Port, Mangalore, Haldia, which handles maritime trade are often the spots for smuggling, it is pertinent to mention that cargoes de-boarding at these ports require random checking by Coastal Police Station Officers. These strategic installations are vital for development of India but are high value targets for terrorists. Hence, safeguarding coastal areas that have numerous national assets calls for

implementing of Coastal Security Scheme in the country, failing to do will only jeopardize the national security.

1.7. Other coastal security initiatives taken by the Government of India

- **Issuance of Biometric ID Cards to Fishermen**

Department of Fisheries issued Biometric ID Cards to fishermen. In this regard a sum of 72 crore was provided by the MHA, Ministry of Fisheries enrolled 19,74,098 fishermen for issuing Biometric ID cards. Fisheries Department of the States/UTs have received 3070 card readers against their requirement. RGI, MHA provided 4000 smart card readers to Navy, Coast Guard, and other coastal security agencies in coastal areas.

Department of Fisheries provided Biometric Identity cards to 2359 Nepali fishermen engaged in fishing in Maharashtra. However, security agencies were confronted with the problem of scanning the biometric cards due to absence of internet at sea. Due to this problem, a possible solution was worked out for, henceforth, Aadhar Card with QR codes can be used a substitute for the Biometric card as the former can be scanned without using internet.

- **Colour Coding of Vessels for better tracking and differentiation**

Colour coding of vessels is important to differentiate among vessels. It is suggested to colour code the fishing vessels that will help in tracking vessels crossing the international marine boundaries and entering into Single Point Moorings (SPMs). It also helps in identifying the state to which these fishing vessels belong to. Apart from Tamil Nadu, remaining coastal states/UTs have implemented the Colour Coding Scheme.

- **Tracking of Vessels/Boats**

Vessels of more than 20 meters length are required to be fitted with Automatic Identification System (AIS). To discuss about establishing a formal mechanism to track the movements of boats less than 20 meters, a Committee was constituted under the Chairmanship of Secretary (Border Management) with representatives from the concerned ministries and state departments. The Committee concluded that satellite technology is the only mechanism to track transponders on small boats. Tamil Nadu and Gujarat are entrusted to test the efficiency of using satellite-based transponders in small boats on a pilot basis.

MHA after evaluating the satellite technology usage for tracking small boats in these two states will consider implementing the same in other coastal states/UTs. In this regard, Proof of Concept (POC) project for installation of 1050 satellite-based transponders in sub 20-meter fishing boats has been completed by ISRO and Indian Navy. In the 17th NCSMCS meeting held on September 23, 2019 comprehensive evaluation of the project was discussed. The Committee opined that Department of Fisheries should make provisions to make installation of transponders in sub-20-meter fishing boats in the National Marine Fisheries (Regulations and Management) Bill 2019.

Department of Fisheries constituted an 'Expert Committee' for examining the feasibility of tracking devices for different vessels.

- **Setting up of Marine Police Training Institute [National Academy of Coastal Policing (NACP)]**

Government has approved the establishment of NACP in Gujarat to train the manpower in coastal policing. So far 147 Coastal Police Personnel have completed their training from NACP.

- **Constitution of State Maritime Boards (SMBs) for Coastal States**

Major ports of the country are looked after by the Ministry of Shipping, while the State governments are entrusted with the handling of non-major ports. Gujarat, Maharashtra, Karnataka, Kerala and Tamil Nadu have their own State Maritime Boards. On the other hand, Goa, West Bengal and Puducherry have Maritime Security Committee. Maritime Advisory Committee exists in Daman & Diu, Andaman & Nicobar Islands and Lakshadweep. Andhra Pradesh has enacted State Maritime Board Act in 2019 while Odisha is yet to frame such legislation.

In the 17th meeting of the NCSMCS held on September 23, 2019 it was declared that all the coastal states/UTs should include a representative of Indian Navy, Indian Coast Guard, and the Coastal Security Police as member or special invitee in the State Maritime Boards.

- **Security of non-major ports is required**

Coastal States have 227 non-major ports; MHA has issued guidelines (it contains details about security requirements) for the strengthening of all the non-major ports. State Fisheries Department are required to adhere to MHA guidelines in this regard.

- **Coastal Mapping to be done in all the concerned States/UTs**

It is the important step towards strengthening of coastal security in the coastal states/UTs. Coastal mapping refers to the process of putting all the relevant information about Coastal Police Stations, local Police Stations, Intelligence set up, fish landing points, Ports, Custom Check Posts on the map. Among all the concerned states/UTs, Lakshadweep has not done anything for coastal mapping.

- **Notification of Coastal Police Stations to deal with all crimes committed in International Waters**

Ministry of Home Affairs through its notification dated June 13, 2016 has notified 10 Coastal Police Stations to deal with crimes committed in International waters i.e., their jurisdiction extends beyond territorial waters and reach up to Exclusive Economic Zone (EEZ).

- **Security of Islands as another prerogative of the Coastal States/UTs**

NCSMCS in its 10th meeting outlined the 'Holistic Development of Island'. MHA identified 1382 off-shore islands whose security has to be maintained by the concerned Coastal States/UTs.

- **Coastal Security Exercises and Coastal Security Operations**

Standard Operating Procedures (SOP) were instituted by the Coast Guard for coordination among the concerned stakeholders on coastal security. Coastal Security Exercises are conducted by the Coast Guard with the coastal states/UTs. These exercises are held bi-annually and SOPs are validated during the time span of the exercises. Coastal Security Operations are undertaken by the Coast Guard after receiving intelligence inputs.

- **Community Interaction Programme (CIP) to make fishermen the eyes of the Coastal Security Forces**

The Coast Guard conducts CIP to reach out to fishermen and raise awareness about safety issues at sea. Through CIP fishing community is sensitized towards coastal security issues and fishermen are given training to gather intelligence while at the sea or on the lands.



**CHAPTER 2: RESEARCH
METHODOLOGY**

2.1 Research Study Work Flow

Objectives of the Study

The main aim of the study is to evaluate the effectiveness of the Scheme and whether the Scheme has been successful in achieving its objective of strengthening infrastructure of Marine Police Force for patrolling and surveillance of coastal areas, particularly shallow areas close to the coast. The study also assessed how robust are the institutional mechanisms at the state level to deal with the coastal security issues.

To meet the above objective following steps of research process were followed.:

Step 1 - Preliminary study: This step involved the review of literature and discussions with Department of Border Management, MHA: -

- Study of Scheme Brief, financial assistant involved.
- Annual report submitted to government
- Scheme related documents

Step 2 - Detailed discussion with the BM Team

Step 3 - Primary data collection involved:

- Development of instruments for the study
- Conduct in-depth interview and discussion with officials.

Step 4: Data analysis and report writing

2.2 Methodology

The IIPA team applied a balanced approach of quantitative and qualitative methodology for data collection and analysis. The research study comprised of the identification of primary and secondary sources of information and the gathering of other relevant information through literature review. In order to gather detailed information for the study, data was largely collected from BM Division through personal interviews and visits.

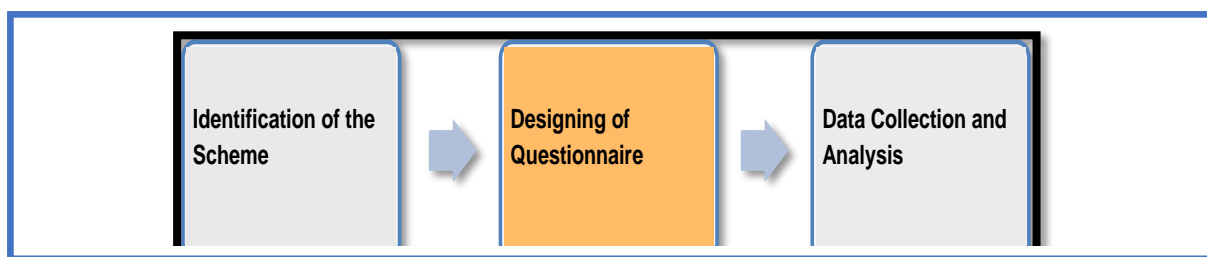


Figure 2.1: Research Methodology Process

The detailed research methodology followed by the study team is given below-

1. Scope of the Study

For the evaluation of the CSS (Phase-II), the nine coastal States, namely Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Odisha, and West Bengal, and four coastal Union Territories, namely Daman & Diu, Lakshadweep, Puducherry, and Andaman & Nicobar Islands were studied.

2. Data Collection

A. Collection of Secondary Data

The study team collected secondary information from the following sources: -

- a) Official ministerial websites of MHA, MoD, MEA, IDSA, and Department of Fisheries etc.
- b) Reports, notifications and other documents as provided on several electronic platforms
- c) Copies of relevant documents provided by the MHA
- d) CSS (Phase-II) Brief, project status, and updated notifications related to scheme.

B. Collection of Primary Data

Primary data was collected in the form of questionnaires. Considering the evaluation study was carried out during the pandemic, data was largely collected from BM Division through personal interviews and visits.

3. Process Steps of Evaluation Study

The study evaluated the CSS (Phase-II), its evolution, progress, and prospects of the Scheme. The following process steps were carried out to study this Scheme:

a) Identification of the Scheme

The Scheme brief and documents provided by the MHA were analyzed and parameters were formulated. Based on the parameters the questionnaire was prepared and data was collected through official visits and personal interviews.

b) Designing of Questionnaires

Following parameters were taken into consideration for the evaluation study:

1. Visibility of the Scheme
2. Financial aid
3. Duties and responsibility of the three-tier security arrangement under CSS
4. Infrastructure of Marine Police Force for patrolling and surveillance of coastal areas
5. Current challenges being faced by the agencies
6. Benefits/outcomes
7. Other suggestions and recommendations

4. Data Analysis

1. The data was analysed using the mixed methodology approach. The detailed analysis is described below.
2. Descriptive statistics of the data was analysed and visualised using MS Excel.

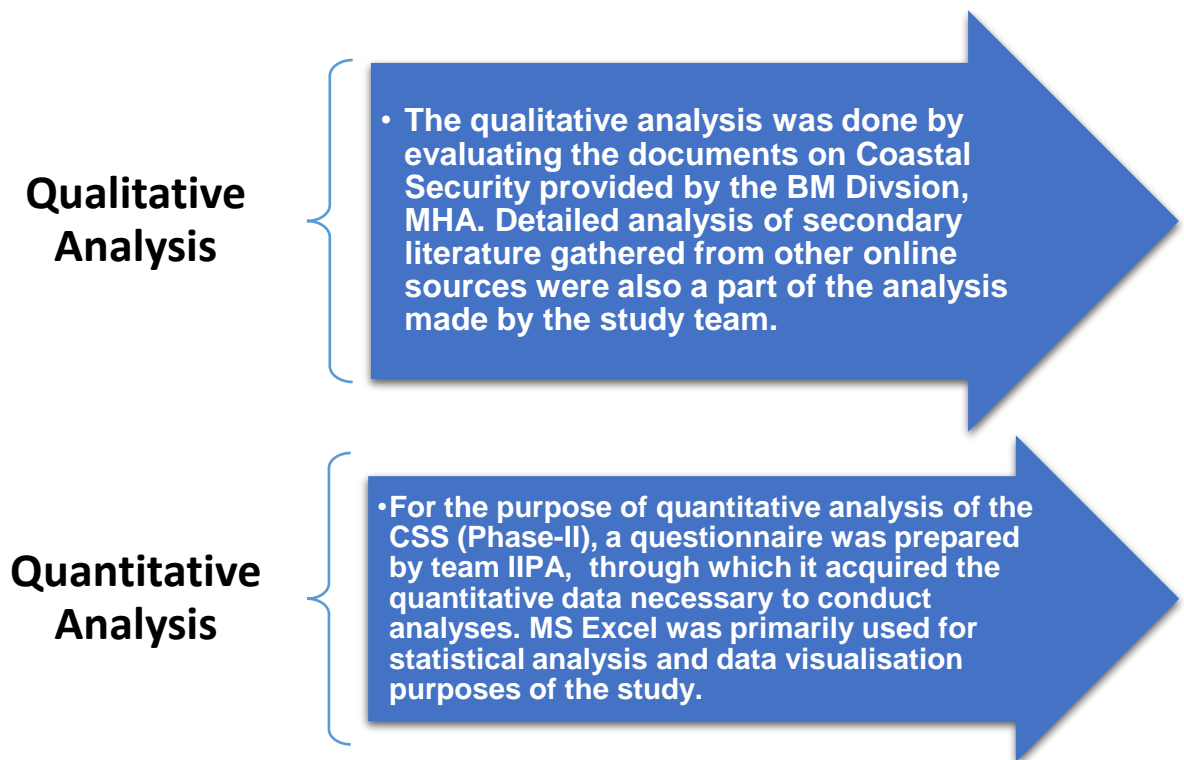


Figure 2.2: Qualitative and Quantitative Analyses

2.3 Limitations of the Study

The following were a few limitations of this study:

- The study took place during the Covid-19 pandemic, lack of field visits attribute to one of the major limitations of the study.
- Considering, the scheme pertains to the Maritime Security of the country, access to data was limited.
- Lastly, lack of interaction with all the stakeholders involved in Coastal Security Scheme due to various social and security reasons has inhibited the holistic evaluation of the study.

Study Duration: Two Months (May and June 2020)

CHAPTER 3: DATA ANALYSIS AND FINDINGS

3.1 DATA ANALYSIS

3.1.1 Infrastructure & Finance:

Table 3.1: Coastline lengths of all the Indian coastal States/UTs

State/UT	Coastline Length (in kilometres)
Gujarat	1214.70
Maharashtra	652.60
Goa	101.00
Karnataka	280.00
Kerala	569.70
Tamil Nadu	906.90
Andhra Pradesh	973.70
Odisha	476.40
West Bengal	157.50
Daman & Diu	42.50
Puducherry	47.60
Lakshadweep	132.00
A&N Islands	1962.00
TOTAL	7516.60

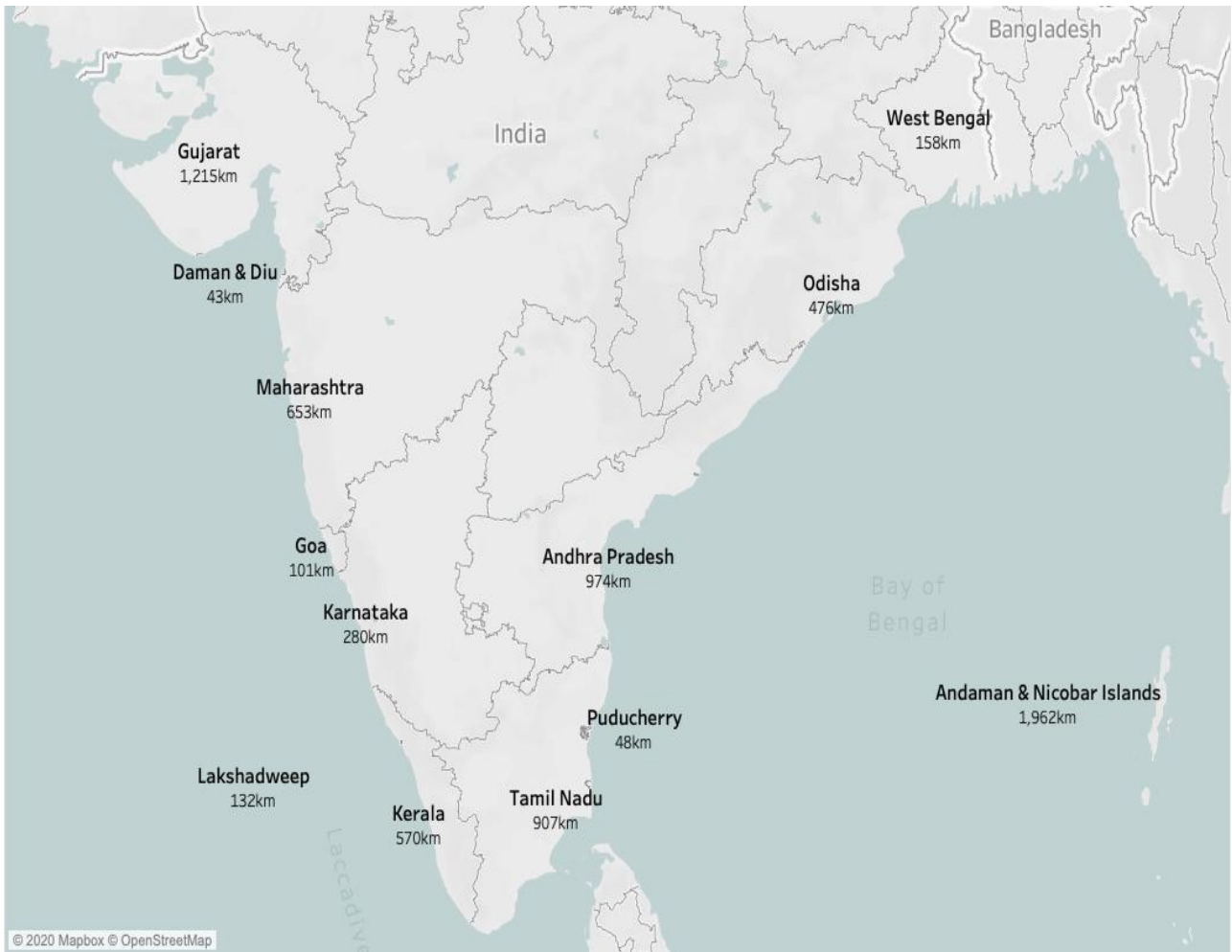


Figure 3.1(a): Coastline lengths of all the Indian coastal States/UTs

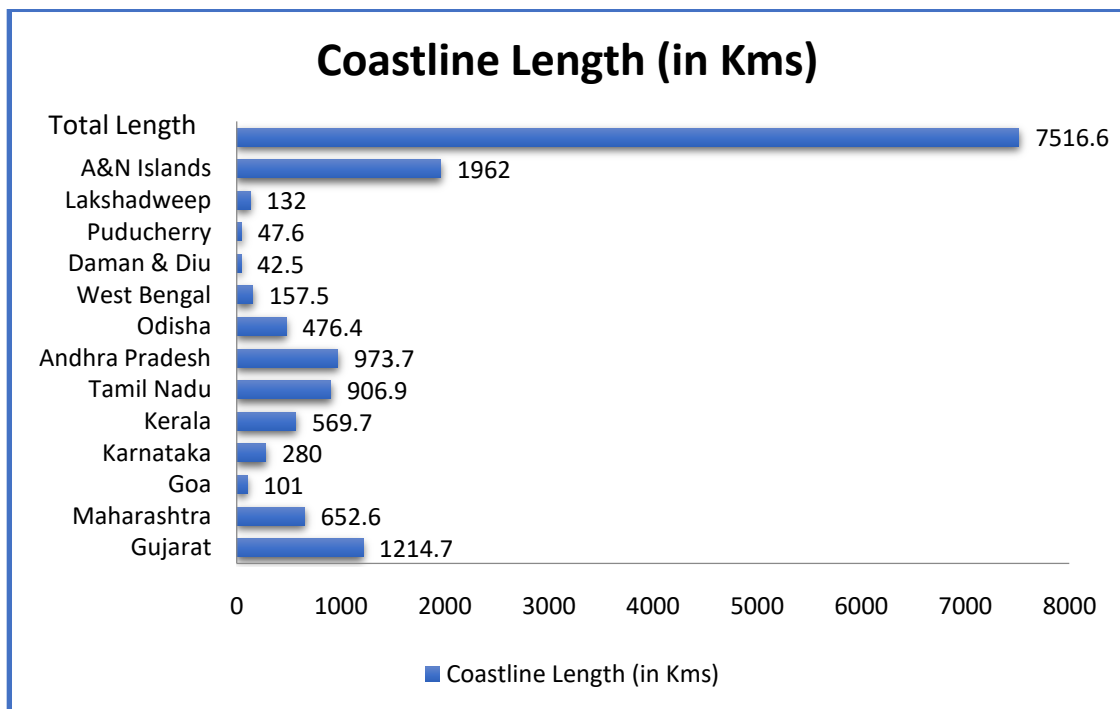


Figure 3.1(b): Coastline lengths of all the Indian coastal States/UTs

Table 3.2: Number of coastal police stations per State/UT

STATE/UT	Sanctioned	Operational	Constructed	Construction Underway	Construction Pending
Gujarat	12	12	11	1	0
Maharashtra	7	7	4	0	3
Goa	4	4	1	2	1
Karnataka	4	4	4	0	0
Kerala	10	10	10	0	0
Tamil Nadu	30	30	30	0	0
Andhra Pradesh	15	15	15	0	0
Odisha	13	13	11	2	0
West Bengal	8	8	6	2	0
Daman & Diu	2	2	2	0	0
Puducherry	3	3	2	1	0
Lakshadweep	3	3	1	2	0
A&N Islands	20	20	20	0	0
TOTAL	131	131	117	10	4

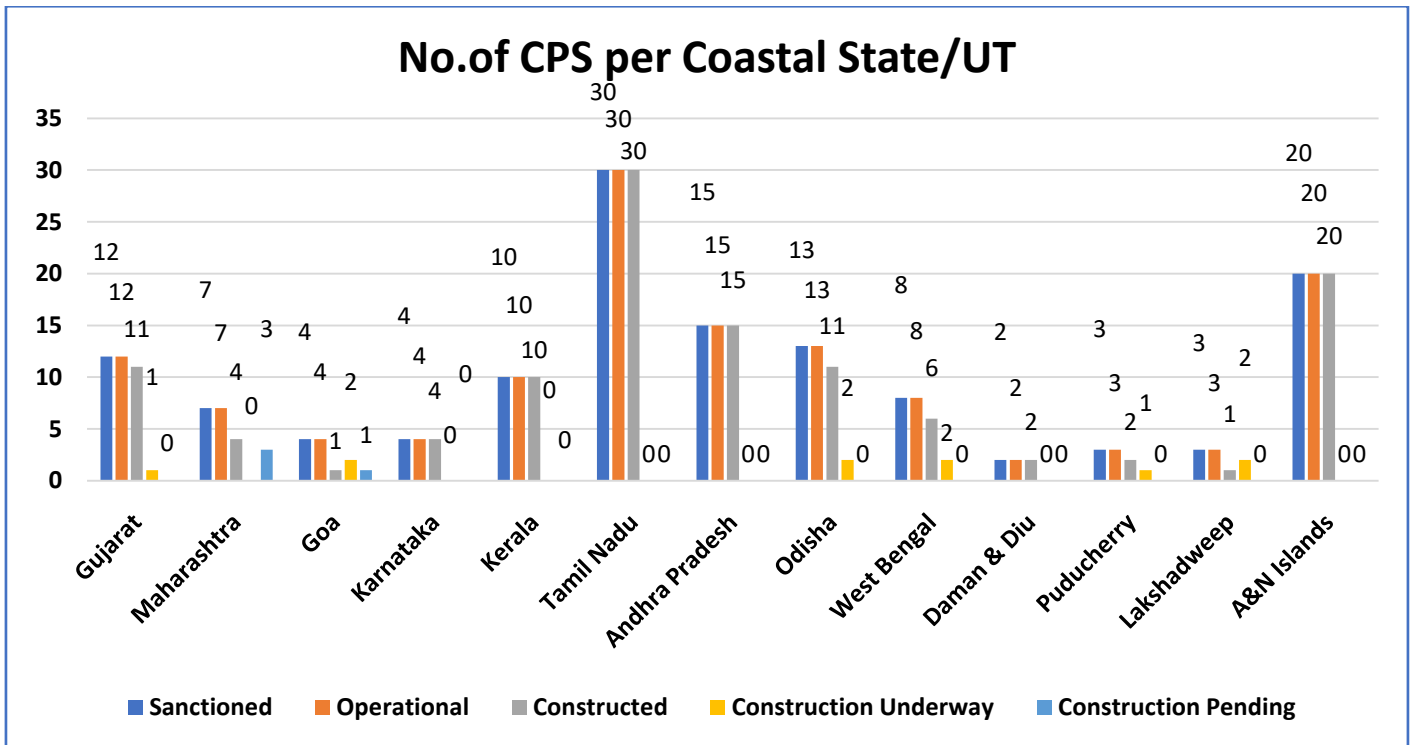


Figure 3.2: Number of coastal police stations per State/UT

Table 3.2 and Figure 3.2 state the number of coastal police stations (sanctioned, operational, constructed, under construction, and to be constructed) per State/UT. It is evident from the graph that Tamil Nadu has the highest number of coastal police stations sanctioned and constructed (30), whereas Puducherry and Lakshadweep have the least number of coastal police stations sanctioned (3 each). However, Goa and Lakshadweep have the least number of fully constructed coastal police stations. Out of the total no. of sanctioned coastal police stations (131), 117 have been constructed. Thus, nearly 90% of all coastal police stations are constructed and operational.

Table 3.3: Amount of funding disbursed to each State/UT

STATE/UT	AMOUNT OF FUNDS DISBURSED (in Crores of Rs.)	PERCENTAGE	Coastline Length (in km)	Amount of funding disbursed per kilometre of coastline (in Rs. Per km)
Gujarat	11.044	8.36%	1214.70	₹90,919.57
Maharashtra	7.1298	5.40%	652.60	₹1,09,252.22
Goa	3.848	2.91%	101.00	₹3,80,990.10
Karnataka	3.848	2.91%	280	₹137,428.00
Kerala	9.12	6.91%	569.70	₹1,60,084.25
Tamil Nadu	27.36	20.72%	906.90	₹3,01,687.07
Andhra Pradesh	14.18	10.74%	973.70	₹1,45,630.07
Odisha	11.756	8.90%	476.4	₹2,46,767.42
West Bengal	7.696	5.83%	157.50	₹4,88,634.92
Daman & Diu	2.424	1.84%	42.50	₹5,70,352.94
Lakshadweep	3.496	2.65%	47.60	₹7,34,453.78
Puducherry	3.136	2.37%	132.00	₹2,37,575.76
A&N Islands	27.02	20.46%	1962.00	₹1,37,716.62
TOTAL	132.0578	100.00%	7516.60	

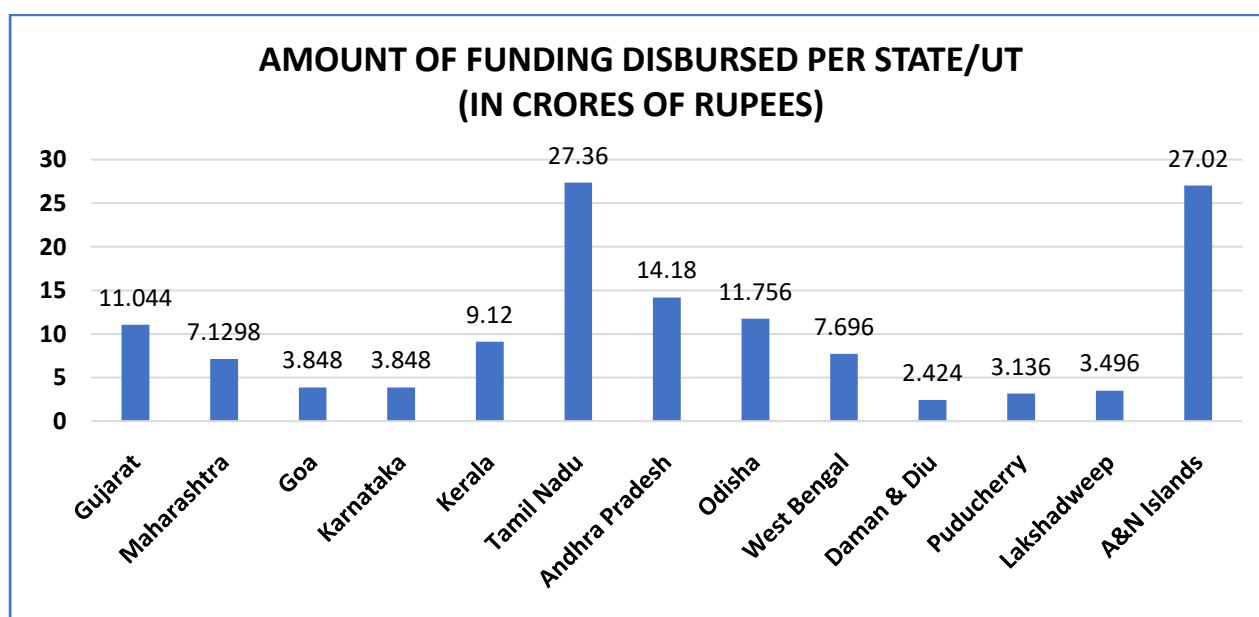


Figure 3.3: Amount of funding disbursed to each State/UT

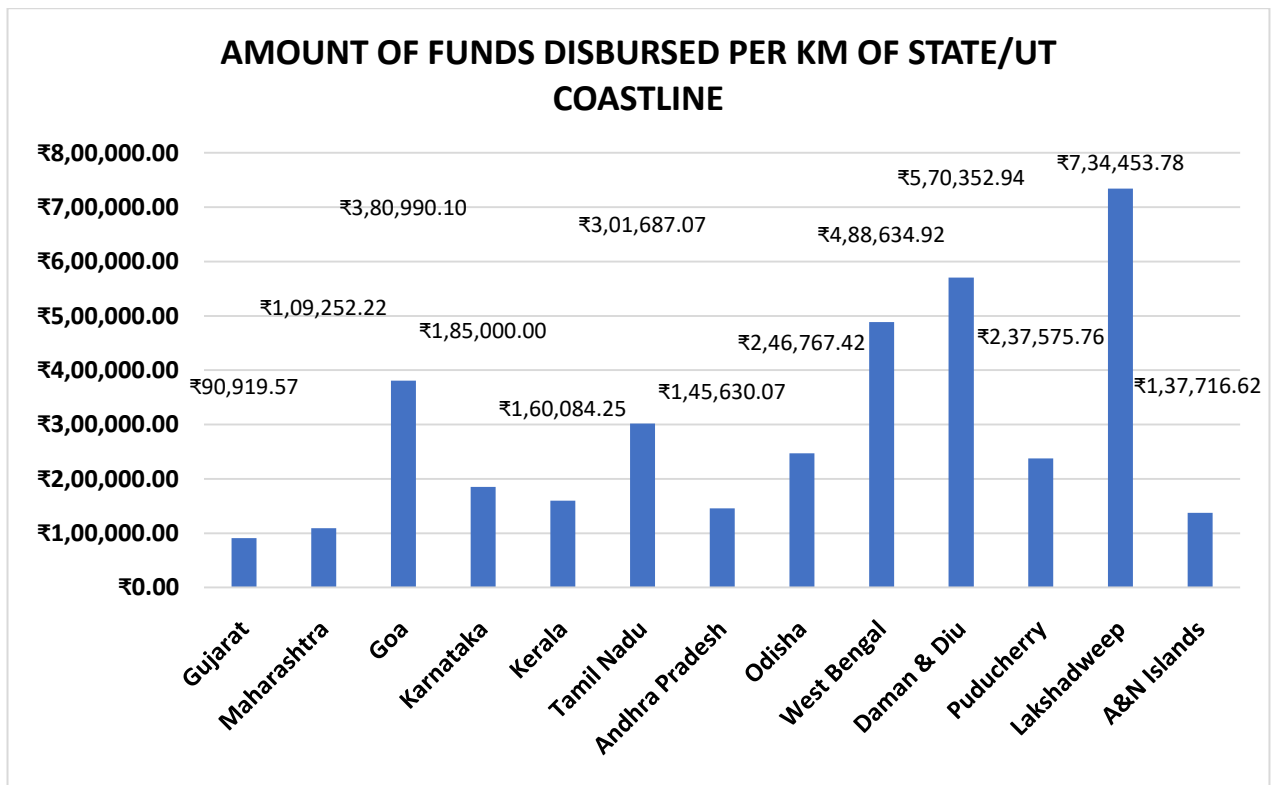


Figure 3.4: Amount of Funds Disbursed per km of State/UT Coastline

Figure 3.3 simply states the amount of funding disbursed to each State/UT. It is evident from the graph that Tamil Nadu received the highest amount of funding (Rs. 27.36 Crore) closely followed by Andaman and Nicobar Islands (Rs. 27.02 Crores), whereas Daman and Diu was disbursed with the least amount of funds (Rs. 2.42 Crores). Figure 3.4 shows the amount of funding disbursed to each State/UT accounting for the coastline of that State/UT. It can be seen that Gujarat has received only Rs. 90,919.57 per kilometre of its coastline, which is the least amount, whereas Lakshadweep has received the highest amount of disbursement accounting for its coastline (Rs. 7,34,453.78 per kilometre). These numbers may also be seen in Table 3.3. The last column shows the amount of funding disbursed per kilometre of coastline. The average amount disbursed per kilometre of coastline is Rs. 2,87,807.13. States that have above-average funding per kilometre have been shaded in darker shades of blue, the darkest being the State with the highest funding (Lakshadweep) and vice versa.

Table 3.4: Percentage of Funds Utilised out of Disbursed funds

STATE/UT	AMOUNT OF FUNDING UTILISED (in Crores of Rupees)	PERCENTAGE OF FUNDING UTILISED
Gujarat	9.61	87.02%
Maharashtra	6.81	95.51%
Goa	3.05	79.26%
Karnataka	2.78	72.25%
Kerala	8.55	93.75%
Tamil Nadu	20.35	74.38%
Andhra Pradesh	11.01	77.64%
Odisha	10.68	90.85%
West Bengal	4.51	58.60%
Daman & Diu	2.31	95.30%
Puducherry	2.44	77.81%
Lakshadweep	0.49	14.02%
A&N Islands	14.1	52.18%
TOTAL	82.59	73.22%

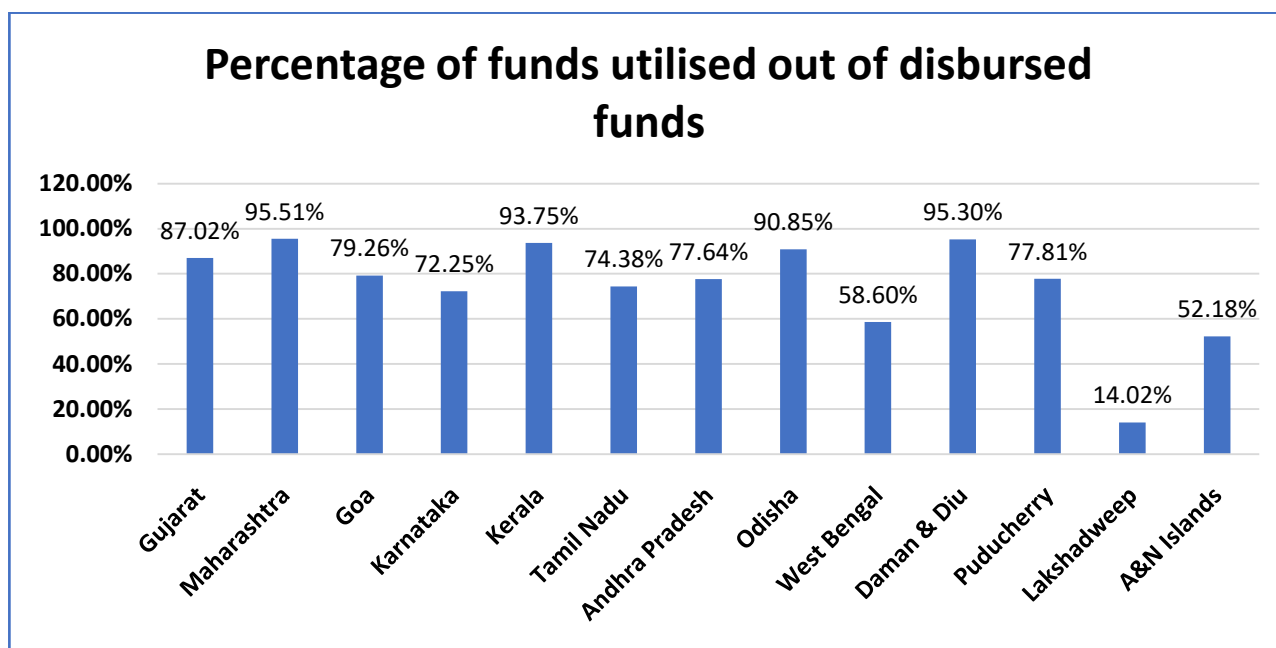


Figure 3.5: Percentage of funding utilised out of disbursed funds

Table 3.4 represents the amount of funds utilised by each State/UT (in Lakhs) out of the funds disbursed. It can be seen that Tamil Nadu utilised the highest amount of funds (Rs. 20.35 Crores), while Lakshadweep had the least amount of utilisation (Rs. 50 lakhs approximately). A total of Rs. 82.59 Crores have been utilised so far. Table 3.4 and Figure 3.5 also show the percentage of funds utilised out of the disbursed funds for each State/UT. Maharashtra has used up the highest proportion of its disbursed funds (95.51%; Rs. 6.81 crores out of Rs. 7.12 crores) closely followed by Daman & Diu (95.3%), whereas Lakshadweep used up the least percentage of its disbursed funds (14.02%; Rs. 49 lakhs out of Rs. 3.13 crores).

Table 3.5: No. of infrastructure elements per 100km State/UT coastline

State/UT	No. of Operational CPS	No. of four-wheelers	No. of two-wheelers	No. of Operational CPS per 100km of coastline	No. of four-wheelers per 100km of coastline	No. of two-wheelers per 100km of coastline
Gujarat	12	12	24	0.99	0.99	1.98
Maharashtra	7	7	14	1.07	1.07	2.15
Goa	4	4	8	3.96	3.96	7.92
Karnataka	4	4	8	1.43	1.43	2.86
Kerala	10	10	20	1.76	1.76	3.51
Tamil Nadu	30	30	60	3.31	3.31	6.62
Andhra Pradesh	15	15	30	1.54	1.54	3.08
Odisha	13	13	26	2.73	2.73	5.46
West Bengal	8	8	16	5.08	5.08	10.16
Daman & Diu	2	2	4	4.71	4.71	9.41
Puducherry	3	3	6	6.30	6.30	12.61
Lakshadweep	3	3	6	2.27	2.27	4.55
A&N Islands	20	20	20	1.02	1.02	1.02
TOTAL	131	131	242			

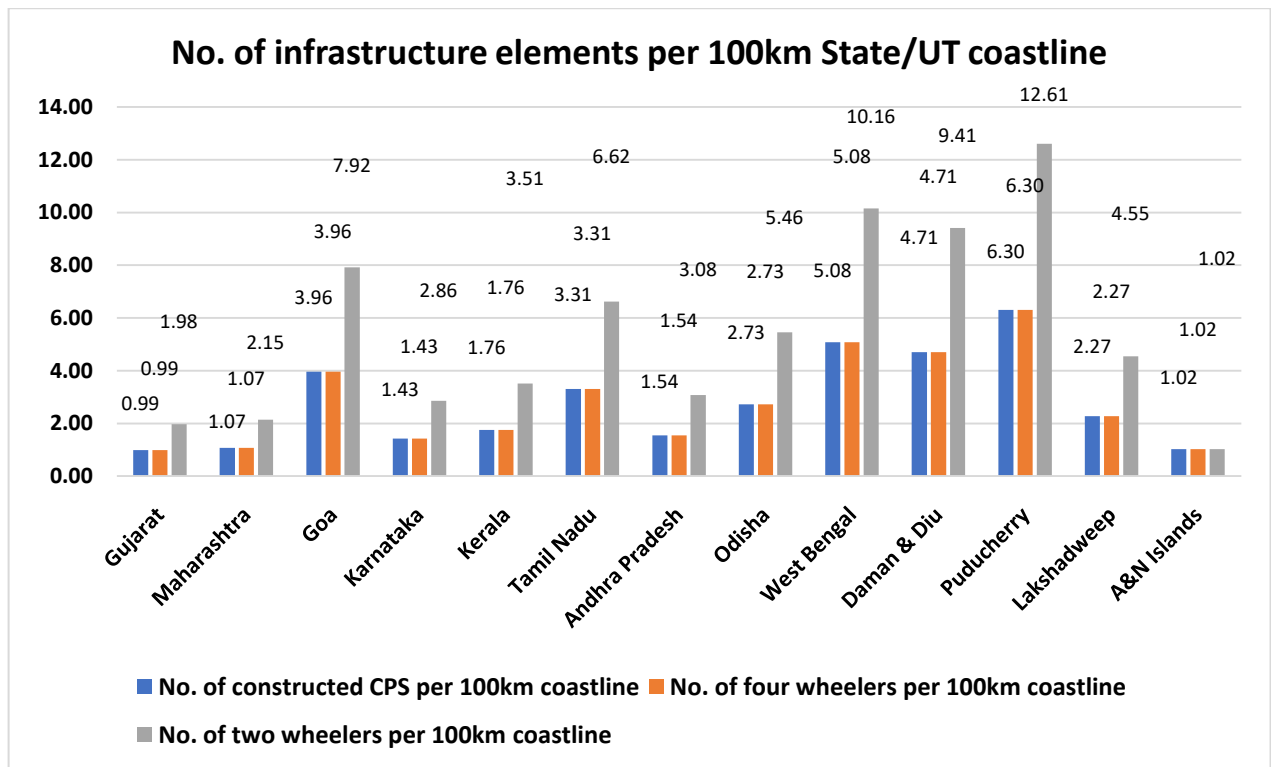


Figure 3.6: *No. of infrastructure elements per 100km of State/UT coastline*

Table 3.5 and Figure 3.6 visualise the number of infrastructure elements per 100km of State/UT coastline. It simply shows how many constructed coastal police stations, four wheelers, and two wheelers were available for use per 100km of coastline of that State/UT. It is evident from the graph that Puducherry had the highest no. of coastal police stations, motorcycles, and jeeps available per 100km of its coastline (a little over 12 coastal police stations and 6 four wheelers and 6 two wheelers per 100km), whereas Andaman & Nicobar Islands had the least number of CPS (almost 1 per 100km) and Gujarat had the least number of two-wheelers and four-wheelers (almost 1 each per 100km).

Table 3.6: No. of jetties sanctioned and constructed/upgraded per State/UT

State/UT	Jetties Sanctioned	Jetties Constructed/Upgraded
Gujarat	5	0
Maharashtra	3	14
Goa	2	2
Karnataka	2	0
Kerala	4	2
Tamil Nadu	12	5
Andhra Pradesh	7	0
Odisha	5	2
West Bengal	4	0
Daman & Diu	2	2
Puducherry	2	2
Lakshadweep	2	1
A&N Islands	10	8
TOTAL	60	38

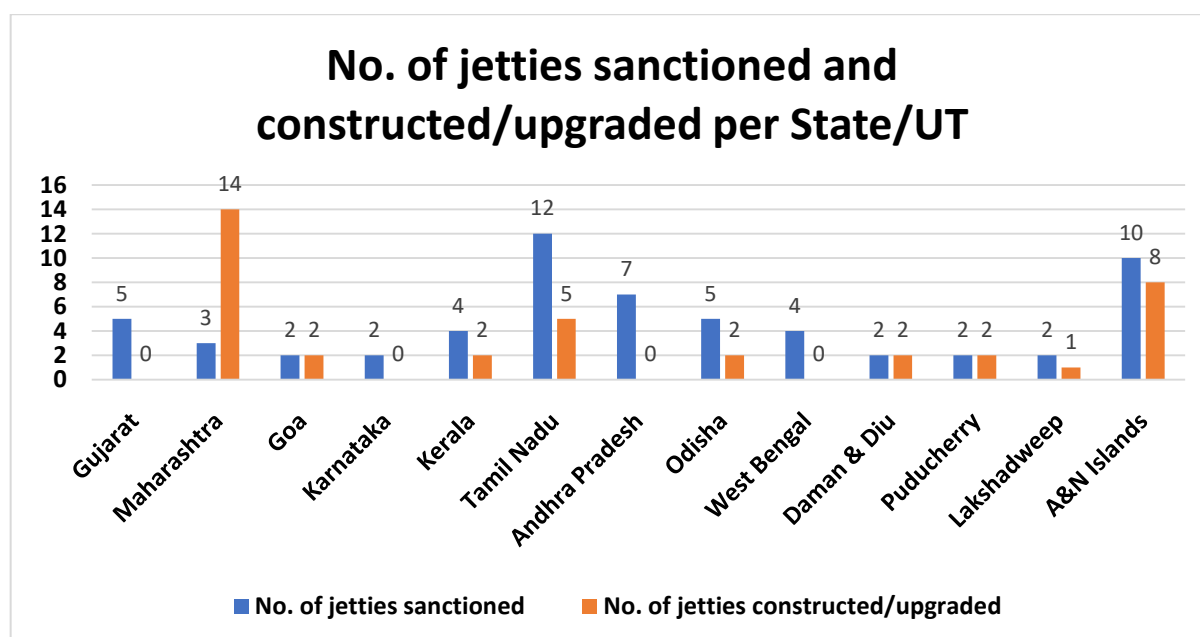


Figure 3.7: No. of jetties constructed/upgraded per State/UT

Table 3.6 and Figure 3.7 show the number of jetties constructed/upgraded per State/UT. It is evident from the above graph that highest numbers of jetties were sanctioned to Tamil Nadu (12) followed by A&N Islands (10). Although, 5 and 8 were jetties constructed by Tamil Nadu and

A&N Islands respectively. Maharashtra is utilizing the 14 Jetties of Maharashtra Maritime Board (MMB) on full-time basis against the 03 sanctioned jetties for which an additional grant of Rs. 64.58 lakh has been released to the State. On the other hand, Andhra Pradesh, Karnataka, Gujarat and West Bengal each had no jetties constructed. Out of the total 60 jetties sanctioned, 38 were constructed. Thus, 63.33% of jetties construction is complete as of the completion of this study.

3.1.2 Manpower Strength

According to the Standard Operating Procedure handbook for Coastal Police Stations by BPR&D, MHA, the following should be the manpower structure for each coastal police station:

Staff of each CPS:

Overall in-charge: 1 Inspector

Boat Patrolling: 3SIs/ASIs, 3 HCs, 9 PCs (In 3 shifts)

Intelligence collection: 1 SI/ASI, 2 HCs, 5 PCs

Crime Investigation: 1SI/ASI, 2 HCs, 5 PCs

Vehicle/Land Patrolling: 3 SIs/ASIs, 3 HCs, 9 PCs (in 3 shifts)

Routine PS Duties: 2 SIs/ASIs, 3 HCs, 10 PCs

Check Post duties: 3 HCs, 6 PCs

Thus, ideally a coastal police station must have the following number of posts:

Inspector: 1

Sub-inspector (SI): 10

Assistant sub-inspector (ASI): 10

Head constable (HC): 16

Police constable (PC): 44

Boat Crew:

Master: 1

Syrang: 1

Engine Driver: 1

Dingi Driver: 1

Khalasis: 2

Manpower strength of all the coastal States/UTs is given below:

Maharashtra

18 SIs (Ist Class Engine Driver – Ex-servicemen) and 21 SIs (IInd Class Master – Ex-servicemen) are working as Marine Police in Maharashtra. Given that Maharashtra has 7 CPS, there should ideally be 70 sanctioned posts for SIs, out of which 39 are active. Thus, there is only 55.71% active manpower for SI post in Maharashtra.

Goa

Goa has 5 Inspectors, 3 SIs, 13 ASIs, 69 Hawaldars (HCs), and 73 PCs. Given that Goa has 4 CPSs, it should ideally have 4 Inspectors, 40 SIs, 40 ASIs, 64 HCs and 176 PCs across all its CPSs. Even though Goa CPS have an ideal no. of Inspectors (5) and Head Constables (69), the manpower in other posts falls short: 7.5% SIs, 32.5% ASIs, and 41.48% PCs.

Tamil Nadu

25 technical boat staff has been recruited. Each boat requires 6 technical crew members to be recruited, which in Tamil Nadu's case would require 144 people to be recruited as boat crew as Tamil Nadu has a total of 24 boats. Thus, there is only 17.36% technical manpower available for manning boats in Tamil Nadu.

Odisha

Odisha has a total of 15 boats, which would ideally require a total of 90 crew members. However, 78 technical personnel are deployed, which means Odisha has 86.67% of manpower available for manning its boats.

West Bengal

West Bengal has 5 Superintendents (instead of Inspectors) in charge of its 5 coastal districts. Given that West Bengal has 8 operational CPSs, there should ideally be 8 Inspectors deployed. However, there is only 62.5% active manpower is Inspector, or in this case SP, post of CPSs.

Andaman & Nicobar Islands

Andaman and Nicobar Islands have a separate cadre for Coastal Police. This implies that manpower shortage may not be an issue for the UT. In addition, ex-servicemen of the Navy and Indian Coast Guard have been recruited.

Average annual running hours of each boat of Gujarat, Maharashtra, Tamil Nadu, Andhra Pradesh, and Andaman & Nicobar Islands

Under the Coastal Security Scheme, boats/vessels of each State/UT were eligible for financial reimbursement of POL (Petrol, Oil, and Lubricants) expenses worth Rs. 4 lakh (for each 5-ton boat) and Rs. 5 lakh (for each 12-ton boat) given that individual boat operates for at least a total of 1800 hours in a year. These expenses are for POL work, which is essentially the mechanical maintenance expenses of the boats. States and UTs have to apply for POL expense reimbursements by submitting data on running hours of their boats. The data was taken from Gujarat, Maharashtra, Andhra Pradesh, Tamil Nadu, and Andaman & Nicobar Islands for the purpose of analysis. The total numbers of running hours were calculated for all years of the boats operation (excluding years in which the boat wasn't commissioned yet or had become non-operational). However, certain boats from Gujarat had recorded quarterly running hours of over 2160 hours (3 months x 30 days x 24 hours), which is the total number of hours in a quarter with 90 days. Data of such boats has been excluded from the analysis. The average no. of running hours across operational years of all the boats for the four aforementioned States/UTs is mentioned below:

Table 3.7: Average annual running hours of each boat of Gujarat, Maharashtra, Tamil Nadu, Andhra Pradesh, and Andaman & Nicobar Islands

S. No	Gujarat	Maharashtra	Tamil Nadu	Andhra Pradesh	Andaman & Nicobar Islands
Boat #1	948.7	296.3	402.3	252.4	277.6
Boat #2	687.7	252.9	339.4	106.6	258.3
Boat #3	768.1	268.0	269.1	286.7	256.6
Boat #4	204.7	355.5	0.0 (condemned)	415.1	200.9
Boat #5	286.4	276.0	0.0 (condemned)	657.1	400.8
Boat #6	475.9	598.2	208.5	357.8	238.3
Boat #7	598.6	553.6	218.2	382.5	367.5
Boat #8	253.1	428.6	320.5	222.1	177.9
Boat #9	469.9	473.9	254.4	605.0	430.7
Boat #10	298.1	358.8	270.1	138.6	211.0
Boat #11	601.9	303.7	321.9	403.4	-
Boat #12	543.3	500.2	622.5	682.5	-
Boat #13	488.5	392.1	397.8	326.1	-
Boat #14	374.9	313.4	188.4	288.2	-
Boat #15	434.2	386.4	339.3	299.6	-
Boat #16	236.3	353.7	422.0	304.9	-

Boat #17	366.1	348.7	279.6	585.9	-
Boat #18	279.6	377.2	183.5	470.0	-
Boat #19	279.5	243.1	348.6	-	-
Boat #20	353.5	226.1	549.3	-	-
Boat #21	627.5	209.3	733.3	-	-
Boat #22	297.9	191.0	343.3	-	-
Boat #23	269.5	180.4	295.3	-	-
Boat #24	154.5	159.0	584.5	-	-
Boat #25	356.7	211.8	-	-	-
Boat #26	486.8	261.7	-	-	-
Boat #27	662.1	269.9	-	-	-
Boat #28	398.7	295.1	-	-	-
Boat #29	662.4	-	-	-	
Boat #30	310.7	-	-	-	
AVERAGE	439.2	324.5	328.8	376.9	282.0

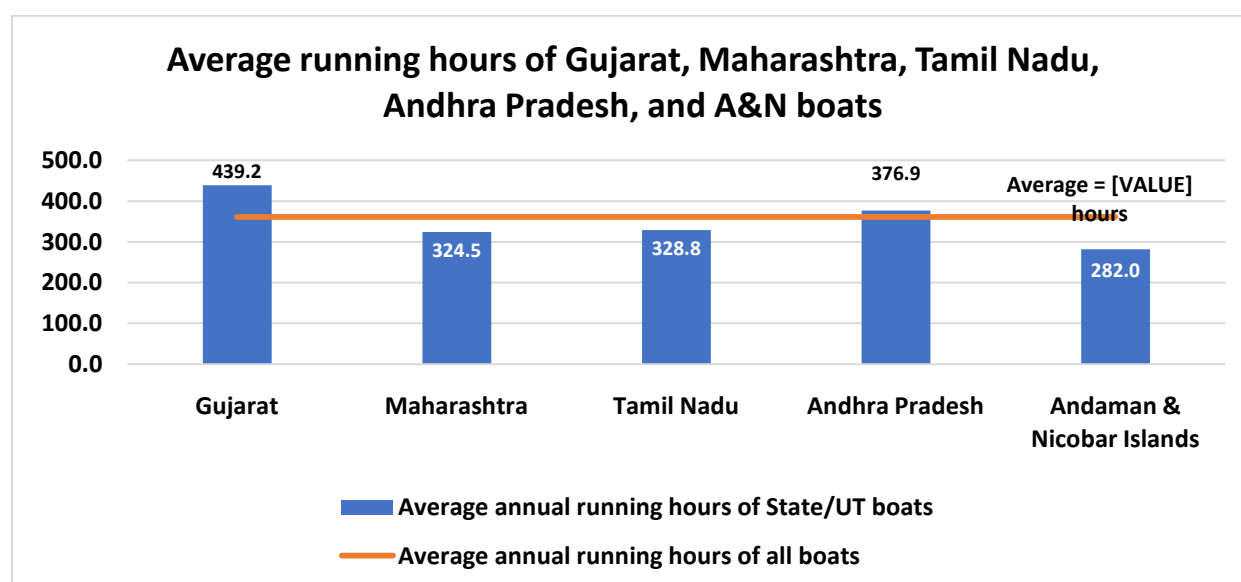


Figure 3.8: Average running hours of Gujarat, Maharashtra, Tamil Nadu, Andhra Pradesh, and A&N Islands boats

It is evident from Table 3.7 and Figure 3.8 that none of the boats had an average of at least 1800 running hours. This is due to the fact that all the boats had running hours significantly less than 1800 hours in every single year since 2009-2010 (excluding non-operational years). If we consider the above boat data 5 States/UTs as sample data for all the coastal States/UTs, it may be said that the overall annual average running hours of all the boats is 361.4 hours, which is significantly less than the 1800 hours standard.

The following table shows the operational status of the same boats of the 5 coastal States/UTs:

Table 3.8: Operational status of Gujarat, Maharashtra, Tamil Nadu, Andhra Pradesh, and Andaman & Nicobar Islands boats

Assets	Gujarat	Maharashtra	Tamil Nadu	Andhra Pradesh	Andaman & Nicobar Islands
Boat #1	Operational	Operational	Non-operational	Non-operational	Operational
Boat #2	Operational	Operational	Non-operational	Non-operational	Operational
Boat #3	Operational	Operational	Non-operational	Non-operational	Non-operational
Boat #4	Operational	Non-operational	Non-operational	Non-operational	Operational
Boat #5	Operational	Non-operational	Non-operational	Non-operational	Operational
Boat #6	Non-operational	Non-operational	Operational	Operational	Operational
Boat #7	Operational	Non-operational	Non-operational	Non-operational	Non-operational
Boat #8	Operational	Operational	Non-operational	Non-operational	Non-operational
Boat #9	Operational	Non-operational	Non-operational	Non-operational	Non-operational
Boat #10	Non-operational	Non-operational	Non-operational	Non-operational	Operational
Boat #11	Operational	Non-operational	Non-operational	Non-operational	-
Boat #12	Operational	Non-operational	Non-operational	Operational	-
Boat #13	Operational	Non-operational	Non-operational	Non-operational	-

Assets	Gujarat	Maharashtra	Tamil Nadu	Andhra Pradesh	Andaman & Nicobar Islands
Boat #14	Operational	Operational	Non-operational	Non-operational	-
Boat #15	Operational	Operational	Non-operational	Operational	-
Boat #16	Operational	Operational	Non-operational	Non-operational	-
Boat #17	Operational	Operational	Non-operational	Non-operational	-
Boat #18	Operational	Operational	Non-operational	Non-operational	-
Boat #22	Non-operational	Operational	Non-operational	-	-
Boat #23	Non-operational	Operational	Non-operational	-	-
Boat #24	Operational	Non-operational	Operational	-	-
Boat #25	Non-operational	Non-operational	-	-	-
Boat #26	Operational	Operational	-	-	-
Boat #27	Operational	Operational	-	-	-
Boat #28	Non-operational	Operational	-	-	-
Boat #29	Non-operational				
Boat #30	Operational				
OPERATIONAL	23	17	2	3	6
NON-OPERATIONAL	7	11	22	15	4
%AGE OF OPERATIONAL BOATS	76.67%	60.71%	8.33%	16.67%	60%

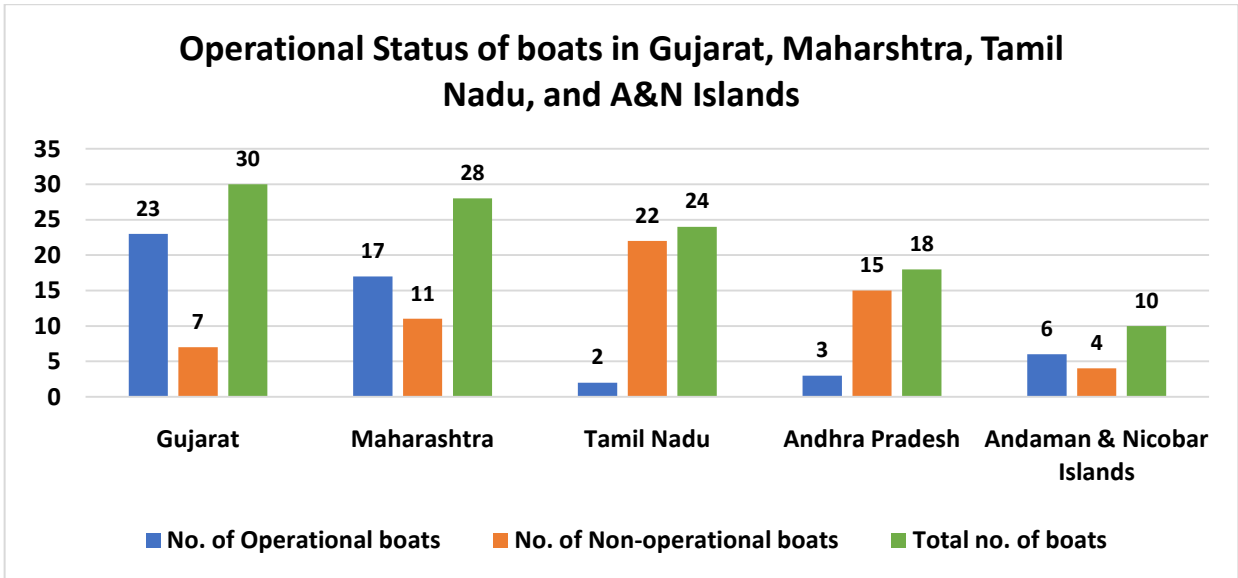


Figure 3.9: Operational Status of boats in Gujarat, Maharashtra, Tamil Nadu, Andhra Pradesh, and A&N Islands

Table 3.8 and Figure 3.9 show us the number of operational, non-operational, and the total number of boats of the five aforementioned States/UTs. From the last row of Table 3.8, we can see the percentage of operational boats for each State/UT. It is apparent that the percentage of operational boats in each of the State/UT is significantly low. With the exception of Gujarat, Maharashtra, and Andaman & Nicobar Islands, all other States/UTs in consideration have significantly lesser numbers of operational boats than non-operational boats. If we consider the above four States/UTs as sample data for all the coastal States/UTs, it may be said that the overall percentage of operational boats in all coastal States/UTs is 46.36%.

Table 3.9: POL fund released for all coastal States/UTs in CSS-II (Lakhs of Rupees)

STATE	12 Ton boats	5 Ton Boats	Eligibility	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
Gujarat	20	10	1680.00	166	0.00	134.45	0.00	0.00	0.00	0.00	0.00	0.00
Maharashtra	6	22	1416.00	145	0.00	0.00	0.00	0.00	0.00	0.00	930.21	0.00
Goa	6	3	504.00	54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Karnataka	10	5	840.00	74	0.00	63.00	0.00	0.00	0.00	0.00	0.00	0.00
Kerala	16	8	1344.00	68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tamil Nadu	12	12	1296.00	128	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Andhra Pradesh	12	6	1008.00	149	0.00	8.23	0.00	0.00	0.00	0.00	0.00	0.00
Odisha	10	5	840.00	83	0.00	60.00	0.00	0.00	0.00	0.00	0.00	0.00
West Bengal	12	6	1008.00	78	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Puducherry	2	1	168.00	52	0.00	168.00	0.00	0.00	0.00	0.00	0.00	0.00
Lakshadweep	2	4	312.00	27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daman & Diu	2	2	216.00	53	0.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00
Andaman & Nicobar Islands	10	0	600.00	0	0.00	57.76	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	120	84	11232.00	1077.00	0.00	641.44	0.00	0.00	0.00	0.00	930.21	0.00

Table 3.10: Total POL Fund eligible for release and actually released to States/UTs (Lakhs of Rupees)

STATE	TOTAL AMOUNT RELEASED	TOTAL ELIGIBLE	PERCENTAGE OF FUND RELEASED
Gujarat	300.45	15120	1.99%
Maharashtra	1075.21	12744	8.44%
Goa	54	4536	1.19%
Karnataka	137	7560	1.81%
Kerala	68	12096	0.56%
Tamil Nadu	128	11664	1.10%
Andhra Pradesh	157.23	9072	1.73%
Odisha	143	7560	1.89%
West Bengal	178	9072	1.96%
Puducherry	220	1512	14.55%
Lakshadweep	27	2808	0.96%
Daman & Diu	103	1944	5.30%
Andaman & Nicobar Islands	57.76	5400	1.07%
TOTAL	2648.65	101088	2.62%

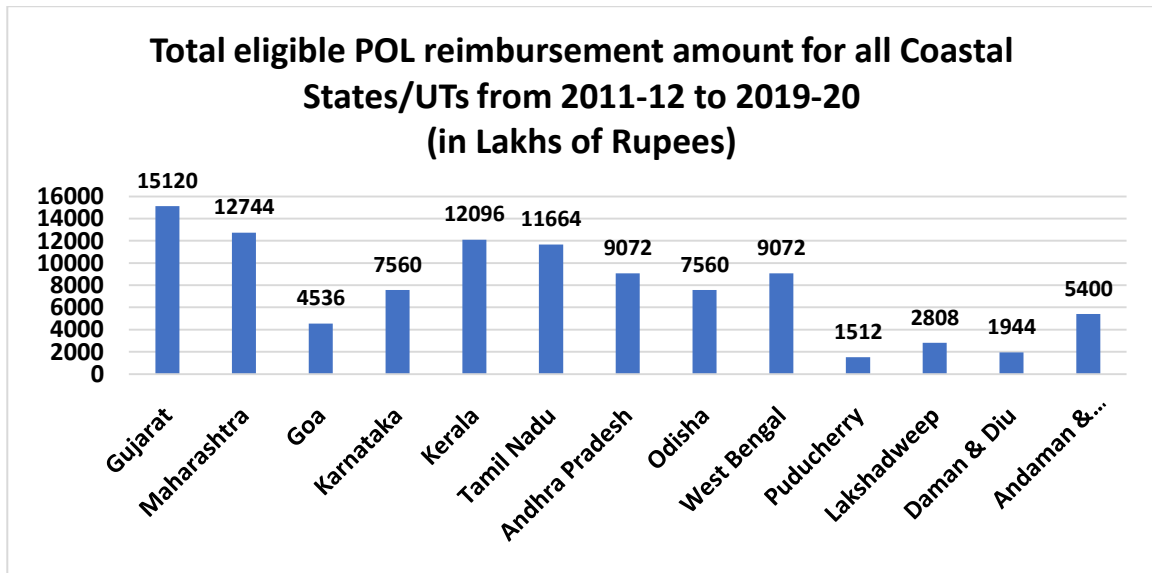


Figure 3.10: Total eligible POL reimbursement amount for all Coastal States/UTs from 2011-12 to 2019-20 (in Lakhs of Rupees)

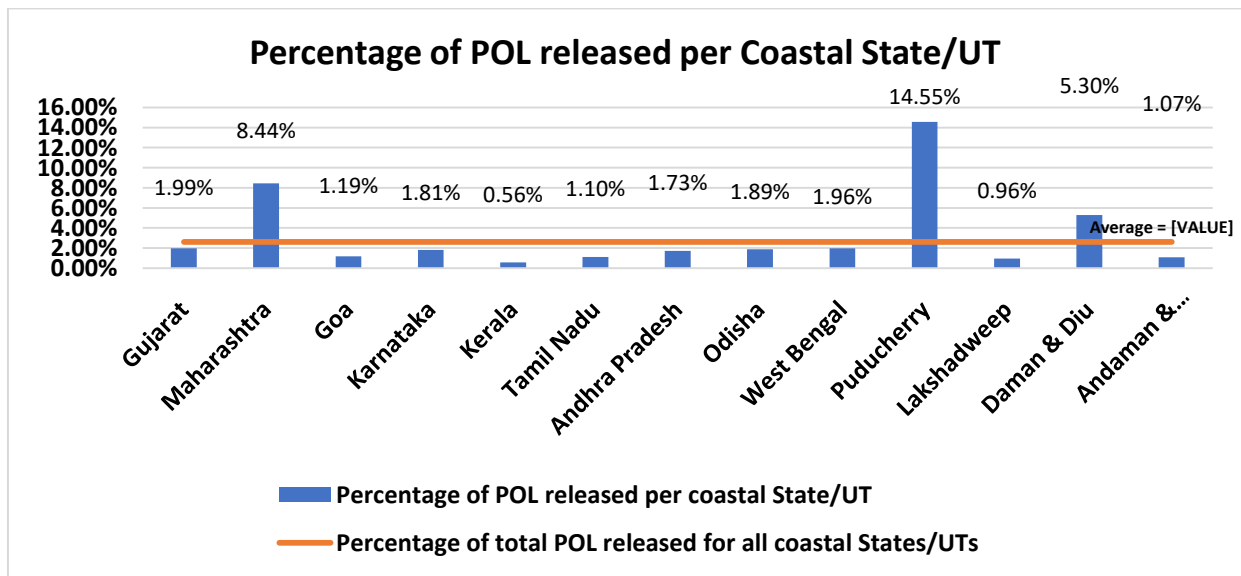


Figure 3.11: Percentage of POL released per Coastal State/UT

Table 3.9 shows the number of 12-Ton and 5-Ton boats of each coastal State/UT, the annual POL reimbursement eligibility and actual released amounts for years 2011-12 to 2019-20. Each 12-Ton boat and 5-Ton boat is eligible for POL reimbursement of Rs. 5 Lakh and Rs. 4 Lakh, respectively, subject to completing 1800 hours of operation in that particular year. Later, this release was turned into a pro-rata system, meaning if a 12-ton boat (eligible for 5 Lakhs Rupees) completes 900 hrs of operations out of 1800 hours, then it would receive 2.5 Lakh Rupees (50%) of eligible fund. Thus, the annual eligibility has been calculated by multiplying no. of 12-ton boats with Rs. 5 Lakhs and adding it to no. of 5-ton boats multiplied by Rs. 4 Lakhs for each

State/UT. The total amount eligible for POL reimbursement for all Coastal States/UTs from 2011-12 to 2019-20 has been projected in Figure 3.10 and Table 3.10.

In Table 3.10 and Figure 3.11, it is observed that total amount of fund released compared to the total amount of eligible reimbursement amount (annual reimbursement amount multiplied by 9) and the percentage of POL reimbursement that was actually released out of the eligible amount. The percentage of POL funds released have been quite low, ranging from 0.56% (in Kerala) to just 14.55% in Puducherry. Most coastal States/UTs had applied for around 1% of POL reimbursement of the total eligible amount in 9 years.

In view of the above, it is evident that only 2.62% of the total eligible fund has actually been claimed by the coastal States/UTs.

3.2 SUMMARY OF FINDINGS

3.2.1 Infrastructure & Finance

- A total of Rs. 1580.5578 Crores were approved for CSS-II. Out of this, Rs. 1155.56 Crores formed the non-recurring component, whereas Rs. 425 Crores formed the recurring component. However, most of the non-recurring component (Rs. 1023.5 Crores) was approved for procurement of boats in CSS-II, which was not pursued because of inadequate utilisation of boats procured under CSS-I. Thus, the actual fund that was released amounted to Rs. 131.41 Crores for the construction of coastal police stations and the procurement of police station furniture and equipment (lump sum of Rs. 15 lakh), as well as two-wheelers, four-wheelers, and construction of jetties. An additional amount of Rs. 64.58 Lakhs was released for upgradation of jetties in Maharashtra, which made the total amount disbursed to the coastal States and UTs as Rs. 132.06 Crores. The recurring component of Rs. 425 Crores consisted POL expenses, AMC provision, and training expenses. Since there have been no procurement of boats in CSS-II, POL expenses and AMC expenses weren't made. Hence, only an amount of Rs.1.3 Crores has been disbursed for Training expenses out of Rs.25 Cr. allocated for this purpose in the recurring expenditure (i.e. Rs.425 Cr.)
- A total of 131 coastal police stations were sanctioned and operationalised in CSS-II. 117 coastal police stations have completed construction so far, whereas 10 are undergoing construction and 4 are yet to be constructed. However, all are operational.
- Tamil Nadu and Andaman & Nicobar Islands were able to secure the highest amount of fund disbursement (around Rs. 27 Crores each), whereas Goa, Karnataka, Lakshadweep, Puducherry, and Daman & Diu had relatively the least amounts of disbursement (between Rs. 2.42 Crores and Rs 3.85 Crores). When accounting for coastline, it is seen that Lakshadweep secured the highest amount of funding per kilometre of its coastline (Rs. 7.3 lakh per km). This was significantly higher than the next best-funded State/UT, Daman & Diu, which received Rs. 5.7 lakh per km. Gujarat received the lowest amount in this regard; Rs. 90,920 per kilometre of its coastline. The average amount disbursed per kilometre of coastline is Rs. 2,87,807.13.

- Tamil Nadu and Andaman & Nicobar Islands, thus, together accounted for 41.18% of total funding disbursed, whereas Goa, Karnataka, Lakshadweep, Puducherry, and Daman & Diu together accounted for just 12.69% of total funding.
- Out of all the coastal States/UTs, Tamil Nadu utilised the highest amount of funds (Rs. 20.5 crore), while Lakshadweep utilised the least amount of funds (Rs. 49 lakhs).
- When accounting for the proportion of funds utilised out of disbursed amount of funds to each State/UT, we can see that Maharashtra, Daman & Diu, Kerala, and Odisha each used up more than 90% of the funds disbursed to them.
- Every State/UT utilised at least 50% of its disbursed fund except for Lakshadweep, which utilised a mere 14%.
- Each State/UT, on average, utilised 73.22% of its disbursed funds.
- In the analysis of the no. of infrastructure elements per 100km data, we observe that Puducherry had the highest no. of coastal police stations, motorcycles, and jeeps available per 100km of its coastline (a little over 12 coastal police stations and 6 four wheelers and 6 two wheelers per 100km), whereas Andaman & Nicobar Islands had the least number of CPS (almost 1 per 100km) and Gujarat had the least number of two-wheelers and four-wheelers (almost 1 each per 100km).
- Highest numbers of jetties were sanctioned to Tamil Nadu (12) followed by A&N Islands (10). Although, 5 and 8 were jetties constructed by Tami Nadu and A&N Islands respectively. Maharashtra had the highest number of jetties upgraded (14) against construction of 3 sanctioned jetties. On the other hand, Andhra Pradesh, Karnataka, Gujarat and West Bengal each had no jetties constructed.
- 89.31% of all coastal police stations and 10% of all Marine Police Operating Centres have been constructed. 63.33% of all jetties have been constructed/ upgraded. Coastal Police, Maharashtra is utilizing the 14 Jetties of Maharashtra Maritime Board (MMB) on full - time basis against the 03 sanctioned jetties for which an additional grant of Rs.64.58 lakh has been released to the State. 100% of all coastal police stations, 63.33% of all jetties and 100% of all Marine Police Operating Centres have been made operational. If we consider

all three of these, we may conclude **that 89.06% of all infrastructure has been made operational, and 77.61% of all infrastructure has been constructed:**

$$\underline{\underline{131/131 + 38/60 + 10/10 = 0.89055 = 89.06\%}}$$

$$\underline{\underline{117/131+38/60+01/10= 0.77612 = 77.61\%}}$$

Out of the total Rs. 132.06 Crores, Rs. 82.59 Crores have been utilised by the States/UTs for implementing completion of infrastructure and procurement of equipment, jeeps, bikes, etc. Out of the total disbursed amount, Rs. 10.62 Crores were provided for vehicles. Thus, accounting for just the cost provision and utilisation of infrastructure, we can say that approximately Rs. 71.97 Crores would have been utilised out of Rs. 121.44 Crores. Thus, with just 59.26% utilisation of the cost provision for infrastructure, all States and UTs have been able to construct 77.61% of infrastructure.

3.2.2 Manpower Strength

- According to BPR&D's Standard Operating Procedure for Coastal Police Stations, each coastal police station must ideally have a manpower of 81 and each boat must have a manpower of 6.
- If the information received from the States/UTs on coastal police station staff is treated as a sample for manpower in coastal police stations across India, It is found that only 51.49% of staff has been employed in coastal police stations and 44.02% of technical crew has been employed in boats. This indicated a serious shortage of manpower required to effectively run and maintain coastal police stations and boats.
- From the analysis of the boat data, we find that the overall average running hours of all the boats of Gujarat, Andhra Pradesh, Maharashtra, Tamil Nadu, and Andaman & Nicobar Islands is merely 361.4 hours as against to the set standard of 1800 hours per annum. This indicates almost each boat is operating less frequently than it is expected to, or is performing at a lower capacity.

- From the operational analysis of all the boats of the four aforementioned States/UTs, only 46.36% of all these boats are currently operational. This implies that due to suboptimal utilisation of boats and proper maintenance can be attributed to the lack of manpower in coastal security. Lack of police staff and technical crew have made it difficult to both efficiently use and maintain the boats available. It may thus be said that the inadequate utilisation of boats from Phase-I of CSS has continued throughout Phase-II, and may be resolved in the future with adequate trained manpower.

- From the POL expenses data, we see that only 2.62% of POL expenses have actually been claimed by coastal States/UTs. This is tandem with the fact that no single boat comes even close to completing 1800 hours of annual operations, and hence, it could be that States/UTs are even applying for reimbursement due to very small number of hours on record. Another reason could be that there isn't enough maintenance happening for States/UTs to require POL expenses reimbursement from the Centre. Both of these possibilities point to the fact that there isn't enough manpower to run the boats for 1800 hours and do their maintenance.

CHAPTER 4: SUGGESTIONS & RECOMMENDATIONS

The team of IIPA **strongly recommends continuation of the Coastal Security Scheme**, as it upholds an extremely vital role in the field of national coastal security. In order to make the scheme more effective, the study team of IIPA has the following suggestion points for consideration to the competent authorities.

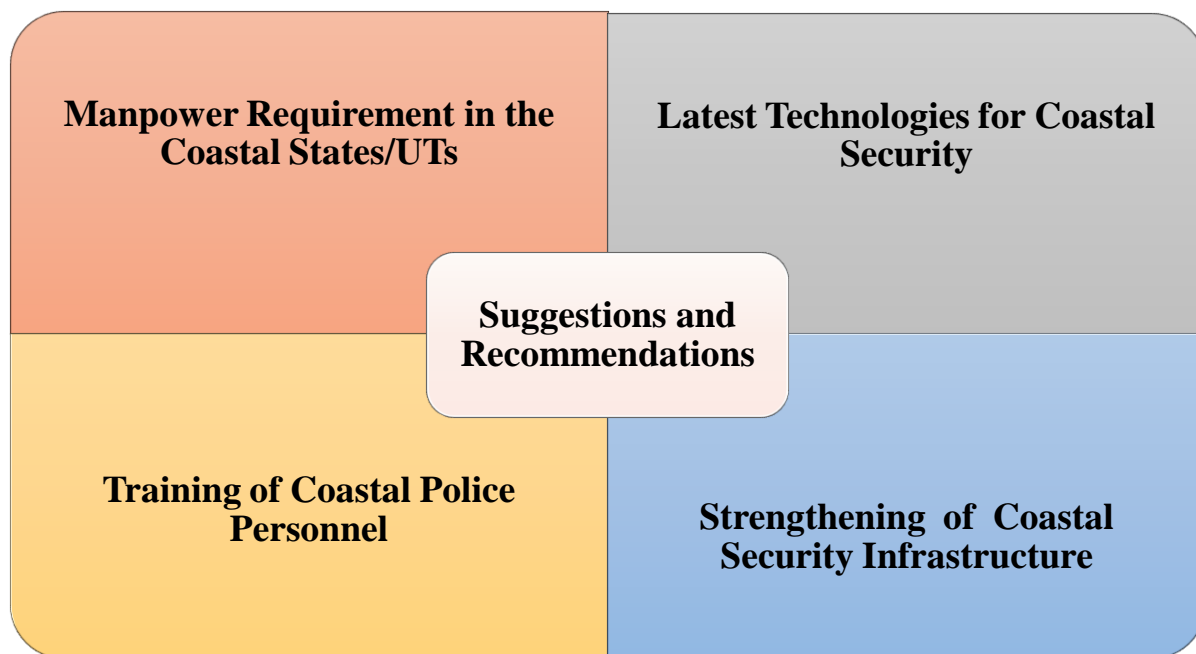


Figure 4.1: Suggestions and Recommendations

The Main aim of the study is to evaluate the effectiveness of the scheme and whether the scheme has been successful in achieving its objective of strengthening infrastructure of Marine Police Force for patrolling and surveillance of coastal areas, particularly shallow areas close to the coast. Based on the detailed study of CSS-II and the observations made, team of IIPA **recommends the implementation of the Third Phase of Coastal Security Scheme, as it is extremely vital for the country to strengthen and safeguard its coastal ecosystem.** In order to combat the existing challenges and hindrances faced in the coastal security architecture, following points should be laid emphasis upon while aiming at leveraging the geopolitical advantage our country withholds. From the evaluation study it gives us an understanding that giant strides have been made by the Government in making Coastal security a national success. However, the future may open up new threats and opportunities. Hence, continuous efforts are required in coordination between interagency, technology, apposite equipment, well-trained and motivated work force.

The following are IIPA's detailed suggestions and recommendations:

4.1 Manpower Requirement in the Coastal States/UTs

Under the scheme, Government of India provided funds for meeting the training requirements of the marine police personnel but the manpower for the marine police personnel including technical crew for the boats is provided by the concerned coastal States and UTs.

The 204 boats supplied to the States/UTs have been inadequately utilized & maintained by the coastal States/ UTs, due to acute shortage of technical manpower and crew to be employed for manning the boats and various other reasons. The staff of the Coastal Police stations is also drawn from the regular police cadre who go back to the parent cadre after the end of the tenure thereby causing a lack of consistency.

In view of the above, all Coastal States/UTs may establish a separate cadre, at least till the rank of constable to look after the matters of coastal security. Dedicated manpower towards coastal security is necessary for establishing the foundation of strong coastal security.

4.2 Training of Coastal Police Personnel

The Government of India has approved the setting up of Marine Police Training Institute renamed as National Academy of Coastal Policing (NACP) to be located at Dist.: Devbhoomi Dwarka, Gujarat. In the interim, a temporary campus of the Academy has started functioning in District Dev Bhoomi Dwarka, Gujarat w.e.f 29th October, 2018.

A total of 147 coastal police / customs personnel in three batches have completed the Marine Police Foundation Course. In addition, all coastal states/UTs have been requested to include a Marine Capsule Course in the "Basic Training" for developing sea orientation in the maritime security personnel.

4.3 Implementation of Phase-III of the Coastal Security Scheme

The Department of Border Management, Ministry of Home Affairs has been implementing the Coastal Security Scheme in phases. Phase-I of the Scheme was completed during 2005-2011. Phase-II was completed during 2011-2020.

All Coastal States/UTs have furnished their proposals for the Coastal Security Scheme. While working out the contours of Phase-III of the Coastal Security Scheme by the Committee constituted under the Chairmanship of Special Secretary (BM), it was decided that Coastal States/UTs may take up various measures for consolidation of existing infrastructure, assets & manpower towards achieving a robust coastal security mechanism.

In view of the above, it is stated that the Phase-III of the Coastal Security Scheme may be implemented upon establishment of a fully trained separate cadre for Coastal Police in all Coastal States/UTs and the process is started for tracking devices in boats.

4.4 Latest Technologies for Coastal Security

A typical Coastal Security Management System required to address the security concerns would be through a mix of technology facilitating (i) surveillance, (ii) identification, and (iii) command and control applications. Most of these technological installations fit under the three aforesaid categories.

For coastal borders and seaports, artificial intelligence and machine learning-based maritime analytics can play a bigger role by taking information from centralized systems like Automatic Identification System (AIS), Geographic Information System (GIS) etc., and can inform the authorities in advance about any suspicious vessels/ships/ boats before they even enter national waters.

India can take help of the following technologies for enhancing its marine borders:

- **Unmanned Aircraft Systems (UAS)** for Maritime Operations and Surveillance. UAS can be used in many tasks such as ship detection, red tide detection, monitoring, border patrol and hurricane. These are efficient technological tool to monitor vast stretches of sea. UAV are known to fly over dangerous and hazardous areas, where guarding forces cannot reach easily. Thus, it saves time and efforts of the guarding forces of coastal zones.⁶
- **Software-defined Radios can be used** for robust, future proof, un-hackable communication. A Software Defined Radio (SDR) is a flexible technology that enables the

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https://www.researchgate.net/publication/303835015_POSSIBILITIES_OF_UAS_FOR_MARITIME_MONITORING

design of adaptive communications systems for coastal zones. In this set up, there is no need to change hardware devices, thus, our coastal security force with the help of SDR can get multiple signals from multiple satellites. SDR can prove to be valuable asset in terms of technology for Coastal Police Personnel, Coast Guard, and Indian Navy.⁷

- **Maritime Analytics** refers to collection, analyse and dissemination of information on shipping activities. At the heart of maritime analytics is to gather data detailing the ship specification, movement of vessels & ships, and their owners. In doing so, it identify the suspicious vessels before they enter national waters. Several countries are using maritime analytics in securing their marine borders.⁸
- **Laser Technology**⁹ refers to using long range acoustic device with good acoustic capabilities which enables a person sitting in a far-away location from the sea to give command to the personnel patrolling the sea. Such a technology can go a long way in empowering the Coastal Police Personnel to give command directly using laser technology. This is highly crucial for managing ports located at long distance away from the coastal areas. In India this can prove to be milestone where ports were hitherto unlooked into.
- **Underwater Imaging**¹⁰ refers to surveillance of the marine environment using camera and integrated software. This technology has been used by many developed countries of the world, most notably, the USA, the UK and Japan.
- **Use of Observation towers** equipped with their own power supply, adequate perimeter fencing of the sensitive area around the towers. For enhancing coordination, wide band wireless communication system for every coastal surveillance zone should be used. It will go a long way in cementing active cooperation among all the Coastal Police Stations of the country. However, these observation towers should be installed at strategic points.

⁷ <https://ieeexplore.ieee.org/document/7119186>

⁸ <https://www.rivieramm.com/opinion/opinion/the-four-ages-of-maritime-data-analytics-and-the-rise-of-digitalisation-23803>

⁹ <https://www.militaryaerospace.com/unmanned/article/16707261/the-role-of-technology-in-securing-the-nations-borders>

¹⁰ <http://www.homelandsecuritynewswire.com/marine-camera-integrated-software-offer-improved-underwater-surveillance-security>

4.5 Strengthening of Coastal Security Infrastructure

Under the scheme total of 131 coastal police stations were sanctioned and operationalised in CSS-II. 117 coastal police stations have completed construction so far, whereas 10 are undergoing construction and 4 are yet to be constructed. Total 77.61% of all infrastructures have been completed in all the Coastal states / UTs. This includes Coastal Police Stations, jetties, and Marine Police Operating Centres that have been constructed and are operational.

As per data analysis, highest numbers of jetties were sanctioned to Tamil Nadu (12) followed by A&N Islands (10). Although, 5 and 8 were jetties constructed by Tamil Nadu and A&N Islands respectively. Maharashtra had the highest number of jetties upgraded (14) against construction of 3 sanctioned jetties. On the other hand, Andhra Pradesh, Karnataka, Gujarat and West Bengal each had no jetties constructed.

In view of the above, the infrastructure available with all the Coastal States/UTs for coastal patrolling and surveillance needs to be continuously enhanced and strengthened proportionately.

4.6 Recommendations for Smart Marine Border Management

Every border is different and needs different, tailor-made solutions to protect them.

We are living in an era where technology is driving everything and is changing so fast that it has nullified all the traditional wisdom of securing borders. Today, hybrid warfare is possible, wherein cyber-attacks, satellite attacks, and drone attacks are the reality and terrorist organizations are using them globally.

It is essential to secure maritime borders, land borders and airspace using different technologies – perimeter security sensors, radars, digital intelligence, predictive analysis tools, etc. – for security from any kind of outside intrusions/attacks.

We need a strong intelligence collection mechanism at the borders so that information on any upcoming threat can be gathered beforehand and preventive measures can be taken. For coastal borders and seaports, artificial intelligence and machine learning-based maritime analytics can play a bigger role by taking information from centralized systems like Automatic Identification System (AIS), Geographic Information System (GIS) etc., and can inform the authorities in advance about any suspicious vessels/ships/ boats before they even enter national waters.

India needs to have a strong national cyber security system in place that can help detect threats and vulnerabilities in the system and suggest ways to overcome them.

Best Practices of few countries are mentioned below:

France

France has developed ‘SPATIONAV’- its coastal surveillance system which is a wide area sensor network¹¹ to provide the country with an undeterred monitoring of marine boundaries. SPATIONAV combines information coming from different sensors, including those of the regional surveillance and maritime rescue coordination centres. It is a highly efficient system that monitors over 6000 km of coasts. This vast surveillance system is supplemented with radars and AIS stations.¹²

Japan

Japan’s marine borders are guarded by the Japan Maritime Self Defence Force (JMSDF). The country has a sound ocean surveillance architecture based on signals intelligence (SIGINT) and electronic intelligence (ELINT) collection systems.¹³ Japan Coast Guard uses and maintain high frequency direction finding (HFDF) systems for transmitting communications at sea, it has long-range maritime patrol (LRMP) aircraft and few helicopters. The JMSDF monitors its borders through surveillance ships like the Nichinan, the Shonan¹⁴. However, what is significant to know is the use of SURTASS (Surveillance Towed Array Sensor System), SURTASS is basically underwater ship that gives information about underneath happenings in water. Further, Japan has equipped its vessels with machine guns and interception equipment such as flat-nose shells.¹⁵

Russia

Russia has one of the strongest coastal surveillance system thanks to the legacy of the cold war where it developed itself as the formidable power. Russia ensures safety of navigation

¹¹ <https://www.defense.gouv.fr/dga/equipement/information-communication-espace/spationav-v2>

¹² https://www.porttechnology.org/technical-papers/providing_full_maritime_domain_awareness_on_the_french_coastline_sofrelog_w/

¹³ <http://press-files.anu.edu.au/downloads/press/p309261/pdf/book.pdf?referer=444>

¹⁴ <http://press-files.anu.edu.au/downloads/press/p309261/pdf/book.pdf?referer=444>

¹⁵ <https://nautilus.org/napsnet/napsnet-policy-forum/ocean-management-regimes-in-the-sea-of-japan-present-and-future/>

in its national waters through a system of missile technology and related equipment. Major part of the defence system of coastal forces includes the **BAL**¹⁶ **that is a system of firing sub-sonic missiles. Other things include 399 luminous beacons, 2,538 lighted and unlighted navigation marks, 148 radar beacons, transponders and 45 stations of radio navigation systems. Russia has deployed Bastion-P, SSC-6 missile systems that are capable of destroying threats on its sea.**¹⁷

United Kingdom

The Royal Navy is responsible for guarding the marine boundaries of the UK, the country is moving in the direction of using artificial intelligence (AI) to secure its marine borders. India can learn a big deal from the UK as to how to use AI for marine security. The UK has developed ‘STARTLE’— Artificial Intelligence software that can easily identify potential threats emanating on the sea, this AI system is based on neural network. Additionally, UK has a mechanism for managing marine routes by the name of Vessel Traffic Services (VTS).¹⁸

United States of America

USA make use of advanced technology to pre-screen high-risk containers without compromising the international trade as many cargo ships sail through its national waters. This technology is based on largescale X-ray and gamma-ray machines and radiation detection devices. The US Navy’s famous Sound Surveillance System (SOSUS)¹⁹ is another major technological tool; SOSUS refers to a long-range early-warning machine for protecting the US against foreign threats as it serves as a weapon for marine warfare by virtue of providing information of underneath marine movements in its national waters. United States actively monitors movements on and under the sea through what is known as “cutters”. USA has around 260 cutters; a cutter is basically a vessel of 65ft length.²⁰

¹⁶ <https://russianmilitaryanalysis.wordpress.com/2020/01/29/russian-maritime-a2-ad-strengths-and-weaknesses/>

¹⁷ <https://behorizon.org/current-russian-practices-in-maritime-zones/>

¹⁸ <https://www.orfonline.org/research/42497-a-i-in-naval-operations-exploring-possibilities-debating-ethics/>

¹⁹ https://www.public.navy.mil/subfor/underseawarfaremagazine/Issues/Archives/issue_25/sosus.htm

²⁰ <http://www.cpahq.org/cpahq/cpadocs/UKNDA%20EEZ%20and%20Territorial%20Seas.pdf>



ANNEXURES

5.1 Annexure 1: Agenda Points

Agenda points for Third Party Evaluation of Coastal Security Scheme Phase – II (CSS-II)

In order to further assess the efficacy of the Central Security Scheme; IIPA study team would like to access the official records and data pertaining to the following:

S. No	Agenda Points
1	<p>Generic Information on Coastal Security Scheme</p> <ul style="list-style-type: none"> - Scheme guidelines and its' performance over the last 5 years - State-wise details of Coastal Police Stations - Details of employment and employability under the Scheme - Creation of number of radar stations along the coastal line
2	<p>Implementation Mechanism</p> <ul style="list-style-type: none"> - Reinforcement of Coastal Regulation Zone (CRZ) - Emphasis on Special Economic Zone (SEZ), Exclusive Economic Zone (EEZ) - Functioning of Sagar Kavach - Coastal Safety Measures - Functioning of Command and Control System – Data Storage Devices and Communication Devices - Details on the installation of the following vis-à-vis their service creation and maintenance plan: <ul style="list-style-type: none"> - Three-tier security arrangements - Surveillance infrastructure - Joint Operation Centers - Automatic Identification System - Intelligence Mechanism - Electro-Optical (EO)/Infrared (IR) System - Any additional mechanisms/infrastructure/systems
3	<p>Contribution of Scheme in terms of different agencies associated with maritime security</p> <ul style="list-style-type: none"> - List of all the Central and State level agencies under the Scheme - Establishment of State Maritime Boards and/or Maritime Advisory Committee - Information about inter-agency coordination - Role played by State Governments of the coastal states and UTs
4	<p>Operational Issues, Terrain Conditions, Manpower Analysis</p> <ul style="list-style-type: none"> - Number of trained workforce and personnel - Number of on-shore and off-shore installations - Operational details of three-tier security arrangement - Name and location of CPS - Details of the entire staff - Date since operational - Working hours and day-to-day activities of the CPS
5	<p>Details on provisions and its' efficiency under the Scheme across coastal state/UT:</p> <ul style="list-style-type: none"> - Patrolling boats - Vehicles (Motorcycles and jeeps) - Jetty - CPS personnel/manpower and their training/induction facilities - Important Equipment (Navigation, detection, and other computer equipment)

	- Furniture
6	Fund and Budget Allocation <ul style="list-style-type: none"> - Details of Budgetary Allocation by GoI - UT/State-wise budget allocation - Rules regarding expenditure/sanctions - Details of the utilization of the funds received apropos all provisions
7	Actual Expenditure <ul style="list-style-type: none"> - Details of the expenditure incurred apropos all provisions - Expenditure Sheets - Audit Reports
8	Scheme Achievements <ul style="list-style-type: none"> - How has it contributed in strengthening the maritime infrastructure - Facts and Figures of output/achievements - Any additional benefit generated from the Scheme (such as Exercise Sea Vigil)
9	Gaps in Achievements of Outcomes <ul style="list-style-type: none"> - The gaps between the output/outcome expectations - Lack of infrastructural development - Any other issues and/or limitations
10	Challenges faced during implementation <ul style="list-style-type: none"> - Budgetary Sanctions - Administrative issues - Implementation/Execution issues - Community/public conflict and resistances - Other geo-political issues/concerns related to coastal security
11	Vision for the future <ul style="list-style-type: none"> - Plan for continuation of the scheme in future - Foreseeable improvements/changes in the scheme - Strengthening tools for maritime security - Convergence of this scheme with allied agencies/organizations for better implementation

Table A.1: Agenda Points

The study will focus on the following objectives:

1. Performance of the scheme based on the Output/Outcome indicators
2. Analysis of all the agenda points
3. Key bottlenecks and challenges
4. Suggestions and Recommendation to suggest the way forward

5.2 Annexure 2: Questionnaire 1

Questionnaire

(to be filled by relevant MHA employees for the Project of Third Party Analysis of CSS (Phase-II))

A. Brief State/UT-wise details of Coastal Police Stations:

State	No. of Coastal Police Stations	No. of Check posts	No. of Outposts
Gujarat			
Maharashtra			
Goa			
Kerala			
Tamil Nadu			
Karnataka			
Andhra Pradesh			
Odisha			
West Bengal			
Daman & Diu			
Puducherry			
Lakshadweep			
Andaman & Nicobar Islands			

- Locations of all Coastal Police Stations: *Attach sheet of information.*
- Organisational structure of Coastal Police:

B. Financial Details:

A. State/UT-wise financial details:

State/UT	Budget Allocation		Funding disbursed	
	Central Govt.	State/UT Govt.	Central Govt.	State/UT Govt.
Gujarat				
Maharashtra				
Goa				
Kerala				
Tamil Nadu				
Karnataka				
Andhra Pradesh				
Odisha				
West Bengal				
Daman & Diu				
Puducherry				
Lakshadweep				
Andaman & Nicobar Islands				

B. Rules regarding expenditures/sanctions:

C. What is the exact process of fund disbursement and frequency of the same?

C. Implementation Mechanism:

A. Coastal Infrastructure Development and Employment:

i. State/UT-wise details of basic infrastructure and employment:

State/UT	Patrolling Boats	Motorcycles	Jeeps	Jetties	Furniture*	Employment**		Training & Induction Facilities
						Security Personnel	Miscellaneous Workers	
Gujarat								
Maharashtra								
Goa								
Kerala								
Tamil Nadu								
Karnataka								
Andhra Pradesh								
Odisha								
West Bengal								
Daman & Diu								
Puducherry								
Lakshadweep								
Andaman & Nicobar Islands								

*Mention the total units of furniture where one unit could be a chair, table, cupboard, etc.

**Security personnel entails the workforce directly employed for security purpose such as police officers stationed at coastal police stations, patrolling officers, etc. Miscellaneous workers includes workforce indirectly involved in coastal security such as police station staff, drivers, cleaners, etc.

ii. Details on Training and qualification of Coastal Police personnel:

iii. Working hours and day-to-day activities of the Coastal Police Stations (patrolling and other activities):

B. Fund Utilisation:

i. Details of expenditure: *Kindly attach state-wise and UT-wise expenditure sheets and audit reports relevant to CSS (Phase-II).*

C. Technological Installations:

D. Communication and Data Storage Devices:

State/UT	CD 1	CD 2	CD 3	CD 4	DSD 1	DSD 2	DSD 3
Gujarat							
Maharashtra							
Goa							
Kerala							
Tamil Nadu							
Karnataka							
Andhra Pradesh							

Odisha							
West Bengal							
Daman & Diu							
Puducherry							
Lakshadweep							
Andaman & Nicobar Islands							

CD1 –

CD2 –

CD3 –

CD4 –

DSD1 –

DSD2 –

DSD3 –

i. Surveillance Infrastructure:

State/UT	RADAR	Electro-Optical (EO) System	Infrared (IR) Systems	Automatic Identification Systems (AIS)	Navigation Systems	Detection Systems
Gujarat						
Maharashtra						
Goa						
Kerala						
Tamil Nadu						
Karnataka						
Andhra Pradesh						

Odisha						
West Bengal						
Daman & Diu						
Puducherry						
Lakshadweep						
Andaman & Nicobar Islands						

E. Any additional infrastructure components/surveillance and technological systems may be mentioned and their quantities be provided (if any):

- i. Gujarat –
- ii. Maharashtra –
- iii. Karnataka –
- iv. Goa –
- v. Kerala –
- vi. Tamil Nadu –
- vii. Andhra Pradesh –
- viii. Odisha –
- ix. West Bengal –
- x. Daman & Diu –
- xi. Puducherry –
- xii. Lakshadweep –
- xiii. Andaman & Nicobar Islands –

D. Implementation and Operational Issues:

- A. Mention all the gaps in between planned output and actual output (for eg., Budgetary sanctions/Infrastructure/Administrative issues/Implementation and execution issues/Community and public conflict resistances/Geopolitical issues and concerns related to coastal security):**

B. Operational details of three-tier security arrangement:

C. Areas/aspects of infrastructure/systems with incomplete implementation and any miscellaneous issues faced:

D. Gap analysis studies conducted by States: *attach sheets/links for the same.*

E. Outcome of Scheme Implementation:

- A. Data on Sagar Kavach and Sea Vigil exercises**
- B. Data on trade activities taking place along coastal region**
- C. Data on incidents of fishermen being violated**
- D. Data on illegal immigration in Tamil Nadu, Bangladesh, and other states prone to immigration.**
- E. Data on incidents of trafficking, illegal trade, etc.**
- F. How has the CSS tangibly improved lives of concerned parties:**

F. Contribution of Scheme in terms of different agencies associated with maritime security:

- A. List all the Central and State level agencies under the Scheme:**

B. Status of establishment of State Maritime Boards and/or Maritime Advisory Committee in each State/UT:

- i. Gujarat –
- ii. Maharashtra –
- iii. Karnataka –
- iv. Goa –
- v. Kerala –
- vi. Tamil Nadu –
- vii. Andhra Pradesh –
- viii. Odisha –
- ix. West Bengal –
- x. Daman & Diu –
- xi. Puducherry –
- xii. Lakshadweep –
- xiii. Andaman & Nicobar Islands –

C. Information on any inter-agency coordination:

D. Role played by the State Governments/UT Governments:

G. Scheme achievements:

A. What are the substantial up-gradations in CSS from Phase-I to Phase-II?

B. How has the Scheme contributed in strengthening maritime infrastructure:

C. Facts and figures of output and achievements:

D. Any additional benefit generated from the Scheme:

H. Vision for the future:

A. Plan for continuation of the Scheme in the future:

B. Foreseeable improvements and changes in the Scheme:

C. Reinforcement of Coastal Regulation Zone (CRZ) along with existing impetus laid on Special Economic Zone (SEZ) and Exclusive Economic Zone (EEZ)

D. Plans for convergence of the CSS Scheme with allied agencies/organisations for better implementation and efficiency (Ministry of Defence, Ministry of Foreign Affairs for example):

5.3 Annexure 3: Questionnaire 2

Questionnaire

1. Views on Interstate coordination, intelligence –sharing among various stakeholders
2. Comment on additional Training for state police personnel
3. Why it is important to review the existing apparatus in the backdrop of operational challenges and threats to on shore and off shore installation.
4. What are the issues in the creation of required infrastructure for trained police personnel in coastal states?
5. Comment on variation in the utilization of resources allocated to different states and Union Territories
6. Comment on enough finances available for operations and maintenance of men and machines involved in safeguarding India's territorial integrity.
7. How often monitoring and assessment of coastal security system is being conducted?
8. How many coast guard stations along the coastline are functional?
9. Major initiatives taken at state level for better coordination; strengthen coastal security, improving surveillance, patrolling and joint operational exercises on regular basis.

Installations/Procurement	Current Allocated Assets	Actual Requirement
CPS		
Jetties		
Boats/Vessels		
Four-wheelers		
Motor Cycles		



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