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Consultancy Services for Implementation of Component-A of Last Mile Connectivity of NCRMP

TECHNICAL DESIGN REPORT

Version: 2.0

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List of Abbreviations

ACWC	Area Cyclone Warning Centre
AIR	All India Radio
AMC	Annual Maintenance Charge
KSDMA	Kerala State Disaster Management Authority
ARMVs	Accident Relief Medical Vans
AVLS	Automatic Vehicle Location System
BDO	Block Development Officers
BGAN	Broadband Global Area Network
BSNL	Bharat Sanchar Nigam Limited
CAPEX	Capital Expenses
CDMA	Code Division Multiple Access
CRC	Cyclone Review Committee
CAP	Common Alert Protocol
CSMMC	Cyclone Shelter Management and Maintenance Committee
CWC	Cyclone Warning Centre
CWDS	Cyclone Warning Dissemination System
DAO	District Agriculture Offices
DC	District Commissioner
DDB	Digital Display Board
DDMA	District Disaster Management Authority
DEOC	District Emergency Operation Centre

DG	Diesel Generator
DIT	Department of Information Technology
DM	District Magistrate
DMR	Digital Mobile Radio
DRDA	District Rural Development Agency
EDBs	Electronic Display Boards
EOC	Emergency Operations Centre
ETSI	European Telecommunications Standards Institute.
EWDS	Early Warning Dissemination System
GIS	Geographic Information System
GoK	Government of Kerala
Gol	Government of India
GPS	Global Positioning System
GSM	Global System for Mobile
HF	High Frequency
HSDT	High Speed Data Terminals
ICT	Information and Communication Technologies
IMD	India Meteorological Department
INCOIS	Indian National Centre for Ocean Information Services
INSAT	Indian National Satellite
IP	Internet Protocol
ISRO	Indian Space Research Organization
IT	Information Technology
ITU	International Telecommunication Union

IVRS	Interactive Voice Response System
KSDMA	Kerala State Disaster Management Authority
LAN	Local Area Network
LMC	Last Mile Connectivity
MBPS	Megabits Per Second
MHA	Ministry of Home Affairs
MPLS	Multi Protocol Label Switching
MSSRF	MS Swaminathan Research Foundation
NCRMP	National Cyclone Risk Mitigation Project
NDMA	National Disaster Management Authority
NDRF	National Disaster Response Force
NGO	Non-Governmental Organization
NSDI	National Spatial Data Infrastructure
OPEX	Operating Expenses
O&M	Operation & Maintenance
VPN	Virtual Private Network
OTN	Optical Transport Network
P&T	Postal and Telegraph's
PBX	Private Branch Exchange
PC	Personal Computer
PCM	Pulse Code Modulation
PFZ	Potential Fishing Zone
PMP	Probable Maximum Precipitation
PMR	Personal Mobile Radio

PMSS	Probable Maximum Storm Surge
PMU	Project Monitoring Unit
PMW	Probable Maximum Winds
POE	Power over Ethernet
PSTN	Public Switched Telephone Network
PTT	Push To Talk
REST	Representational State Transfer
SDH	Synchronous digital hierarchy
SDMA	State Disaster Management Authority
SDRF	State Disaster Response Force
SEOC	State Emergency Operation Centre
SMPS	Switch Mode Power Supply
SMS	Short Message Service
SNMP	Simple Network Management Protocol
SDC	State Data Center
SOAP	Simple Object Access Protocol
SRC	Special Relief Commissioner
SWAN	State Wide Area Network
TC	Tropical Cyclone
TCIL	Telecommunications Consultants India Ltd
TETRA	Terrestrial Trunked Radio
TRAI	Telecommunications Regulatory Authority of India
UMTS	Universal Mobile Telecommunications System
UPS	Uninterruptible Power Supply

VHF	Very High Frequency
AIS	Automatic Identification System
VOIP	Voice Over Internet Protocol
XML	Extensible Markup Language
NavIC	Navigation with Indian Constellation...
Wimax	Worldwide interoperability for microwave access
WLAN	Wireless Local Area Network
W.M.O	World Meteorological Organization
ILDm	Institute of Land and Disaster Management

1. Executive Summary

National Cyclone Risk Mitigation Project (NCRMP) has been drawn up to strengthen the structural and non-structural mitigation efforts towards reducing the risk and vulnerability of the coastal districts to cyclone-related disasters. Implementation of NCRMP in Kerala has been approved in Phase-II of a Centrally Sponsored Scheme. The central share is being funded by the World Bank as an Adaptable Programme Loan with an International Development Association (IDA) credit. State Project Implementation Units (SPIUs) has been set up under Revenue and Disaster Management Department, Govt. of Kerala act as nodal agency in charge of implementation.

The project has four components of which strengthening Early Warning Dissemination System (EWDS) in all 14 districts of the State form Component A. The main objective of this component is to reduce the vulnerability of coastal communities by tackling the existing gap in dissemination of warning to communities. M/s. Telecommunications Consultants India Ltd (TCIL) has been appointed as technical consultant for the “Consultancy services for Design and Implementation support for strengthening Last Mile Connectivity of Early Warning Dissemination System”.

2. EARLY WARNING DISSEMINATION SYSTEM

A warning can be defined as the communication of information about a hazard or threat to a population at risk, in order for them to take appropriate actions to mitigate any potentially negative impacts on themselves, those in their care and their property.

The occurrence of a hazard does not necessarily result in a disaster. While hazards cannot be avoided, their negative impacts can be mitigated. The goal of Early Warning Dissemination System is to ensure to the greatest extent possible that the hazard does not become a disaster. Such warnings must be unambiguous, communicate the risks concisely and provide necessary guidance.

The success of a warning can be measured by the actions that it causes people to take, such as evacuation or avoiding ‘at-risk areas’. In a disaster situation, there is no doubt that timely

warnings allow people to take actions that save lives, reduce damage to property and minimize human suffering.

There are many new communication technologies that allow warning providers not only to reach the people at risk but also to personalize their warning message to a particular situation.

It is important to note that disaster warning is indeed a system, not a singular technology which constitutes:

- The identification, detection and risk assessment of the hazard
- The accurate identification of the vulnerability of a population at risk
- Finally, the communication of information about the threat to the vulnerable population in sufficient time and clarity so that they can take action to avert negative consequences.
- Awareness in the population so that they may respond with the appropriate actions.

3. Objective of the Project

The overall objective of this component is to reduce the vulnerability of coastal communities by addressing the existing gap in dissemination of warning to the communities. In turn the component will support:

Installation and operation of Early Warning Dissemination System allowing the State and District Emergency Operations Centres to send communication directly to the villages using various technologies like: Global System for Mobile Communications (GSM 4G/LTE/5G etc) or any other appropriate technology that is feasible. The component also envisages strengthening emergency operation centers (EOC) to channelize the warning through different communication modes. In addition, the components should also provide for redundancy in communication using satellite phones or any other similar technology that could be provided to key officials for communicating the warnings in the villages along with suitable backup systems. The aim to establish a fool proof Early Warning Dissemination System; and strengthening capacity: (i) in operating, maintaining and regular use of the EWDS equipment by officials and village representatives, and (ii) of communities in disaster preparedness and response by preparing disaster management plans and arranging mock drills etc.

4. SCOPE OF WORK:

The objective of the assignment is to provide technical consultancy to NCRMP Kerala in implementation of Last Mile Connectivity and Early Warning Dissemination System for the state of Kerala. The Scope of work includes:

- Technology feasibility study for creating a last mile warning dissemination system for the entire state that ensures ease of use, robustness, redundancy and zero maintenance, which could be triggered from SEOC, 14 DEOCs and 75 Taluk Control Rooms and that could be communicated to multiple official stakeholders and community in a designated area through multiple modes of communication
- Preparing an outline of communication strategy for early warning dissemination in consultation with the SPIU and participating districts, departments, forces and community representatives
- Organize formal consultations with all the stakeholders and help arrive at pragmatic and cost effective solution that could be sustained in the state using its own funds after the phasing out of NCRMP
- Prepare the detailed communication plan with cost estimates, outline technical specifications, O & M cost and arrangements; hardware, software, manpower requirements etc.
- Finalization of detailed Technical Specifications, Bills of Quantities
- Finalization of an Implementation Rollout Plan
- After award of contracts, ensure that supplies and services are provided in accordance with agreed specifications and service standards.
- Coordinate with state agencies for installation, testing and commissioning of equipment and services and monitor performance and help in certification of equipment and services for operability and for final payment to suppliers/vendors.
- Assist SPIU and other State Agencies and suppliers/vendors in obtaining necessary regulatory/statutory clearances.
- Continue to monitor the O & M of the system by the supplier/vendors and state agencies for a period of two years and advise on shortcomings, additional actions, up gradation options etc.
- With the assistance of support/vendors help prepare an Operation Manual in Malayalam & English and a Training Manual in Malayalam and English and assist the SPIU in rolling that out to the stake holders
- It shall provide Third Party Quality Audit of the quality of the EWDS and functionality of the equipment so installed

- Attempt to do the needful such that the user (KSDMA) need not have to approach multiple agencies for warranty, services, maintenance and contract renewal after the phasing out of the World Bank funding
- The equipment offered shall have comprehensive onsite replacement warranty for 5 years including batteries
- TCIL shall ensure proper and continuous supervision of maintenance of the equipment for two years after the successful commissioning of the complete system, as per the Service Level Agreement
- The entire system offered shall have a Comprehensive Annual Maintenance Contract (CAMC) for a period of another 2 years, after the warranty period of 5 years, as part of the original bid
- TCIL is expected to undertake each activity after receiving approval from the SPIU in writing.

5. Demographic of Kerala:

Kerala's coast runs some 580 km in length, while the state itself varies between 35 –120 km in width. The coast of Kerala is one of the most densely populated land areas in the country. Kerala is the most densely populated State in India with a population of 3.33 crores in 2011. In this, about 30% live in the coastal zone. Due to the high density of population compared to the other parts of the state the coastal zone has undergone substantial development. Out of the 9 coastal districts in the State, 7 district headquarters are located in the coastal zone. Four City corporations, namely Kozhikode, Kochi, Kollam and Thiruvananthapuram and 19 municipal towns (including the district headquarters) are situated in this zone. There are 152 villages with seashore boarder in the state.

A chain of water bodies, locally known as Kayals (lagoons) running parallel to the coastline is a characteristic feature of Kerala coast. These are mostly interconnected by natural or man-made canals, facilitating internal navigation almost for the entire length of the coast. Numerous perennial rivers discharge into these Kayals. Southern half of the Kerala coast harbours more of larger backwaters. The Kayals of the Kerala coast are mostly separated from the sea by elongated sandbars and based on this they can be treated as "coastal lagoons".

The hydrodynamic regime of the coastal marine zone of Kerala depicts the typical features of a monsoon dominated tropical coast. Kerala's climate is mainly humid tropical and influenced by the seasonal heavy rains brought by the monsoon. The south-west and north-east monsoons with their accompanying downpour keep the land soaked, for a period of five to six months in a year. The average rainfall in the State is about 3000 mm of which about 60% of the rainfall occurs during southwest monsoon (June to August). The highest wave and

current intensity occurs during the peak monsoon months of June-July. The waves approaching the coast are mostly the swells except during the peak monsoon period. The highest wave intensity is seen during the peak monsoon months of June and July due to proximity of the coast to the wave generating zones in the Arabian Sea. The near shore wave intensity decreases from south to north. There are 44 rivers (length >15 km) in Kerala, all originate in the Western Ghats and 41 of these are west flowing rivers and meet the Lakshdweep sea while the remaining three rivers are east flowing and discharge into Bay of Bengal.



6. Hazard proneness of the Coastline of Kerala

The coastline of Kerala is one of the most densely populated land areas in the country. This coastline is exposed to strong wind, high waves, storm surges and Tsunami. These natural phenomena in turn results in rampant coastal erosion and consequent beach loss.

The 'Fact sheet of shoreline changes – Kerala, National Assessment of Shoreline Change' published by the Ministry of Environment and Forests, Govt. of India shows that a major stretch of Kerala's coastline is eroding rapidly. Statistics of hazard prone coastline of the state is given below. Salt water intrusion during the summer season due to rampant ground water exploitation and tidal effects also affects the coastal community.

Coastal erosion results in the loss of life and property of the coastal fisher population who are one of the most downtrodden communities of the state. One of the most apparent

losses of property is the damages that come about to the dwelling spaces of the fisher population. Every year hundreds of houses are damaged due to the fury of the sea.

7. Districts and Talukas

No	Name of the Taluk	Name of the District
1	Neyyattinkara	Thiruvananthapuram District
2	Kattakkada	Thiruvananthapuram District
3	Nedumangadu	Thiruvananthapuram District
4	Thiruvananthapuram	Thiruvananthapuram District
5	Chirayinkeezhu (HO: Attingal)	Thiruvananthapuram District
6	Varkala	Thiruvananthapuram District
7	Kollam	Kollam District
8	Kunnathoor (HO: Sasthamcotta)	Kollam District
9	Karunagappally	Kollam District
10	Kottarakkara	Kollam District
11	Punalur	Kollam District
12	Pathanapuram	Kollam District
13	Adoor	Pathanamthitta District
14	Konni	Pathanamthitta District
15	Kozhencherry (HO: Pathanamthitta)	Pathanamthitta District
16	Ranni	Pathanamthitta District
17	Mallappally	Pathanamthitta District
18	Thiruvalla	Pathanamthitta District
19	Chenganoor	Alappuzha District
20	Mavelikkara	Alappuzha District
21	Karthikappally (HO: Haripad)	Alappuzha District
22	Kuttanad {HO: Mankombu}	Alappuzha District
23	Ambalappuzha (HO: Alappuzha)	Alappuzha District
24	Cherthala	Alappuzha District
25	Changanasserry	Kottayam District
26	Kottayam	Kottayam District
27	Vaikom	Kottayam District
28	Meenachil (HO: Palai)	Kottayam District
29	Kanjirappally	Kottayam District

No	Name of the Taluk	Name of the District
30	Peermade	Idukki District
31	Udumbanchola (HO: Nedumkandam)	Idukki District
32	Idukki (HO: Painavu)	Idukki District
33	Thodupuzha	Idukki District
34	Devikulam	Idukki District
35	Kothamangalam	Ernakulam District
36	Muvattupuzha	Ernakulam District
37	Kunnathunad(HO: Perumbavoor)	Ernakulam District
38	Kanayannur (HO: Eranakulam)	Ernakulam District
39	Kochi (HO: Fort Kochi)	Ernakulam District
40	North Paravur	Ernakulam District
41	Aluva	Ernakulam District
42	Chalaky	Thrissur District
43	Mukundapuram (HO: Irinjalakuda)	Thrissur District
44	Kodungallur	Thrissur District
45	Thrissur	Thrissur District
46	Chavakkad	Thrissur District
47	Kunnamkulam	Thrissur District
48	Thalapilly (HO: Wadakkancheri)	Thrissur District
49	Alathoor	Palakkad District
50	Chittur	Palakkad District
51	Palakkad	Palakkad District
52	Pattambi	Palakkad District
53	Ottappalam	Palakkad District
54	Mannarkkad	Palakkad District
55	Perinthalmanna	Malappuram District
56	Nilambur	Malappuram District
57	Eranad (HO: Manjeri)	Malappuram District
58	Kondotty	Malappuram District
59	Ponnani	Malappuram District
60	Tirur	Malappuram District
61	Thiroorangadi	Malappuram District
62	Kozhikode	Kozhikode District

No	Name of the Taluk	Name of the District
63	Thamarassery	Kozhikode District
64	Koyilandy	Kozhikode District
65	Vatakara	Kozhikode District
66	Vythiri (HO: Kalpetta)	Wayanad District
67	Sulthan Bathery	Wayanad District
68	Mananthavady	Wayanad District
69	Thalassery	Kannur District
70	Iritty	Kannur District
71	Kannur	Kannur District
72	Taliparamba	Kannur District
73	Payyannur	Kannur District
74	Hosdurg	Kasaragod District
75	Vellarikundu	Kasaragod District
76	Kasaragod	Kasaragod District
77	Manjeswaram(Uppala)	Kasaragod District

8. Stake holders, Existing infrastructure / Preliminary Survey findings

- **Stake Holders:**
 - SEOC : 1
 - DEOC: 14
 - TEOC :77
 - Fire Stations: 14
 - Police HQ : 1
 - Matsya bhawans: 71
 - FLCs : 188
 - Tourist Sea beaches: 46
 - MPCS: 21
- **Existing Infrastructure /Current dissemination of alerts**
 - i. **SEOC:**

The following systems are available at SEOC:

- IBM IOC : Decision Support system

The IBM Intelligent Operations Center solution integrates and uses data from multiple sources and makes sense of it on a single interface. It simplifies the disarray and complexity of multiple data sources that are too voluminous for easy consumption. It also provides a single consolidated, correlated view of all systems of an enterprise or city to make them usable without being overwhelming. The IBM Intelligent Operations Center data ingestion process allows you to pull information from tables and csv files. Data can also be acquired from CAP messages through a push mechanism. The Representational State Transfer (REST) APIs can be used to push information into IBM Intelligent Operations Center.

- ERDAS (Earth Resource Development Assessment System):

It is a digital image processing software mainly used for study and analysis of satellite imagery. You can use them for extraction of Digital Number values of the pixels, Import export raster and vector satellite image, combine various bands of satellite imageries, to perform detailed analysis of various objects and information using the pattern recognition technique, Land use landcover analysis

- ARC GIS

it is a proprietary software by ESRI generally utilized for mapping various geographic features on the earth as raster and vector data. GIS helps you in effective data management where you can map various kinds of data along with their attributes. Tasks like mapping of roads, buildings, facilities like ATM, restaurants, hospitals, clinics can be done using ArcGIS

- SEISMIC Data:

It provides satellite images of Seismic Data.–(As of now, standalone system. But, to be integrated on to the Alert Aggregation Bus of State EWDS).

- LIGHTNING Data

It offers lightning prediction for the state – (As of now, standalone system. But, to be integrated on to the Alert Aggregation Bus of State EWDS)

ii. **DEOCs:**

- KSWAN
 - Police Wireless system VHF
 - VSAT system
 - Hot line facility available to contact Police, Fire and rescue teams and Navy.
 - Toll free number provided for public to contact DEOC.
 - Whatsapp, Emails
- iii. **TEOCs:** No EOC rooms are available at TEOCs
- iv. **Communication to Fishermen:**
- Voice SMS
 - Few boats are fitted with AIS
 - E-Samudra android based app was being developed with the support from DoT which provided the exact boat location and inform the Fishermen about the Weather and Fishing zones. It works up to 35 nautical miles.

9. Proposed Criteria for the EWDS:

The following points have been considered for proposing the Technology Solution:

- ❖ Coastal Tehsils, Villages and FLCs etc which could fall within 5 Km from Sea Coast Line have been considered as per discussions with PMU, NDMA for dissemination of alert messages. However, as per TOR, all the 14 Districts and their respective Talukas are considered for EWDS coverage.
- ❖ As per the TOR, Physical structures are not proposed for installation of Siren hooters. SPIU suggested that the existing BSNL Towers and other locally available Govt facilities shall be used for installation of Siren hooter systems. Accordingly, suitable BSNL Towers (150 nos) have been identified/ mapped along the Sea coast (from the list provided by BSNL within the 5 kms distance from the Sea Coast) for installation of Siren hooters.
- ❖ Since the BSNL Towers are proposed by State for Siren/hooter installations, it is the States liability to ensure the sustainability assessment of Towers with the wind speed.

- ❖ As part of the Design, EWDS coverage is proposed for the FLCs, Coastal Villages, Matsya bhawans, Tourist locations and TEOCs which falls below 5kms from the Sea Coast. However, EWDS coverage is considered for all the Coastal and non coastal Talukas which fall beyond 5 kms also. Accordingly, there are 66 TEOCs which fall beyond 5 kms buffer zone from Sea and SPIU may arrange BSNL Towers or Govt buildings for installation of Sirens. Accordingly, 216 locations (150 Coastal locations within 5 kms including 11 TEOCs and 66 (Coastal & Non Coastal) TEOCs beyond 5 kms, Siren hooter systems will be installed on BSNL Towers. With this, all TEOC Locations are covered for EWDS coverage. Where ever the rooms are not available at TEOCs, nearby Police stations / Fire stations may be arranged by SPIU.
- ❖ The audible coverage for the Siren Hooter is considered 1.5 kms radius and the weight of the Siren hooter system could vary between 80 to 150 kgs approx. – depending on the OEM.
- ❖ State Govt will liaise with BSNL authorities for the provisioning of wired/wireless data connectivity, UPS/DG power supply and suitable location for the installation of outdoor and indoor allied project components / systems at these BSNL Tower locations. It is completely State's liability to arrange these BSNL Towers and to bear all the associated costs including recurring costs (if any) from BSNL.
- ❖ All proposed sirens / hooters shall have a Yellow/Red Strobe warning lights for easy understanding for the locals on the condition / state of warning.
- ❖ The cost for LBAS integration with 4 TSPs for dissemination of Location Based Alert System is not included in the BoQ since NDMA decided to implement the Mass messaging solution through separate tender.

10. PROPOSED SOLUTION:

i. Objective:

The project pertains to Component A of NCRMP that comprises of Development of Last Mile connectivity and Early Warning Dissemination System (EWDS) & Capacity building for Coastal Communities in order to reduce the vulnerability of coastal communities by addressing the

existing gap in dissemination of warning to the communities so that the effective precautionary measures can be taken to save the lives and property.

Kerala State Emergency Operations Center (KSEOC) is already equipped with IBM Intelligent Operation Center (IOC) which is a full-fledged operational decision support system (DSS) and communication system and ESRI platforms. The IBM IOC is currently able to send the alert messages to their internal administrative authorities and 1st responders through emails and SMS (through SMS gateway) automatically to enable them to take precautionary measures using Standard Operating Procedures. However, there is a need to disseminate these alerts to the mass public in the last mile of the coastal region through various Public Alert Systems as part of the proposed EWDS. Hence the proposed EWDS systems requires to be integrated with the existing IBM IOC platform along with other existing standalone applications like Seismic Data, and lightning systems etc. for making the overall supervision, decisions, collation, and dissemination of alerts from a unified common dash board. This dashboard shall also display various alert feeds, their operational status and availability etc (from project NMS/EMS) and will monitor the live feedback and response of local public thru theremote monitoring using the field Video Cameras. The major technology components of the proposed EWDS comprises of the following.

ii. Functional Enhancements & Integration of IBM-IOC at Kerala SEOC:

a. Unified Alert Notification System (UANS) for Dissemination of alerts :

i. Alert Inputs Aggregation Tool

ii. Converged Controller Bus for Dissemination of Alerts over Multi-channels & Disparate Platforms

iii. Integrated GUI Dashboard for EOC Alert Originators

iv. Unified Command, Communications & Control (CCC)

a) Call Center (Help Desk):

b) Computer Aided Dispatcher (CAD)

c) Network Management System (NMS)

d) CAP Encode/Decode Controllers

b. Unified Communication between EOCs:

- i. VPN network: Secure VPN Network between EOCs, 1st Responders & Field Mass-Alert Stations
- c. Field Mass-Alert Station with integrated Audio and Light Warnings
- d. Satellite Terminals
- e. DMR Mobile VHF and Hand sets
- f. ResQMobil
- g. LBAS integration with 4 TSPs for dissemination of Location Based Alert System

11. REVIEW OF TECHNOLOGIES PROPOSED:

a. Unified Alert Notification System (UANS) for Dissemination of alerts :

All the alert systems/ devices are to be collectively managed, activated and monitored from a single, unified, easy-to-use interface web based common Dash board. The system shall be a CAP enabled system which could receive alert feeds from various EWDS systems through the existing IBM IOC platform.

In case of emergency an event will be generated on IBM IOC which is collected and collated from various trusted sources such as IMD, INCOIS, ERDAS or even crowd sourced data etc. Once the event has been generated, the operators will receive alerts and notifications on a common dashboard. Alerts over pre-defined and customisable templates will also be sent to higher officials, management and other stake holders like 1st responders. Notification will be in form of warnings, email, social-media, website updates or CB/SMS alert, media barge-in over open-standards based CAP/XML/API Services. On reporting of an event on IOC, through its call centre, the SEOC operator will then co-ordinate with multiple departments to perform the related Standard Operating Procedures. With available Computer Aided Dispatchers (CAD), the SEOC Operators can filter down the nearby First Responder resources like ambulance, fire brigade, police, hospitals, schools etc. to take the necessary help despatch actions. SOP's shall be triggered manually or automatically. The alerts which are reported at the call-centre by calls can be triggered manually and operators will then follow the SOP's to effectively manage the emergency situation. Every alert, will eventually will be populated into IBM IOC and based on the DSS supported SOP's, the operator will trigger dissemination of manual or auto alerts thru all or

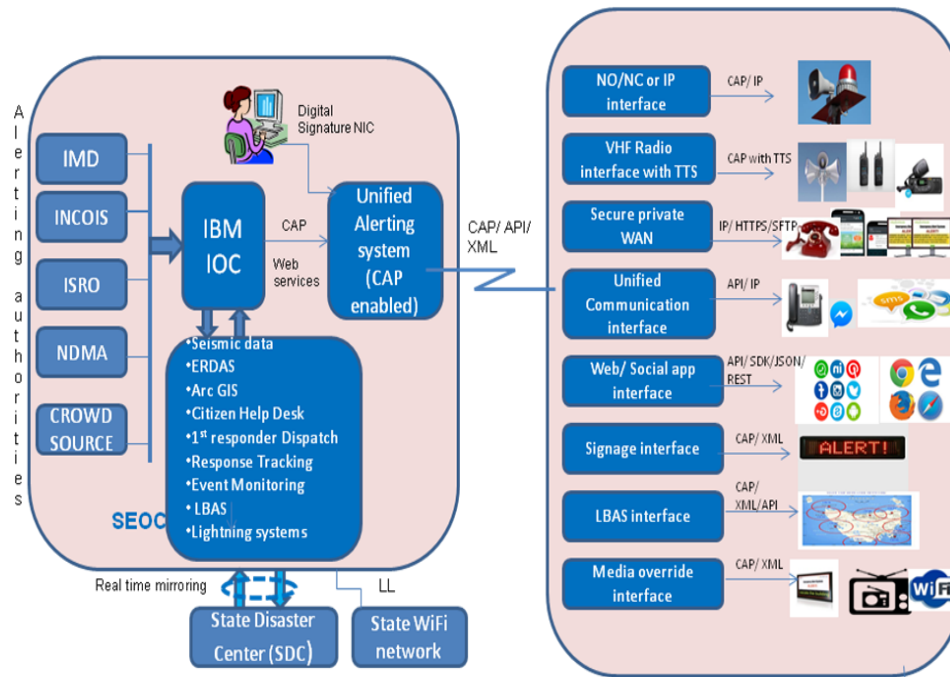
selective output channels. IBM IOC custom template-based reporting generation service shall be used to generate the report of the events and the SOP's that was followed to close the event. IBM IOC Knowledge Performance Indicator (KPI) tool shall be used to know the performance in case of any emergency event and which can be used to take necessary actions to optimize the system.

The rainfall, landslide, earthquake, tsunami data is be mapped on ESRI map using ArcGIS. As part of the project, the existing standalone alert tools such as Seismic and Lightning monitoring and other similar warning systems shall also be integrated and populated on to IBM-IOC. Further analysis and perditions are to be done on ESRI server that will give SEOC predictive models such as flooded area in case of heavy rain fall. These predictions will help to take necessary actions to preserve important assets and effectively take necessary actions during an emergency.

- **Functional objectives of UANS integration with IBM IOC, ERDAS platforms:**

The key objective is to augment, empower and enable the existing IBM IOC and ESRI platform to accept various alert inputs and convert them to CAP or other open standards-based API protocols like XML/Rest or SOAP services etc. Using a Command & Control platform, SEOC operational functionalities will be further enhanced to analyze the priority of each of these inputs both manually and in auto. Thereafter, based on administrative approvals, the CAP formatted alert messages will be broadcasted over multiple channels using their own disparate protocols, after appending digital signature.

As part of the Scope of SEOC project integration, various other existing standalone inputs like Seismic server and Lightning warning systems etc shall also be integrated into IBM-IOC DSS. For ensuring 99.99% uptime, the whole SEOC backend data shall be mirrored over WAN with State Data Centre (SDC), on DC-DR basis. The generic overview of the above indicated description is broadly depicted below:



i.Alert input aggregation Bus:

To enable integration of various incoming alert channels on to a common alert aggregation bus, and to channelize & prioritize its follow-up actions using the existing IBM-IOC-ESRI Decision Support System (DSS) and graphic analysis platform. The various incoming alert inputs are as follows:

- IMD
- INCOSIS
- ISRO/SAC
- NDMA
- Various nodal government ministries
- Crowd Sourced data from Citizen Help desk
- Social media and other open source data
- Seismic Data alerts (Integration with IBM IOC)
- Lighting Warning System (Integration with IBM IOC)
- Any other inputs

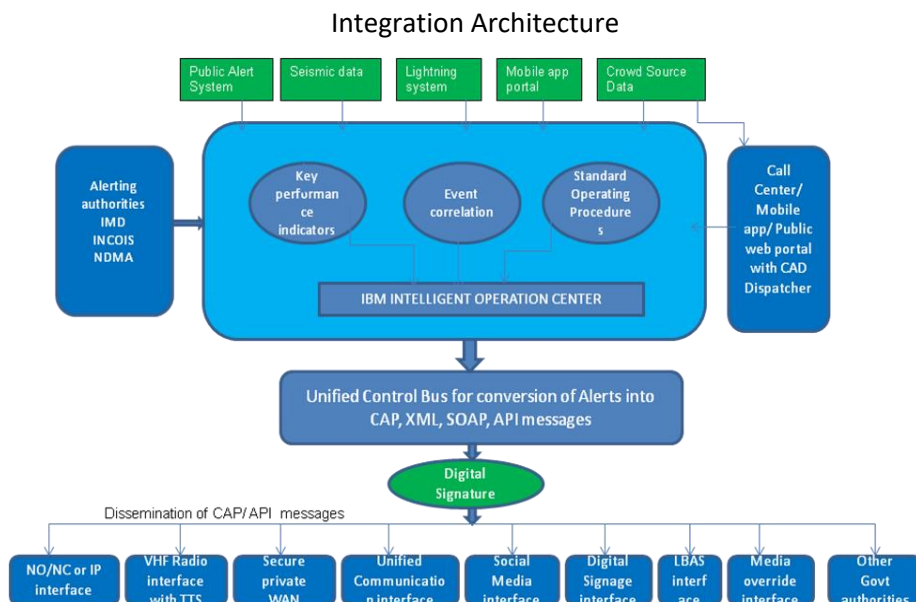
ii.Integrated Unified GUI Dashboard for Alert Originator:

It will be a web based GUI dash board for displaying the holistic view of the EWDS systems and its operations. The alert aggregation bus will be directly integrated with GUI dash board. On generation of certain alert the system will present the respective pre-formatted templates to the operator. Thereafter, the duly filled template shall be checked, verified and digitally signed for its distribution by various CAP dissemination channels. (Integration of digital signature is also part of the scope).

Suitable tool needs to be devised and installed at SEOC to swiftly process the aggregate information gathered thru various alerts channels and input data feeds. The existing IBM IOC must be further integrated to leverage additional data available from other sources such as standalone seismic and lightning applications.

Such web based single Dashboard is required for the Kerala State disaster management authority to have holistic view of not only the status of EWDS systems, but also overall view in respect of Disaster and operations within the State of Kerala. Towards enablement of these arrangements, there is a need for additional hardware and allied IT resources, whose description and BoM are provided as an Annexure to this document.

The broad overview of this dashboard with its tentative integration points and possible subsystems are depicted in the below.



The Alert Originator shall have a GUI based user-friendly dashboard for the overall administration and management that is well integrated with all existing and proposed

3rd party tools of the EWDS project. Some of the operational and functional requirements and the benefits aimed from this Dashboard are as follows:-

- I. Collect and Collate inputs and alerts received from various National and State authorities
- II. Exploiting the DSS systems to manage and present the right data to the right stakeholders at the right time.
- III. Capability to proactively respond in unified manner to situations on ground by creating a common operational picture for relevant stake-holder or operator with the help of Common Alerting Protocols Messages i.e. CAP Messages using any 3rd party tools.
- IV. Interface with existing SEOC Apps like IBM-IOC, ArcGIS & ERDAS Imagine etc
- V. Present the operator with most suitable pre-formatted messaging templates
- VI. Create custom Templates depending on Alert types
- VII. Verifies the message format for each dissemination channel
- VIII. Authenticate and Convert the message to CAP interoperable format
- IX. Digitally sign the CAP message, and authorize its dissemination
- X. Enable Intelligent Operations cum Disaster management System
- XI. Single button-based Emergency Alerting with alert disseminators.
- XII. Citizen Helpdesking (Contact Centre) with Computer Aided Dispatcher (CAD)
- XIII. Health status monitoring of all remote Mass Public Alert systems
- XIV. Response Tracking
- XV. Event Tracking
- XVI. Scenario Management
- XVII. Mobile App and portal integration
- XVIII. Digital Signature Integration for repudiation
- XIX. Define and manage KPIs
- XX. Develop suitable features and improved visualization.

iii. Unified Control Bus for Dissemination of CAP Alerts over Multi Channel systems:

It will be based on Open standard technology and is required to disseminate the Single message over multiple Channels either CAP / API formats etc. On activation of a message, the system will automatically/ manually transmit alert messages in

respective formats on various alert channel systems. Probable list of Alert generators, notification and disseminators are given below:

- *Sirens / Hooters with Strobe activations*
- *PA systems*
- *TV/Radio systems*
- *Social Media, Web site updates*
- *Digital Signages*
- *Desk Top Alerts*
- *Push notifications on Cell phones*
- *Voice SMS on Land lines*
- *LBAS (both SMS &CB)*
- *Emails*
- *Subscriptions (Email, SMS, Atom, RSS)*

iv.Unified Command, Communications& Control (CCC)

a. Call Center/ Citizen Help Desk

To enhance the performance of emergency response, public safety and control room operations a modified Contact center, in the form of Citizen Helpdesk is being proposed. This Help Desk shall be integrated as back-end to existing SEOC applications and data (such as IBM IOC, ArcGIS, ERDAS, etc).

Help Desk is equipped with features designed to allocate calls efficiently, in order to maximize the number of captured calls while keeping customer satisfaction high. In-built Interactive Voice Response (IVR), will boosts first call resolution by directing the call to the most competent agent. This allows the staff's diverse skill-sets to be useful to the clients.

b. Computer Aided Dispatcher (CAD):

Both Citizen Helpdesk and CAD will be integrated with KSEOC PBX system which has integrated capabilities for call handling, dispatching, intelligent GUI mapping, textual and voice communications, data reporting and analysis and application integration. CAD enhances the quality and availability of critical information, providing a common operating picture for intelligent response when a distress call made from remote

location.

With CAD, call-takers, dispatchers, and supervisors benefit from streamlined tools to field calls, create and update events, and manage resources in real time from a single interface. EOCs can dispatch services more effectively, monitor events and personnel more comprehensively, and empower responders with better and more accurate information. The CAD software enhances the speed and efficiency of call handling and dispatching.

Dispatcher provides complete capabilities for call-taking, dispatching, and resource management. It features dialogue and map-based views of calls, events, and units and automatically recommends and routes resources based on location, ETA of first responder, status/availability, skills, and more. With Dispatcher, call-takers, dispatchers, and supervisors can verify calls, create events, and dispatch and monitor resources quickly and confidently.

Through interfaces to external systems, users can automate event creation from alarms; run queries on records and external databases; communicate in real time with field personnel via mobile computers, smart phones, radios, and more; and track and monitor AVL and GPS-enabled units and personnel for better resource management, situational awareness, and personnel safety.

A subset of Dispatcher, the CRM supports call entry, event creation, and automatic call routing for organizations that separate call-taking and dispatching functions.

c. Network Management System:

NMS could be a virtual appliance-based solution preferably running on KVM or VMWare or HyperV Hypervisors. Hardware server required to support the implementation should be provided by the vendor, as part of his deliverables. Using MIBs and SNMP protocols, the NMS polls every connected IP systems and devices, to collect its status, log reports etc periodically and can display the same over a GUI based graphical format.

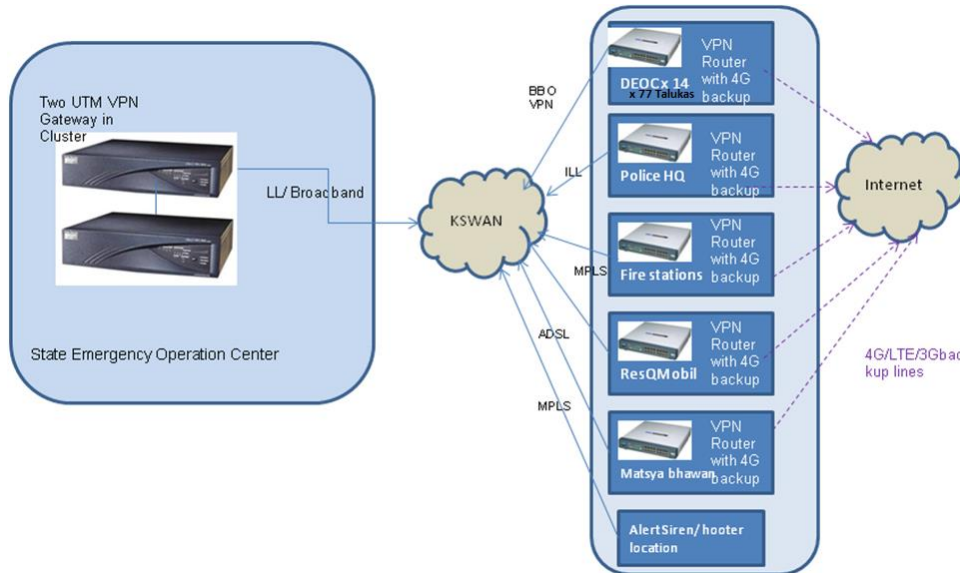
ii. Unified Communications between EOCs.

One indoor WiFi, with other allied office working equipment like phones, Laptops etc have been factored as deliverables of this project. Since, all EOCs are part of the VPN network, SEOC application such as Unified Communication and Voice over WiFi etc can be pushed to each of these EOCs with additional procurement of its licenses. Desk to

desk Instant Messaging (IM) is one of the integral applications of UC. Akin to Whatsapp, it will not only announce the presence or absence of the operators, but also can fetch swift response and exchange chat communications between them. In case, the remote operator is not available on his desk, the call can also be forwarded in auto to his/her handphone. Further, the activities at every remote EOC are also been brought under the camera surveillance of SEOC.

i. VPN network:

Provisioning of a CCC tool with well integrated State-wide EOC and EWDS resources and components will further curtail the traditional time delays in present Kerala State Disaster Management working arrangements. Accordingly, all DEOCs and TEOCs along with key first responders shall be brought under the secured umbrella over a VPN network. The overall architecture of this arrangement is as shown below:-



VPN Network

Secured VPN tunnel is to be established between the SEOC, DEOC and with all first responders (14 DEOCs), Fire Stations, Police, Matsya bhawans and Alert Tower locations. This is achieved by installing one VPN Concentrator cum Router on HA mode at SEOC and another compatible VPN router at remote WAN ends – irrespective of its connectivity. At present, the 14 DEOCs are connected either with KSWAN or using different media (ex: Leased line, Broad-band, MPLS etc). However, based on the local coverage and service support, respective DEOCs must procure an additional 3G/ 4G link from Telecom Service Providers (TSPs) need to be established for redundant mode of operations.

Operational Benefits:-

- a) In addition to overall enhancement of network security, using a vendor neutral Network Management Software (NMS), not only the EOC operators can monitor the availability, activity, event status, of all end-user networked devices, including the UPS, but also, can manage and administer them more professionally from SEOC.
- b) In case of any destruction or disruption of wired networks, (which is highly possible in the event of disasters), an alternate secured connectivity will be made either thru first available alternate wired interface or thru Satcom data connectivity (using project SBMDV Terminals) or 3G/4G wireless route.
- c) Irrespective of geographical separation, the VPN connectivity offers a working atmosphere akin to a virtual office – befitting the primary aims of EWDS. Thus every future networked service or applications can be extended without much technical complications or costs or work delays.

iii. Field Mass-Alert Station with integrated Audio and Light Warnings

The Alert Siren Hooters/ Strobes at last mile locations shall be activated through the SEOC converged alert aggregation bus. The audible Siren hooter coverage is considered as 1.5 kms radius. From SEOC, the activation of Siren hooter could be partial selection/ Group Selection or whole depending on the requirements of activation. The activation of Siren hooter systems at remote locations can also be monitored from SEOC, over video surveillance cameras proposed as part of the solution package.

iv. Satellite Terminals:**I.SBMDV Terminals**

The SBMDVT is a global Satellite Internet Network with telephony using portable terminals. The terminals are normally used to connect a laptopcomputer to broadband Internet in remote locations, although as long as line-of-sight to the satellite exists, the terminal can be used anywhere. The value of BGAN terminals is that unlike other satellite Internet services which require bulky and heavy satellite dishes to connect, a BGAN terminal is a small device adapter and which can be carried easily. SBMDV terminals can also be connected to the secured VPN gateway as yet another data uplink.

Now recently a BSNL Satellite gateway in India also opened at Gaziabad. WPC License is required to operate Satellite terminals.



SBMDVT Terminal



ISat phone 2

II. ISATPHONE 2 Terminal:

A satellite telephone, satellite phone, or satphone is a type of mobilephone that connects to orbiting satellites instead of terrestrial cell sites. They provide similar functionality to terrestrial mobile telephones; voice, short messaging service and low-bandwidth Internet access are supported through most systems.

v. Digital Mobile Radio (DMR) Hand Held sets

Vehicle mounted DMR Base Stations with Hand sets are proposed for Fire department for 14 District Fire Stations

Digital Mobile Radio (DMR) is a digital radio standard specified for professional mobile radio (PMR) users developed by the European Telecommunications Standards Institute (ETSI), and first ratified in 2005. The DMR Hand sets can talk to their nearest Base Station within 15 kms range. Further DMR hand sets can be used to talk one to one or one to many within 1 km range without support of any repeater/ base station also.

- **Instant communication:**

Two-way radio provides instant communication. User just needs to press the "Push-To-Talk" (PTT) button and within a fraction of a second, this user can immediately talk to convey his/her messages. This is due to a quick call set-up time imbedded in the technology. This instant communication capability is one of

key factors of why many organizations rely on two-way radio for their tactical or operational communications.

- **Group communication**

Another distinct feature of two-way radio is its capability to facilitate “one-to-many” group communication (also known as "group call") very efficiently. By efficient means that one user can talk to one, five, tens, hundreds, thousands of users at the same time.



Mobile Base station



DMR Hand set

vi. ResQMobil:

The ResQMobil solution for emergency and disaster communication is based on mobile communication technology, which is intuitively and universally accepted and used by just about everyone.

It creates a dedicated communication network, autonomous of commercial mobile networks to offer plethora of services to disaster and relief agencies like early warning SMS, announcements, estimating affected population and many more.

The ResQMobil solution offers not just instant mobile communication but also offers integration of legacy networks. The Radio Aggregator and Instant Field Office unit aggregates mobile networks, broadband, legacy radios (operating in UHF/VHF/HF) and landlines phones (analogue/VoIP) into an integrated communications system. This allows for quick information flow and provide actionable information to authorities for suitable and coordinated operation.

The solution is self-contained and at the same time gives flexibility to connect the field team to Emergency Operation Centre and external world on any IP-backhaul type – satellite, wireless IP radio, OFC etc.

i. ResQMobil Case

ResQMobil Case is a 360-degree micro mobile network solution that enables first-responders to quickly setup voice, data and SMS services in disaster prone areas.

The ResQMobil Case solution comes in a ruggedized packaging can be easily hand-carried and set up quickly in few minutes. It has an integrated battery for operations upto 8 hours with an option to re-charge from any AC or DC source.

The solution package has a tripod, omni antenna and GSM Network-In-A-Box for establishing an independent communication network, instantly. The solution also offers optional items like Radio Aggregator and Instant Field Office for allowing aggregation and interworking of HF/VHF/UHF walkie-talkies, VoIP/Analogue phone and Mobile phones of emergency responders.

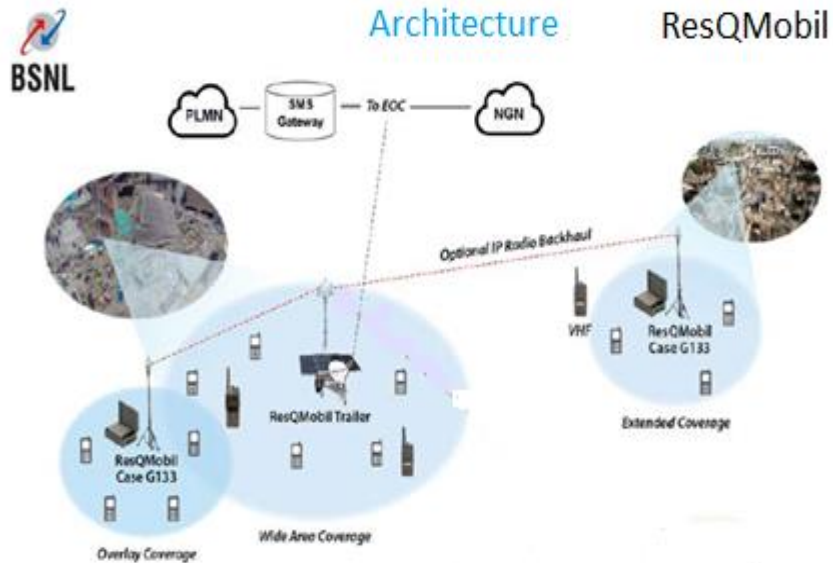
ii. **ResQMobil Trailer**

ResQMobil Trailer is a fully integrated solution that provides an independent communication network for relevant authorities to issue early warning, make announcements, and send special SMS etc. It also creates an autonomous independent first responder's communication network, with no dependency on any commercial mobile network.

The fully integrated ResQMobil Trailer solution package has built-in power backup that can work upto 8 hours, in-built solar panels and charge controller, optional genset, pneumatic mast of 12mtrs, GSM network-in-a-box, high gain antennae, required switches and servers, public address system, integrated satellite backhaul with dish, satellite modem. The solution also has Radio Aggregator and Instant Field Office for allowing aggregation and interworking of HF/VHF/UHF walkie-talkies, VoIP/Analogue phone – to create local command centre and Mobile phones of emergency responders.

The solution aids in early warning public announcements that can be made remotely from anywhere by authorized personnel, SMS with advisories* and also search and rescue operations, thereafter, by sending special SMS with emergency numbers etc. to affected parties, irrespective of their mobile operator.

It is a wheel-based solution that can be strategically placed at DEOCs and if needed be can also be hooked onto any vehicle to go further nearer to the disaster situation.



vii. Mass Messaging through TSPs: (Through Separate Tender):

Group SMS/CB and LBAS (Location Based Alert System) integration:

The present IBM IOC is capable of sending Group based CB and SMSs. However, for LBAS may be procured through separate Tender as decided by NDMA.

12. Resource enhancement of existing Servers:

OS Partitions of Physical Servers									
#	Host Name	Short Host Name	OS	Components	RAM (In GB)		Total RAM (in GB)		
					Current	Required	Current	Required	
1	seoc1.ksd ma.com	SEOC1	RHEL 6.6 Enterprise	Primary Application Server	12	24	64	128	
				Standby Application Server	12	24			
				Primary WEB Server	8	16			
				Standby WEB Server	8	16			

2	seoc2.ksd ma.com	SEOC2	RHEL 6.6 Enterprise	Primary Database Server	12	24	64	128
				Standby Database Server	12	24		
				Primary Analytical Server	12	24		
				Standby Analytical Server	12	24		
3	seoc3.ksd ma.com	SEOC3	Windows 2012 Standard R2	ESRI/ Configuration Data and System Codes	20	40	64	128
				SQL Server Data	20	40		
				Integration Bus Workflows and Others	24	48		

13. Sizing of existing BSNL Towers for coverage of FLCs, Tourist Sea beaches and Villages:

BSNL has submitted a list of 405 Towers located in Coastal area covering all 9 Coastal Districts. However, out of 405, 150 Towers have been mapped to cover the FLCs, Matsya Bhawans and Tourist Beaches. There are 66 TEOCs (beyond 5 kms from Sea Coast) which are uncovered by these BSNLTowers. However, BNSL may be requested to provide their tower details near to these 66 TEOCs. Parallel to this effort, option be also explored to install remote alerting systems atop local Govt offices and facilities close by, where basic site essentials such as DG power, and terrace facilities are available.

14. Requirements from State:

- Approvals required from State, and permission from BSNL to install Alert Sirens, Strobe lights, VPN routers, rack and UPS systems and to use their Power DG back, Ethernet based net connectivity etc from BSNL.
- Leased Line connectivity from SEOC to SDC for data mirroring
- Necessary IT & Storage infra at KSDC.

- Integration of SEOC with State WIFI network for push notifications
- Availability of KSWAN connectivity at 14 Fire Stations in 14 Districts, 77 TEOCS, Matsya bhawans and BSNL Towers / Govt buildings
- 3G/ 4G Connection at 14 Fire Stations, 14 District EOCs, TEOCS, Matsya bhawans andfor EWDS installations at BSNL Towers
- TEOC arrangements: Since most TEOCs operate with cramped officespace and ill-equipped to operate on 24x7 basis, it is suggested to setup the EWDS arrangements in respect of TEOCs at nearby Police or Fire stations operating closer to the proximity of selected Talukas as both Fire and Police are first responders and are operating on 24 x 7 basis. State may identify the same and give necessary approvals during EWDS project implementation.
- Identification of Fire and Police Stations in the close proximity of each shortlisted Taluks for setting up of TEOCs within their premises
- BSNL Tower locations/ Govt building details closer to the proximities of remaining 66 Talukas for setting up of respective TEOCs

15. WPC License for SBMDVT Terminals:

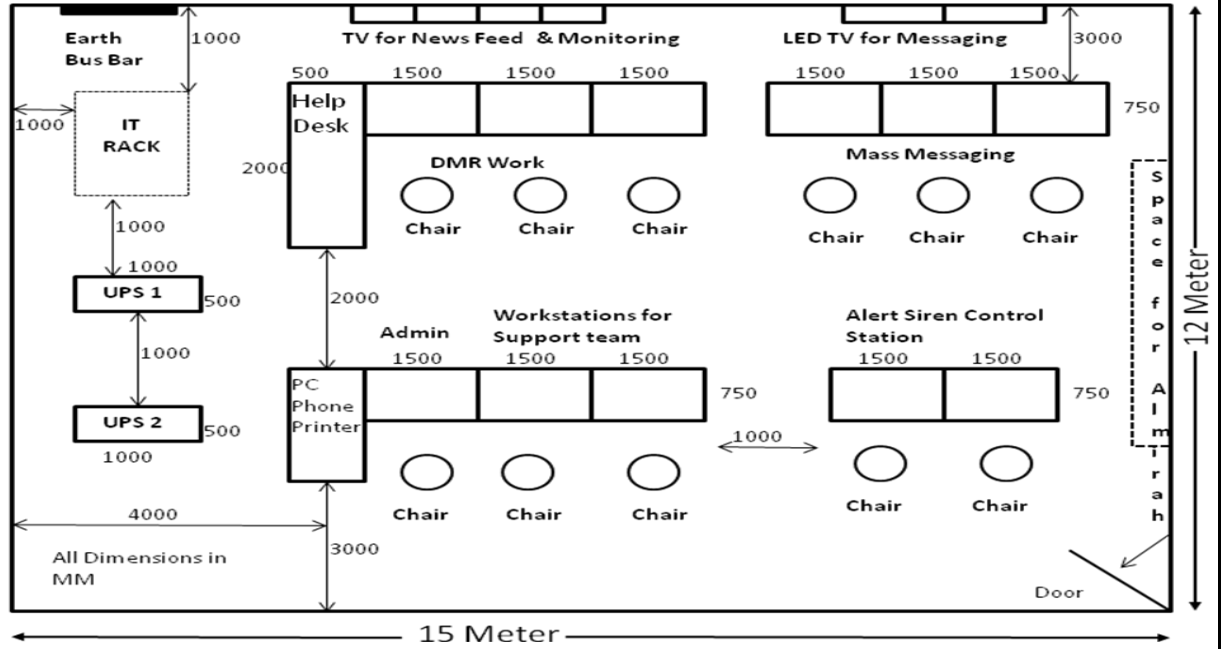
- a. SBMDVT:
 - i. WPC license is required to take from DOT for importing and usage. The Selected SI will apply for License on behalf of SPIU.
- b. DMR:

WPC License for DMR Base Stations frequency and for hand sets also need to be procured from DOT.
- c. Sat phones:

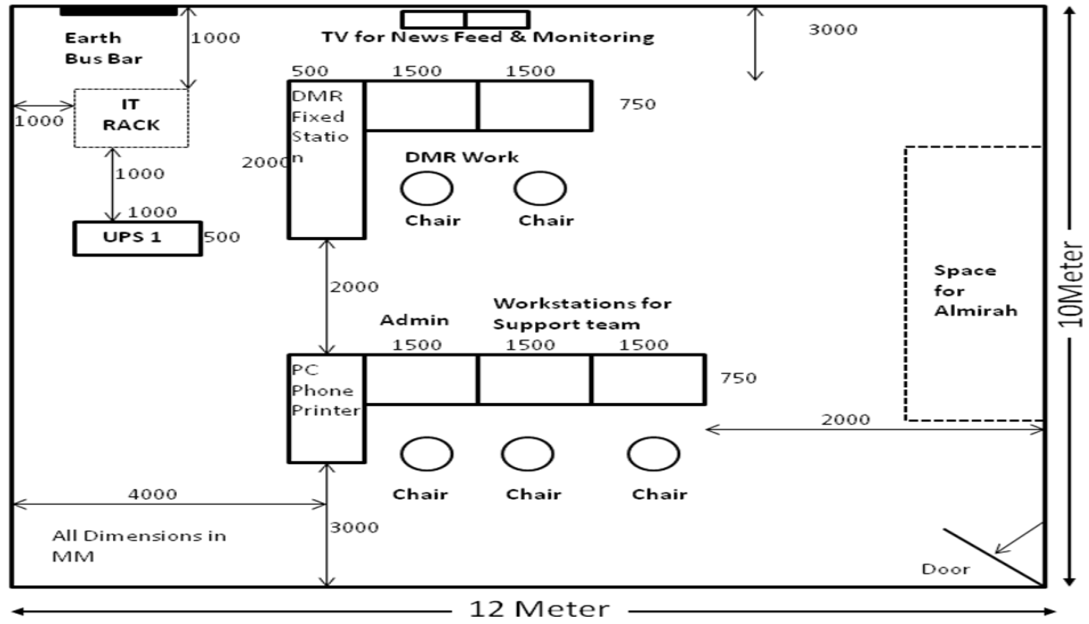
Satellite phones can be procured as a service from BSNL. BSNL will provide the License along with services.

16. SPACE requirements for EOC set-up:

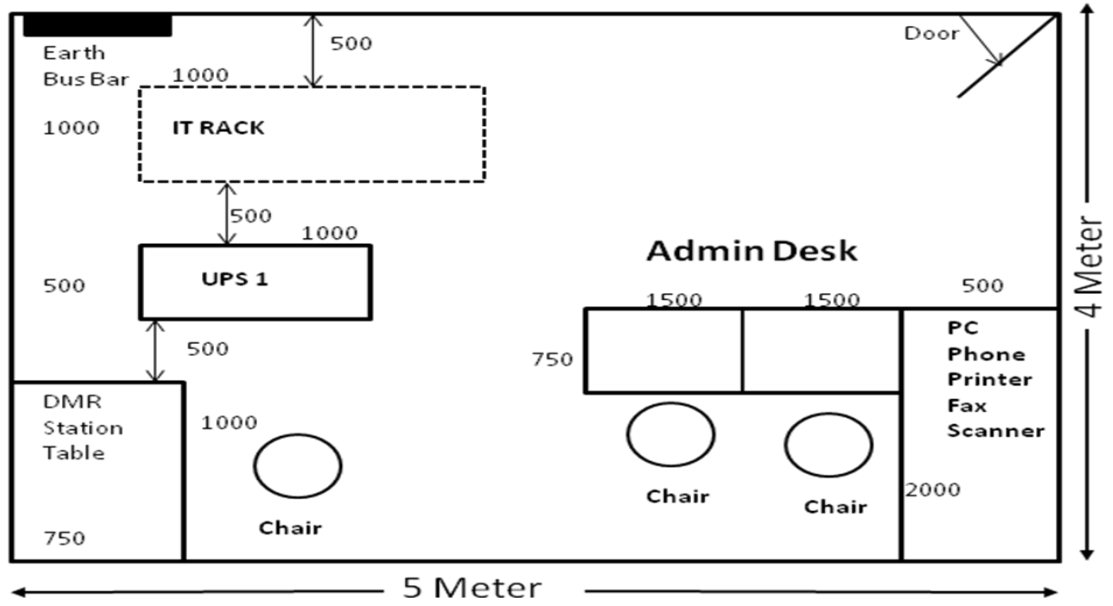
a. SEOC: Space requirements:



b. DEOC: Space requirements:



C. TEOC: Space requirements:



17. BoQ:

EWDS Project BoM & BoQ - Kerala				
SEOC				
#	Item	Qty	Unit rate	Total
1	Secure VPN Concentrator on HA with Gateway Router & UTM	2	550000	1100000
2	Citizen Relationship Management cum Helpdesk Tool	1	8200000	8200000
3	CAD Dispatcher	1	4500000	4500000
4	Unified Alert Notification System with CAP Encode/Decode Controllers	1	9500000	9500000
5	Alert Input Aggregation Tool with Integration of Seismic & Lightning Systems	1	5900000	5900000
6	Unified Dashboard for Alert Originator with Command & Control Interface	1	8800000	8800000
7	Converged Controller Bus for Dissemination of CAP Alerts over Multi-channels & Disparate Platforms	1	16300000	16300000
8	SMTP/POP mail service with Digital Signature (NIC) Integration	1	48000	48000
9	Core & Server farm Switch	2	520000	1040000
10	Expansion Modules for existing SEOC Firewall - Juniper SRX550	2	165000	330000
11	Servers on HA	2	850000	1700000
12	Computers for CAP Alert Originators / Operators	4	42000	168000
13	Network Management Tool for management & monitoring of 3rd party systems remotely	1	3200000	3200000
14	Unified networked Data Storage	1	5400000	5400000
15	Software integration, development and Integration etc of above systems with existing IBM IOC	1	800000	800000
16	Other IT systems, Workstations, and Licenses as per recommendations of various Project OEMs	1	3000000	3000000
17	IP Video Surveillance Camera	12	33500	402000
18	Modular VFI UPS 60 KVA	1	1600000	1600000
19	Network Clock with NTP Support with Master Controls	1	57000	57000
20	Sat phones	2	70000	140000
21	42 U Rack	1	48000	48000
22	Other Labour & Integrations Works	1	500000	500000
DEOC				
1	Secure VPN Gateway PoE Router & UTM - Type-2	14	152000	2128000

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2	SBMDVT	15	200000	3000000
3	Satellite phones	70	70000	4900000
4	IP Video Surveillance Camera	14	33500	469000
5	3G/4G data connection (from two different local service provider having max coverage); Only Opex	14	0	0
6	High-Density Wireless Access Point - Indoor	14	35000	490000
7	Laptop with 512Gb SSD	28	100000	2800000
8	A4, Laser MFD Printer Fax scan	14	46000	644000
9	15U Wall mounted rack at DEOCs	14	17500	245000
10	Online UPS 5 KVA with SNMP card	14	140000	1960000
11	Network Clock with NTP Support	14	52000	728000
12	03 SIP phones each	42	6500	273000
13	Local end-to-end Structured Cabling arrangements for 08 nodes (Voice, Wi-Fi, Camera, Hotline, and data), as per documented scope of work	14	100000	1400000
TEOC (Shall be installed at Nearest Fire or Police Stations)				0
1	Secure VPN Gateway PoE Router & UTM - Type-2	77	152000	11704000
2	High-Density Wireless Access Point - Indoor	77	35000	2695000
3	Satellite phones	77	70000	5390000
4	IP Video Surveillance Camera	77	33500	2579500
5	Mini Desktop PC	154	50000	7700000
6	A4, Laser MFD Printer Fax scan	77	46000	3542000
7	15 U Wall mounted rack	77	17500	1347500
8	Hotline with collectorate	77	20000	1540000
9	3G/4G data connection (from two different local service provider having max coverage); Only Opex	77	0	0
10	Online UPS 5 KVA with SNMP card	77	140000	10780000
11	Network Clock with NTP Support	77	52000	4004000
12	02 SIP phones each	77	6500	500500
13	Local end-to-end Structured Cabling arrangements for 08 nodes (Voice, Wi-Fi, Camera, Hotline, and data)	77	100000	7700000
District Fire Stations				0
1	Secure VPN Gateway PoE Router & UTM - Type-2	14	152000	2128000
2	15 U Wall mounted rack	14	17500	245000
3	3G/4G data connection (from two different local service provider having max coverage); Only Opex	14	0	0
4	02 SIP phones each	14	6500	91000
5	5 KVA Online UPS with SNMP card	14	140000	1960000
6	Network Clock with NTP Support	14	52000	728000

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7	Digital Mobile Set (VHF Band) including GPS With Mobile Antenna.	14	35000	490000
8	DMR Hand sets	50	40000	2000000
9	Local end-to-end Structured Cabling arrangements for 08 nodes (Voice, Wi-Fi, Camera, Hotline, and data), as per documented scope of work	14	100000	1400000
Police HQ				0
1	Secure VPN Gateway PoE Router & UTM - Type-2	1	152000	152000
2	3G/4G data connection (from two different local service provider having max coverage); Only Opex	1	0	0
3	02 SIP phones each	1	6500	6500
4	5 KVA Online UPS with SNMP card	1	140000	140000
5	Network Clock with NTP Support	1	52000	52000
5	Local end-to-end Structured Cabling arrangements for 08 nodes (Voice, Wi-Fi, Camera, Hotline, and data), as per documented scope of work	1	100000	100000
Matsya Bhavans				0
1	Secure VPN Gateway PoE Router & UTM - Type-2	15	152000	2280000
2	IP camera Outdoor	15	33500	502500
3	15 U Wall mounted rack	15	17500	262500
4	3G/4G data connection (from two different local service provider having max coverage); Only Opex	15	0	0
5	02 SIP phones each	15	6500	97500
6	5 KVA Online UPS with SNMP card	15	140000	2100000
7	Network Clock with NTP Support	15	52000	780000
8	5 M rust free poles including Foundation earthing etc	15	500000	7500000
9	Local end-to-end Structured Cabling arrangements for 08 nodes (Voice, Wi-Fi, Camera, Hotline, and data)	15	100000	1500000
At Remote Telecom Towers				0
a. Coastal & Non Coastal region				
1	Secure VPN Gateway PoE Router & UTM - Type-2	216	152000	32832000
2	IP Camera	216	33500	7236000
3	Sirens / hooters	216	400000	86400000
4	Strobe lights	216	35000	7560000
5	Controller unit for activation of Sirens (RTU)	216	100000	21600000
6	3G/4G data connection (from two different local service provider having max coverage); Only Opex	216	0	0
7	1 KVA online UPS	216	43000	9288000
8	9 U Rack	216	12000	2592000

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9	Local end-to-end Structured Cabling arrangements for 08 nodes (Voice, Wi-Fi, Camera, Hotline, and data)	216	100000	21600000
10	5 M Rust free Poles including foundation & earthing on roof top (10% total sirens)	22	500000	11000000
ResQMobil				0
1	Secure VPN Gateway PoE Router & UTM - Type-2	3	152000	456000
2	IP Camera	3	33500	100500
3	ResQMobil Trailer for DEOCs	3	8500000	25500000
4	ReQMobil Case	3	4500000	13500000
5	3G/4G data connection (from two different local service provider having max coverage); Only Opex	3	0	0
Resource enhancement of existing Servers		LS	300000	300000
	Overall Project Labour - Installation, Commissioning	1	2000000	2000000
	Other Contingency works	1	10000000	10000000
	5 KVA Diesel Generator Sets (Contingency)	10	400000	4000000
			Total	43,17,32,000

Total Opex for 5 years: 19,42,79,400 /- (for 5 years approx)

1st year: Default warranty for one year by Supplier

2nd Year: (extended warranty 5%): 2,15,86,600/-

O&M for 2 years (8% per year): 3,45,38,560/- per ear*2=6,90,77,120/-

AMC for 3 years (7% per year): 3,02,21,240/- per year*3= 9,06,63,720/-

Critical Spares (3%) = 1,29,51,960/-

Note: First two year period Warranty costs is borne from Project cost, and subsequent THREE Years (3rd, 4th& 5th) as Annual Maintenance Contract, which will be funded by the State.

18. Annexure

1. List of Matsya bhawans:

Matsyabhavan Office Coordinates

THIRUVANANTHAPURAM (11)				
SI No	Matsyabhavan	Name of Matsyabhavan Officer	Phone Number	Geographic Coordinates
1	Pozhiyoor	Saji	9207149794	8°18'01.6"N 77°05'23.1"E
2	Adimalathura	Saji	9207149794	8°21'07.1"N 77°01'32.9"E
3	Poovar	Susheel Kumar	9446555101	8°19'04.6"N 77°04'14.1"E
4	Pallam	Reena	9745780035	8°20'18.1"N 77°02'37.7"E
5	Vizhinjam	Anilkumar	9846944411	8°22'58.8"N 76°59'29.5"E
6	Panathura	Anilkumar	9846944411	No Building / Vizhinjam Matsyabhavan
7	Poonthura	Sophia	8994166614	8°26'53.7"N 76°56'52.4"E
8	Beemappally	Jessy	8848490289	8°27'23.5"N 76°56'00.4"E
9	Vettukadu	Jessy	8848490289	8°29'40.8"N 76°54'03.3"E
10	Shanghumugham	Jessy	8848490289	8°29'40.8"N 76°54'03.3"E
11	Valiyathura	Anitha	9447891298	8°27'55.0"N 76°55'37.6"E
12	Vallakkadav	Anitha	9447891298	8°28'32.6"N 76°55'00.7"E
13	Valiyaveli	Prasad	9846476668	8°30'55.9"N 76°52'56.5"E
14	Pallithura	Prasad	9846476668	8°32'52.9"N 76°51'27.9"E
15	Puthenthoppe	Dileep	8921516060	8°34'27.8"N 76°50'17.3"E
16	Anchuthengu	Smitha	8129170999	8°40'10.3"N 76°45'32.6"E
17	Vettoor	Manju	8281925448	8°43'13.2"N 76°43'26.0"E
18	Edava	Manju	8281925448	8°45'31.6"N

				76°41'20.9"E
19	Chirayinkeezh	Manju	8281925448	8°39'30.0"N 76°46'50.2"E
KOLLAM DISTRICT (2)				
SI No	Matsyabhavan	Name of Matsyabhavan Officer	Phone Number	
1	Mayyanad	Shibu V	9495238663	8°50'26.7"N 76°38'49.4"E
2	Kollam	Shobhana Upendranath	9895742704	8°52'54.4"N 76°34'27.0"E
3	Sakthikulangara	Ashokan S	9744175256	8°55'58.9"N 76°32'28.7"E
4	Neendakara	Sebastian J	9562367348	8°56'13.3"N 76°32'42.6"E
5	Karithura	Nithya S	9645296518	8°58'26.68"N, 76°31'52.51"E
6	Panmana	Seethalakshmi T	9562369426	9°00'41.8"N 76°32'07.7"E
7	Alapadu	Haritha Mohan	9846216818	9°04'11.2"N 76°29'45.6"E
8	Karunagappally	Babu C	9495732320	9°02'43.1"N 76°30'32.9"E
9	Thevalakkara	Mary Das V	9495681198	8°59'46.4"N 76°34'42.6"E
10	Kundara	Sreejaya J	9946201863	8°57'39.9"N 76°40'21.7"E
11	Thrikkadavoor	Shynu S Prabha	9526378475	8°55'42.5"N 76°36'05.6"E
12	Paravoor	S Joy	9495745241	8°47'22.7"N 76°40'03.5"E
13	Eravipuram	Karthikeyan T	7907250658	8°51'24.6"N 76°37'03.1"E
ALAPPUZHA DISTRICT				
SI No	Matsyabhavan	Name of Matsyabhavan Officer	Phone Number	
1	Arthunkal	Anuraj	9605200894	Not Working
2	Chethy	Anjali Devi	8086980111	9°37'10.5"N 76°18'01.2"E
3	Mannar	Deepu	7034810725	9°17'49.1"N 76°32'00.6"E
4	Kayamkulam	Leena Dennis	9388777487	9°11'3.78"N, 76°30'52.64"E

5	Thiruvallam	Ponnamma	9847478927	9°47'23.2"N 76°20'57.3"E
6	Kattoor	Surya	8281805770	9°33'48.8"N 76°18'32.8"E
7	Thottappally	Lucy	9995398627	9°19'03.3"N 76°22'51.2"E
8	Aroor	Sudarsanan	9526479465	Not Working
9	Ambalappuzha	Unnikrishnan	9746402787	9°22'51.8"N 76°21'21.8"E
10	Ottamassery	Madhu	9495600352	9°42'02.8"N 76°17'20.4"E
11	Vadakkal	Raseena	9656499354	9°30'04.9"N 76°20'36.7"E
12	Thrikkunnappuzha	Sureshkumar N	8606459808	9°15'32.8"N 76°24'36.8"E
13	Punnpra	Radhakrishnapillai	9995535785	9°26'01.8"N 76°20'22.0"E

ERANAKULAM DISTRICT (1)

SI No	Matsyabhavan	Name of Matsyabhavan Officer	Phone Number	
1	Munambam	Leena Thomas	9846335699	10°10'55.6"N 76°10'15.9"E
2	Edavanakkad	Lisi T V	8289866457	10° 5'40.77"N, 76°12'24.91"E
3	Nayarambalam	Lisi T V	8289866457	Not Working
4	Njarakkal	Ramyia K D	9496494971	10° 2'49.03"N, 76°12'59.03"E
5	Elamkunnappuzha	Reshmi P Rajan	9495749147	10°01'05.3"N 76°13'32.3"E
6	Chellanam	Jibina M M	9020078238	9° 49'29.09"N, 76°12'59.03"E
7	Kannamali	Jini P Varghese	9747046037	9° 52'31.28"N, 76°18'38.54"E
8	Fort Kochi	Seena Augustine	9995734738	Not Working
9	Eranakulam	Divya T Babu	9747283520	09° 59'02.81"N, 76°18'16.57"E
10	Udayamperoor	Nitha A R	9620192321	09° 52'58.46"N, 76°22'31.37"E
11	North Paravur	Sabeena T M	7012612511	10° 08'54.28"N, 76°13'53.55"E

THRISSUR DISTRICT (2)

SI No	Matsyabhavan	Name of Matsyabhavan Officer	Phone Number	
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1	Azhikode	Sindhu P P	8281403032	10°11'20.9"N 76°10'21.5"E
2	Edavilang	Jeena Gopinath (In Charge)	9207046696	10°14'25.1"N 76°10'09.7"E
3	Sree Narayanapuram	Anzil PM	9946664066	10°11'20.9"N 76°10'21.5"E
4	Kaipamangalam	Jeena Gopinath	9207046696	10°18'59.2"N 76°07'33.6"E
5	Nattika	Suresh Babu V S	7593056600	10°24'30.54"N, 76° 5'29.41"E
6	Chettuva	Fathima P A (In Charge)	9947903111	10°30'8.27"N, 76° 3'43.69"E
7	Chavakkad	Fathima P A	9947903111	10°35'2.02"N, 76° 0'56.83"E

MALAPPURAM DISTRICT (5)

SI No	Matsyabhavan	Name of Matsyabhavan Officer	Phone Number	
1	Palappetty	Sulaiman A A	9446360873	10°42'08.3"N 75°57'03.8"E
2	Veliyancode	Sulaiman A A	9446360873	10°43'08.7"N 75°56'35.4"E
3	Ponnani	Santhoshkumar N V	9746872951	10°46'47.8"N 75°55'09.7"E
4	Purathur	Sivadas P K	9846214903	10°47'35.8"N 75°54'38.4"E
5	Mangalam	Sivadas P K	9846214903	10°51'18.9"N 75°54'04.4"E
6	Vettam	Suresh Babu B	9497725587	10°52'32.9"N 75°54'24.3"E
7	Niramaruthoor	Suresh Babu B	9497725587	10°55'32.2"N 75°54'01.5"E
8	Thanur	Tony Joseph	9747596080	10°58'36.5"N 75°52'39.6"E
9	Parappanangadi	Vijayan N	9847533544	11°03'19.7"N 75°50'55.4"E
10	Vallikkunnu	Vijayan N	9847533544	11°07'13.5"N 75°50'47.8"E

KOZHIKODE DISTRICT (2)

SI No	Matsyabhavan	Name of Matsyabhavan Officer	Phone Number	
1	Kadalundi	Toni Joseph	8547355709	11°09'01.1"N 75°49'35.0"E

2	Beypore	Toni Joseph	8547355709	11°10'20.36"N, 75°48'34.94"E
3	Vellayil	V Suneer	8129339882	11°15'55.4"N 75°46'01.6"E
4	Elathur	Samna Gopan	9746114100	11°19'11.58"N, 75°45'1.76"E
5	Chemancheri	Shanthakumar	9847356437	11°24'07.2"N 75°43'42.1"E
6	Chengottukavu	T. P Prabhakaran	8075654055	11°25'32.2"N 75°42'20.7"E
7	Koyilandy	Shyam Chand	8921195055	11°29'12.3"N 75°37'44.3"E
8	Moodadi	Satheeshbabu	9847999175	11°28'13.50"N, 75°39'9.02"E
9	Thikkodi	Ravi P P	9846142442	11°29'43.19"N, 75°37'37.02"E
10	Payyoli	Babu M	9495670482	11°31'07.6"N 75°37'17.0"E
11	Vadakara	Sandhya	9747538708	11°36'04.2"N 75°34'39.1"E
12	Chorode	Babu M	9495670482	11°36'30.51"N, 75°35'30.15"E
13	Onchiyam	Sandhya	9747538708	11°38'13.1"N 75°33'48.5"E
14	Azhiyur	Babu M	9495670482	11°41'17.4"N 75°32'34.4"E

KANNUR DISTRICT (1)

SI No	Matsyabhavan	Name of Matsyabhavan Officer	Phone Number	
1	New Mahe	Aneesh Kumar A	9497450499	11°42'37.55"N, 75°32'21.31"E
2	Dharmadam	Vinodan K	9496220259	11°46'11.11"N, 75°28'15.35"E
3	Muzhappilangad	Sujith Kumar M	7012635773	11°47'54.03"N, 75°27'21.83"E
4	Kannur			11°51'23.9"N 75°22'15.4"E
5	Azhikode	Mini Narayanan P V	9895245630	11°56'34.5"N 75°18'41.4"E
6	Madayi	Rajendran K V	8301050974	Not Working
7	Payyannur (Kavvayi)	Rijul Raj	9847939324	12°06'31.8"N 75°12'55.5"E
8	Pattuvam	Rajesh T R	9745321680	12°01'38.3"N 75°19'34.8"E

9	Kannapuram	Anil Kumar K M	9846994782	11°58'42.5"N 75°18'51.0"E
10	Narath	Baburajan M M	9747597931	11°57'22.9"N 75°23'13.7"E
KASARAGOD DISTRICT (1)				
SI No	Matsyabhavan	Name of Matsyabhavan Officer	Phone Number	
1	Kumbala	Abdulla K P	7012288056	12°35'36.8"N 74°56'43.1"E
2	Manjeshwar	Abdulla K P	7012288056	12°43'29.4"N 74°53'08.5"E
3	Kasaba	Anil Kumar A G	8281339833	12°30'07.5"N 74°58'28.6"E
4	Kanhangad	Jose Babu	9447828061	12°18'40.9"N 75°04'35.8"E
5	Thrikaripur	Jose Babu	9447828061	12°08'30.4"N 75°10'34.4"E
6	Valiyaparamb	Jose Babu	9447828061	12°08'53.1"N 75°08'38.7"E
7	Cheruvathur	Jose Babu	9447828061	12°12'57.2"N 75°09'39.7"E
8	Pallikkara	Jose Babu	9447828061	12°24'39.3"N 75°01'23.6"E
9	Padanna	Jose Babu	9447828061	Not Working
10	Nileshwar	Jose Babu	9447828061	12°12'40.3"N 75°07'45.2"E

2. List of Fish Landing Centers:

DISTRICT WISE DETAILS OF FISH LANDING CENTRES / SITES

ALAPPUZHA

SL.N O	NAME OF LANDING CENTRE	VILLAGE	DISTRICT	LAT AND LONG
1	CETHY	CHERTHALA SOUTH	ALLEPPEY	09 38 10 N 076 17 25 E
2	PUNNAPRA VIYANI	PUNNEPRA	ALLEPPEY	09 25 95 N 076 19 97 E
3	ALAPPUZHA ESI KADAPPUM	WEST VILLAGE	ALLEPPEY	09 28 73 N 076019 27 E
4	PALLITHODU	KUSLIYATHODU	ALLEPPEY	09 46 30 N 076 16 88 E
5	PALLITHOPPU CHAPPA KADAVU	KUSLIYATHODU	ALLEPPEY	09 47 21 N 076 16 67 E

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6	ANTHAKARANAZHY	KUSLIYATHODU	ALLEPPEY	09 47 21 N 076 17 07 E
7	CHERIYASSERRY	PATTANAKKAD	ALLEPPEY	09 44 85 N 076 17 07 E
8	ARATTUVAZHY	PATTANAKKAD	ALLEPPEY	09 44 59 N 076 17 18 E
9	POLACKAL KADAPPURAM	PATTANAKKAD	ALLEPPEY	09 43 13 N 076 17 22 E
10	THAIKKAL BEACH	PATTANAKKAD	ALLEPPEY	09 41 16 N 076 17 37 E
11	ARTHUNGAL	CHERTHALA SOUTH	ALLEPPEY	09 40 29 N 076 17 51 E
12	CHENNA VALLY	CHERTHALA SOUTH	ALLEPPEY	09 38 47 N 076 17 67 E
13	POLLETHAI	KALAVOOR	ALLEPPEY	09 34 65 N 076 18 12 E
14	VADAKKAL	ALAPPUZHA WEST	ALLEPPEY	09 27 80 N 076 19 52 E
15	PARAVOOR	PARAVOOR	ALLEPPEY	09 20 95 N 076 19 75 E
16	VALIAZHEEKAL	ARATTUPPUZHA	ALLEPPEY	09 08 34 N 076 27 94 E
17	TRIKKUNNAPPUZHA	TRIKUNNA PUZHA	ALLEPPEY	09 17 58 N 076 23 46 E
18	VIYANI (PUNNAPRA)	PUNNPRA	ALLEPPEY	09 25 48 N 076 20 11 E
19	VALANJAVAZHY	PUNNPRA	ALLEPPEY	09 23 81 N 076 20 73 E
20	KOMANA FLC	AMBALAPUZHA	ALLEPPEY	09 22 81 N 076 21 12 E
21	THOTTAPPALLY	PURAKKAD	ALLEPPEY	09 19 14 N 076 22 72 E
22	PALLANA HS FLC	TRIKUNNAPPUZHA	ALLEPPEY	09 17 58 N 076 23 46 E

KOLLAM

SL.N O	NAME OF LANDING CENTRE	VILLAGE	DISTRICT	LAT AND LONG
1	AZHEEKAL	ALLAPAD	KOLLAM	09 07 89 N 076 28 03 E
2	PARAYAKADAVU	ALLAPAD	KOLLAM	09 05 33 N 076 29 11 E
3	CHERIAZHEEKAL	ALLAPAD	KOLLAM	09 03 31 N 076 30 04 E
4	VALLANATHURUTHI	ALLAPAD	KOLLAM	09 01 38 N 076 31 00 E
5	PONMANA	PONMANA	KOLLAM	09 00 47 N 076 31 41 E
6	KOVILTHOTTAM	CXHAVARA	KOLLAM	08 59 46 N 076 31 48 E
7	PUTHENTHURA	NEENDAKARA	KOLLAM	08 57 77 N 076 31 82 E
8	NEENDAKARA FH	NEENDAKARA	KOLLAM	08 56 20 N 076 32 28 E
9	SAKTHIKULANGARA	SAKTHIKULANGARA	KOLLAM	08 55 99 N 076 32 63 E
10	VALAVILTHOPPU	SAKTHUKULANGARA	KOLLAM	09 54 75 N 076 32 63 E
11	OZHUKKUTHODU	SAKTHIKULANGARA	KOLLAM	08 54 26 N 076 32 80 E
12	THANKASERRY FH	KOLLAM	KOLLAM	08 51 93 N 076 34 31 E

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TCIL

13	WADI	KOLLAM	KOLLAM	08 52 89 N 076 34 45 E
14	MOOTHAKARA	KOLLAM	KOLLAM	08 53 15 N 076 34 71 E
15	JONAPURAM	KOLLAM	KOLLAM	08 52 88 N 076 34 71 E
16	QUILON PORT	KOLLAM	KOLLAM	08 52 85 N 076 34 71 E
17	PALLITHOTTAM	KOLLAM	KOLLAM	08 51 63 N 076 35 08 E
18	KAKKATHOPPU	MUNDAKKAL	KOLLAM	08 51 27 N 076 36 55 E
19	ERAVIPURAM	ERAVIPURAM	KOLLAM	08 51 06 N 076 35 08 E
20	KOLATHUMPADDAM	ERAVIPURAM	KOLLAM	08 49 28 N 076 37 14 E
21	MUKKAM	MAYYANAD	KOLLAM	08 49 28 N 076 38 62 E
22	CHILLICKAL	KOTTAPURAM	KOLLAM	08 48 46 N 076 39 11 E
23	THOTTUPUZH	KOTTAPURAM	KOLLAM	08 47 68 N 076 39 74 E
24	PARAKKADA	KOTTAPURAM	KOLLAM	08 47 51 N 076 39 61 E
25	THANNI	MAYYANAD	KOLLAM	08 49 90 N 076 38 15 E

THRISSUR

SL.N O	NAME OF LANDING CENTRE	VILLAGE	DISTRICT	LAT AND LONG
1	AZHICODE	AZHICODE	THRISSUR	10 11 34 N 076 10 43 E
2	MUNNAKKAL AZHICODE	AZHICODE	THRISSUR	10 10 68 N 076 09 76 E
3	ERIYAD	ERIYAD	THRISSUR	10 13 50 N 076 08 95 E
4	KARA	EDAVILANGU	THRISSUR	10 14 01 N 076 08 77 E
5	KATHIYALAYAM	EDAVILANGU	THRISSUR	10 44 43 N 076 08 63 E
6	ATTUPPURAM	VEBALLUR	THRISSUR	10 15 37 N 076 08 35 E
7	PERINJANAM BHAJANAMADAM	KULIMUTTAM	THRISSUR	10 17 61 N 076 07 73 E
8	ARATTUKADAVU	PERINJANAM	THRISSUR	10 18 12 N 076 07 57 E
9	VANCHIPURA	KAIPAMANGALAM	THRISSUR	10 19 19 N 076 07 23 E
10	COMPANYKADAVU	KAIPAMANGALAM	THRISSUR	10 20 10 N 076 06 91 E
11	CHAMAKALA	CHANTRAPINNI	THRISSUR	10 20 90 N 076 06 64 E
12	PALAPETTY	VALAPAD	THRISSUR	10 21 67 N 076 06 34 E
13	KAZHIMBRAM	VALAPAD	THRISSUR	10 22 14 N 076 06 17 E
14	NATTIKA BEACH	NATTIKA	THRISSUR	10 24 80 N 076 05 11 E
15	NAMBIKKADAVU/THALIKULA	THALIKULAM	THRISSUR	10 25 85 N 076 04 67 E

M

16	VADANAPALLY	VADAANAPALLY	THRISSUR	10 25 85 N 076 04 86 E
17	CHETUVA BANGLAMKADAVU	EANGANDIYOOR	THRISSUR	10 30 91 N 076 02 49 E
18	MUNAKKADAVU	KADAPPURAM	THRISSUR	10 32 38 N 076 01 58 E
19	BLANGAD	CHEVAKKADU MUNICIPALITY	THRISSUR	10 34 32 N 076 00 48 E
20	PUTHEN KADAPURAM	CHEVAKKADU MUNICIPALITY	THRISSUR	10 35 81 N 075 59 89 E
21	EDAKAZHIYUR	EDAKAZHIYUR	THRISSUR	10 36 81 N 075 59 32 E
22	PANCHAVADI	PUNNAYUR	THRISSUR	10 37 22 N 075 59 16 E
23	MANNALAM KUNNU	PUNNAYUR	THRISSUR	10 39 48 N 075 58 20 E

ERNAKULAM

SL.N O	NAME OF LANDING CENTRE	VILLAGE	DISTRICT	LAT AND LONG
1	MURIKKUM PADAM	PUTHUVYPEEN	ERNAKULAM	09 59 29 N 76 14 40 E
2	KALMUKKU FLC	PUTHUVYPEEN	ERNAKULAM	09 59 01 N 76 14 54 E
3	KALMUKKU PVT	PUTHUVYPEEN	ERNAKULAM	09 59 23 N 76 14 54 E
4	GOSREE PURAM FLC	PUTHUVYPEEN	ERNAKULAM	09 58 93 N 76 14 56 E
5	PUTHUVYPIN FLC	PUTHUVYPEEN	ERNAKULAM	09 29 90 N 76 13 12 E
6	MALIPURAM CHAPPA KADAPURAM	ELAMKUNNAPUZHA	ERNAKULAM	10 01 22 N 76 12 84 E
7	AYYAMPILLI BEACH	AYYAMPILLI	ERNAKULAM	10 07 10 N 76 11 10 E
8	KUZHUPILLI BEACH	KUZHUPILLY	ERNAKULAM	10 06 59 N 76 11 26 E
9	PATHANKADAPPURAM	NAYARAMBALAM	ERNAKULAM	10 03 98 N 76 11 91 E
10	MUNNAMBAM FH	KUZHIPPILLY	ERNAKULAM	10 10.94'N 76 10.22'E
11	MUNNAMBAM MINI FH	KUZHIPPILLY	ERNAKULAM	10 10.51'N 76 10.62'E
12	KUNJI THAI (INLAND)	VADAKKEKARA	ERNAKULAM	10 09.94'N 76 11.09'E
13	EZHICKARA (INLAND)	EZIKKARA	ERNAKULAM	10 06.78'N 76 13.09'E
14	CHATHANAD(INLAND)	AZIKKARA	ERNAKULAM	10 04.48'N 76 14.39'E
15	THOPPUMPADY	RAMESWARAM	ERNAKULAM	09 56.31 N 76 15.76E
16	GONDU PARAMBU	CHELLANAM	ERNAKULAM	09 48.80 N 76 16.39E
17	THOLEKKADAVU (MANNASSERRY)	PALLUTHURUTHY	ERNAKULAM	09 55.17N 76 15.08E

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18	CHERIYA KADAVU	PALLUTHURUTHY	ERNAKULAM	09 54.01 N 76 15.38 E
19	KANNAMALY	KUMBELANGY	ERNAKULAM	09 52.89 N 76 15.64E
20	PUTHEN THODU CHELLANAM FH	KUMBELANGY	ERNAKULAM	09 52.11 N 76 15.79 E
21	CHELLANAM FH	CHELLANAM	ERNAKULAM	09 47.95 N 76 16.55 E
22	CHERAI BEACH	CHERAI	ERNAKULAM	10 08.43 N 076 10.74 E
23	EDAVANKKADU	AYYAMPILLI	ERNAKULAM	10 05.91 N 076 11.4 E
23	BEACH ROAD	RAMESHWARAM	ERNAKULAM	09 56.41 N 076 14 66 E

KASARGODE

SL.N O	NAME OF LANDING CENTRE	VILLAGE	DISTRICT	LAT AND LONG
1	PALLIKERE	PALLIKERE	KASARGODE	12 23 469 N 075 02 281 E
2	CHITTARI	CHITTARI	KASARGODE	12 20 738 N 075 03 626 E
3	KOTIKULAM	PALLIKERE III	KASARGODE	12 24 683 N 075 01 327 E
4	BEKAL	PALLIKERE II	KASARGODE	12 24 290 N 075 01 538 E
5	KIZHUR	KALANAD	KASARGODE	12 27 811 N 074 29 603 E
6	KIZHUR HARBOUR	KALANAD	KASARGODE	12 28 380N 074 59 329 E
7	TALA GARA JETTY	KALANAD	KASARGODE	12 28.523N 074 59 618 E
8	KASABA	KASARGOD	KASARGODE	12 29 574N 074 58 763 E
9	ADAKATHBAILI	KASARGOD	KASARGODE	12 30 31.5N 074 58 369 E
10	MOGRAL	KASARGOD	KASARGODE	12 33 587 N 074 57 366 E
11	KOIPADI	KOIPADI	KASARGODE	12 35 13.8 N 074 56 416 E
12	UPPLA	UPPLA	KASARGODE	12 42 14.6 N 074 53 406 E
13	ARIKKADI	KASARGOD	KASARGODE	12 35 13.8N 074 56 475 E

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14	HOSABETTU	HOSABETLU	KASARGODE	12 42 526 N 074 53 185 E
15	KUNZHATHUR	KUNZHATHOOR	KASARGODE	12 44 319 N 074 52 381 E
16	AJANNOOR-N-BELLA	AJNOOR	KASARGODE	12 20 162 N 075 03915 E
17	CHITTARI	CHERVATHUR	KASARGODE	12 12 879 N 075 07 855 E
18	HOSDURGA-S BELLA	HOSDURGE	KASARGODE	12 18 754 N 075 04 519 E
19	THAIKADAPPURAM	NEELESHWARAM	KASARGODE	12 13. 217 N 075 07 00 E
20	POONCHAVIKADAPPURAM	HOSDURGE	KASARGODE	12 16 632 N 075 05 413E

KOZHIKODE

SL.NO	NAME OF LANDING CENTRE	VILLAGE	DISTRICT	LAT AND LONG
1	CHALIYAM	KADALUMIDIPALAYAM	KOZHIKODE	1109 724 N 07548 552E
2	BEYPORE	BEYPORE	KOZHIKODE	1110 308 N 075 48 50 E
3	KOZHIKODE SOUTH	KOZIKODE/KASABA	KOZHIKODE	11 14 315N 075 46 484 E
4	CHOMBALA	AZIYOOR	KOZHIKODE	11 39.733N 075 33.068 E
5	BADAGARA KADALPALAM	BADAGARA	KOZHIKODE	11 36.047N 075 34 627 E
6	BADAGARA AZHITHALA	BADAGARA	KOZHIKODE	11 34.535 N 075 35.304 E
7	KOLAVI (IRINJAL)	IRINJAL	KOZHIKODE	11 32 942N 075 35.716 E
8	THIKKODI (KODIKAL)	THIKKODI	KOZHIKODE	11 28 692N 075 37.056 E
9	VALAVIL KADAPURAM	MADDADY	KOZHIKODE	11 27 94 9 N 075 38 349 E
10	MUTHAYAKADAP.URAM	MOODADY	KOZHIKODE	11 28 083N 075 38 876 E

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11	MOODADY	MOODADY	KOZHIKODE	11 27 935N 075 39 352 E
12	KOLOTH	VEEYUR	KOZHIKODE	11 27 014 N 075 40 872 E
13	QUILNDY/KOLOTH	PANTHALAZI	KOZHIKODE	11 25 976 N 075 41 540 E
14	KOVALAD	KOYILANDI MUNICIPALITY	KOZHIKODE	11 24 747 N 075 42 260 E
15	POILKAVU	CHEGOTTA	KOZHIKODE	11 24 383 N 075 42 448 E
16	KAPPAD	CHEMAMCHERI	KOZHIKODE	11 23 539 N 075 42 948 E
17	EDAKADAVU	TIRUVANGURE	KOZHIKODE	11 22 815 N 075 4 43 280 E
18	ELATHUR	ELATHUR	KOZHIKODE	11 21 258 N 075 44 459 E
19	PUTHIYAPPA	ELATHUR	KOZHIKODE	11 19 128 N 075 44 792 E
20	VELLAYIL	KASABA	KOZHIKODE	11 15 909 N 075 46 004 E

KANNUR

SL.N O	NAME OF LANDING CENTRE	VILLAGE	DISTRICT	LAT AND LONG
1	EDAKKAD	MUZHUPPALLANGAD	KANNUR	11 48 511 N 075 25 949 E
2	GOPALAPATAI	TIRUVANGAD	KANNUR	1143 913 N 075 29 955 E
3	THALAYILKUNHI KADAPURAM	TIRUVANGAD	KANNUR	1143 918 N 075 30 391 E
4	NEWMAHE	RODIYARI	KANNUR	1142 293 N 075 31 909 E
5	DHARMADAM FC/ THURUTH	DHARMADAM	KANNUR	11 46 140 N 075 28 250 E
6	THURUTH/ PUNNUPUZHA TERMINAL	MAZHUPPILLAMGAD	KANNUR	11 46 756 N 075 27 318 E

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7	ETTICKULAM	RAMANATHALI	KANNUR	12 00 677 N 075 12 587 E
8	AZHEEKAL JETTY	AZHIKOD	KANNUR	11 56 597 N 075 12 587 E
9	TELLICHERRY	TELLICHERRY	KANNUR	11 44 791 N 075 29 244 E
10	AYIKKARA	KANNUR MUNICIPALITY	KANNUR	11 51 390 N 075 22 549 E
11	AZHEECODE SOUTH	AZIKODE	KANNUR	11 54 119 N 075 19 595 E
12	MUZHUPPILAMGAD	MUZHUPPILANGAD	KANNUR	1147 022 N 075 26 845 E
13	PALAKODE	RAMANTHALI	KANNUR	1201 624 N 075 13 522 E

THIRUVANANTHAPURAM

1	KOLLAMGODE	POZHIYOOR	TRIVANDRUM	08 17 57 N 077 05 79 E
2	PARITHYOOR	POZHIYOOR	TRIVANDRUM	08 18 14 N 077 05 11 E
3	POOVAR	POZHIYOOR	TRIVANDRUM	08 19 03 N 077 03 93 E
4	KARIMKULAM	TRIVANDRUM	TRIVANDRUM	08 19 51 N 077 03 40 E
5	KOCHUTHURA	KARIMKULAM	TRIVANDRUM	08 19 77 N 077 03 10 E
6	PUTHIATHURA	NEYANTIKKARA	TRIVANDRUM	08 19 77 N 077 02 78 E
7	PALLOM	KARINKULAM	TRIVANDRUM	08 20 31 N 077 02 49 E
8	ERYAMMANTHURA	KARINKULAM	TRIVANDRUM	08 20 53 N 077 02 17 E
9	CHEMPAKARAMTHURA	KARINKULAM	TRIVANDRUM	08 20 65 N 077 02 03 E
10	ADIMALATHURA	KARINKULAM	TRIVANDRUM	08 21 11 N 077 01 10 E
11	VIZHINJAM KOTTAPURAM	KARINKULAM	TRIVANDRUM	08 22 70 N 076 59 47 E
12	VIZHINJAM NORTH	VIZHINJAM CORPORATION	TRIVANDRUM	08 22 73 N 076 59 32 E
13	KOVALAM	VIZHINJAM CORPORATION	TRIVANDRUM	08 23 78 N 076 58 40 E
14	POONTHURA	VIZHINJAM CORPORATION	TRIVANDRUM	08 26 46 N 076 56 65 E
15	BHEEMAPALLY	MUTTATHARA	TRIVANDRUM	08 27 02 N 076 56 19 E
16	CHERAITHURA	MUTTATHARA	TRIVANDRUM	08 27 41 N 076 55 87 E

17	VALIATHURA	MUTTATHARA	TRIVANDRUM	08 27 84 N 076 55 50 E
18	VETTUCAUD	MUTTATHARA	TRIVANDRUM	08 29 62 N 076 53 95 E
19	KOCHUVELI	KADAKAMPALLY	TRIVANDRUM	08 30 03 N 076 53 58 E
20	VALIAVELI	KADAKAMPALLY	TRIVANDRUM	08 31 23 N 076 52 61 E
21	PALLITHURA	ATTIPRA	TRIVANDRUM	08 32 75 N 076 51 43 E
22	FATHIMA THUMBA	ATTIPRA	TRIVANDRUM	08 33 12 N 076 51 12 E
23	ST ANDREWS	KAZHAKOOTTAM	TRIVANDRUM	08 33 72 N 076 50 63 E
24	PUTHENTHOPPU	KAZHAKOOTTAM	TRIVANDRUM	08 34 32 N 076 50 15 E
25	VETTUTHURA	MUNAMKULAM	TRIVANDRUM	08 35 37 N 076 49 29 E
26	SANTHIPURAM	KADINAKULAM	TRIVANDRUM	08 35 70 N 076 49 03 E
27	MARIANAD	KADINAKULAM	TRIVANDRUM	08 35 95 N 076 48 83 E
28	PUTHUKURICHI	KADINAKULAM	TRIVANDRUM	08 36 38 N 076 48 44 E
29	MUTHALAPOZHI	KADINAKULAM	TRIVANDRUM	08 38 10 N 076 47 28 E
30	ANJENGO	KADINAKULAM	TRIVANDRUM	08 39 73 N 076 45 79 E
31	MAMPALLY	KADAKAVUR	TRIVANDRUM	08 40 72 N 076 44 99 E
32	VETTOOR	KADAKAVUR	TRIVANDRUM	08 42 70 N 076 43 41 E
33	CHILAKKOOR	CHIRAYANKEEZHU	TRIVANDRUM	08 43 17 N 076 43 10 E
34	EDAVA	VARKALA	TRIVANDRUM	08 45 97 N 076 41 03 E
35	SINGARATHOPPU	SINGARATHOPPU	TRIVANDRUM	08 28 15 N 076 55 70 E
36	THAZAMPALLY	THAZAMPALLY	TRIVANDRUM	08 39 10 N 076 45 60 E
37	ODAYAN	KAPPIL	TRIVANDRUM	08 47 50 N 076 40 40 E
38	KAPPIL	KAPPIL	TRIVANDRUM	08 46 70 N 076 41 00 E
39	KANNANTHURA	KANNANTHURA	TRIVANDRUM	08 33 50 N 076 54 90 E
40	VALIATHOPPU	VALIATHOPPU	TRIVANDRUM	08 30 10 N 076 55 05 E
41	KOCHUTHOPPU	KOCHUTHOPPU	TRIVANDRUM	08 28 05 N 076 55 30 E
42	POOTHURA	THUMBA	TRIVANDRUM	08 32 65 N 076 53 17 E

3. List of BSNL Towers identified for Siren/ Hooter and Strobe lights

Sl. No.	District	BSNL Tower No.	BSNL Tower Name	IP Name	Site Type	TWR Ht Mtr	BLD'G Hegt Mtr	IP Broadband connectivity	Availabili ty of power backup(y /n)	DG capacity n details(ma ke and other details)	Remarks (Covers)

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1	Trivandrum	RP05154	Poozhiyoor	Indus Tower	GBT	50	0	NO	INFRA PROVIDER	INFRA PROVIDER	Poozhiyoor MD, FLC, Kollamgode FLC
2	Trivandrum	RP00721	Poovar	BSNL Infra	GBT	40	0	IP connected	Y	15 KVA EICHER	Poovar MB, Karimkullam FLC
3	Trivandrum	RP04085	Paraniyam	BSNL Infra	GBT	40	0	IP connected	Y	15 KVA EICHER	Puthithara FLC, Kochuthara FLC, Pallom FLC, Pallam MB
4	Trivandrum	RP01617	Pulluvilla	BSNL Infra	GBT	40	0	IP connected	Y	15 KVA EICHER	Chowara Beach, Eryammanthura FLC, Chempakaramthura FLC, Adimalathura MB
5	Trivandrum	RP09029	TravancoreHeritageResort	BSNL Infra	RTP	3	8	IP connected	Y	110 KVA DG	Adimalathura FLC
6	Trivandrum	RP05209	Thennoorkonam	VIOM Networks	GBT	45	0	IP connected	INFRA PROVIDER	INFRA PROVIDER	vizhinjam beach, vizhinjam kottapuram FLC, vizhinjam north FLC, vizhinjam MB
7	Trivandrum	RP06253	KovalamJn	ATIL	GBT	50	0	IP connected	INFRA PROVIDER	INFRA PROVIDER	Kovalam beach, FLC
8	Trivandrum	R02829	Poonthura	BSNL Infra	GBT	40	0	IP connected	Y	15 KVA EICHER	Poonthura MB, FLC, bheemapally FLC
9	Trivandrum	RP07435	Muttathura	BSNL Infra	RTP	15	5	IP connected	Y	15 KVA KIRLOSKAR	singarathopu flc, valiathura flc, thiruvantapuram taluk office, muttathura MB, valiathura MB, bheemapally MB, kochuthopu flc
10	Trivandrum	RP00375	AirportTE	BSNL Infra	GBT	18	0	IP connected	Y	30 KVA KIRLOSKAR	vallakadav MB, shankumughan beach
11	Trivandrum	RP07983	AllSaintsClgCnvt	BSNL Infra	RTP	6	7	IP connected	Y	15 KVA EICHER	vettukadu MB, kochuveli flc, vettucaud flc, valiathopu flc
12	Trivandrum	RP05265	VSSCProjComplex	BSNL Infra	RTP	6	19	IP connected	Y	NO DG	valiyaveli MB, flc
13	Trivandrum	RP02440	TVM-Kulathur	BSNL Infra	GBT	40	0	IP connected	Y	15 KVA KIRLOSKAR	Poothura FLC
14	Trivandrum	RP02445	Menamkulamte	BSNL Infra	GBT	40	0	IP connected	Y	62.5 KVA LG	pallithura FLC, MB, fathima thumba flc
15	Trivandrum	RP04925	Kadinamkulam	VIOM Networks	GBT	46	0	IP connected	INFRA PROVIDER	INFRA PROVIDER	st andrews flc, prrthanthope flc, MB, beach
16	Trivandrum	RP06264	VettuthuraChanankara	VIOM Networks	GBT	40	0	NO	INFRA PROVIDER	INFRA PROVIDER	vettothura flc
17	Trivandrum	RP01612	Perumathura	BSNL Infra	GBT	46	0	IP connected	Y	15 KVA Mahindra	puthukurichi flc, marianad flc, santhipuram flc,
18	Trivandrum	RP03218	Azhoor	Indus Towers	GBT	40	0	IP connected	INFRA PROVIDER	INFRA PROVIDER	Muthalapozhi flc

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19	Trivandrum	RP03584	Sarkkara	BSNL Infra	RTT	24	7	IP connected	Y	15 KVA EICHER	chirayinkeezhu MB, thazampally flc,
20	Trivandrum	RP07794	VakkomRWGate	BSNL Infra	GBT	40	0	IP connected	Y	15 KVA KIRLOSKAR	mampally flc
21	Trivandrum	RP04922	Thazhvettoori p	Indus Towers	GBT	45	0	NO	INFRA PROVIDE R	INFRA PROVIDER	vetoor flc, mb, chilakoor flc
22	Trivandrum	RP00709	Eudytower	BSNL Infra	RTT	30	13	IP connected	Y	15 KVA EICHER	varkala taluk office
23	Trivandrum	RP06178	Papanasam	VIOM Networ ks	GBT	40	0	IP connected	INFRA PROVIDE R	INFRA PROVIDER	varkala beach
24	Trivandrum	RP00365	Edava	BSNL Infra	RTT	24	6	IP connected	Y	15 KVA EICHER	edava mb
25	Trivandrum	RP01601	Kappil	BSNL Infra	GBT	40	0	IP connected	Y	15 KVA EICHER	edava flc, kappil flc
26	Kollam	RP05632	Thekkumbhaga mKIm	BSNL Infra	GBT	40	0	IP connected	Y	15 KVA EICHER	odayan flc, paravoor mb, parakkada flc, thotupuzhi flc
27	Kollam	RP03564	Kulangara	BSNL Infra	GBT	40	0	IP connected	Y	NO DG	kolathumpaddam flc, mukkam flc, mayyanad flc
28	Kollam	RP00520	Mayyanadu	BSNL Infra	GBT	40	0	IP connected	Y	TE site	thanni flc
29	Kollam	RP07778	EravipuramRWS tn	Indus Towers	GBT	40	0	IP connected	INFRA PROVIDE R	INFRA PROVIDER	eravipuram mb, flc, kakkathopu flc,
30	Kollam	RP09393	CollectorsBglwK LM	BSNL Infra	RTP	3	8	NO	Y	NO DG	Kollam beach, pallithotam flc
31	Kollam	RP09394	AllSeasonTGSY	BSNL Infra	RTP	3	12	NO	Y	NO DG	kollam mb, thankasery flc
32	Kollam	RP02868	Kallupalam	BSNL Infra	RTT	24	11	IP connected	Y	APC_1P_15 KVA	moothakara flc, quilon port flc, jonapuram flc, wadi flc, taluk office
33	Kollam	RP02172	Thirumullavara m	BSNL Infra	GBT	50	0	IP connected	Y	Eicher_3P_ 15KVA	thirumullavaram beach
34	Kollam	RP01247	Neendakara	BSNL Infra	GBT	40	0	IP connected	Y	Eicher_3P_ 15KVA	sakthikulangara mb
35	Kollam	RP06569	Dalavapuram	Tower Vision	GBT	50	0	IP connected	INFRA PROVIDE R	INFRA PROVIDER	neendskara flc, mb, sakthikulangara flc
36	Kollam	RP00086	Chavara	BSNL Infra	GBT	40	0	IP connected	Y	TE site	puthenthura flc, chavara mb
37	Kollam	RP04205	Sankaramangal amCvr	BSNL Infra	GBT	40	0	IP connected	Y	15KVA Kirloskar	kovilthottam flc
38	Kollam	RP01237	Edapallikkotta	BSNL Infra	GBT	40	0	IP connected	Y	TE site	Panmana mb, flc
39	Kollam	RP09110	AlappadTEMicr o	BSNL Infra	RTT	9	7	IP connected	Y	TE site	karunagapally mb, cherizheekal flc, karunagapally TEOC
40	Kollam	RP09171	VallikkavuAshra m	BSNL Infra	RTP	2	33	IP connected	N	NO DG	parayakadavu flc
41	Kollam	RP04225	Ayiramthengu	BSNL Infra	GBT	40	0	IP connected	Y	7.5KVA, EICHER	Azheekal beach
42	Alupuzha	RP08198	Manivelikadavu	BSNL Infra	GBT	40	0	IP connected	Y	15KVA EICHER	Azkheel flc, valizhakheel flc,
43	Alupuzha	RP00391	Thrikkunapuzha	BSNL	GBT	40	0	IP connected	Y	30 KVA	Thrikkunapuzha

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				Infra						KIRLOSKAR	flc
44	Alupuzha	RP02015	Thottappilly	BSNL Infra	RTT	24	10	IP connected	Y	30KVA KIRLOSKAR	Thottapally beach, flc, Purakkad flc, Thottapally mb
45	Alupuzha	RP03766	Purakkad	BSNL Infra	GBT	40	0	IP connected	Y	15KVA MAHINDRA	Paravoor flc
46	Alupuzha	RP00003	Ambalapuzha	BSNL Infra	RTT	24	10	IP connected	Y	60 KVA KIRLOSKAR	Ambalappuzha mb, komana flc
47	Alupuzha	RP02008	Vandanam	BSNL Infra	RTT	27	9	IP connected	Y	30KVA GREAVES	valanjavazhy flc
48	Alupuzha	RP0382	Punnapra	BSNL Infra	RTT	24	7	IP connected	Y	15 KVAMAHIN DRA	Punnapra flc, mb, Punnepra flc
49	Alupuzha	RP04728	Vadakkal	ATC	RTT	21	7	IP connected	INFRA PROVIDE R	INFRA PROVIDER	vadakkal flc
50	Alupuzha	RP09304	WnCHospitalAL P	BSNL Infra	RTT	8	12	IP connected	Y	No DG	West village flc, Allepy beach,
51	Alupuzha	RP03580	Sarvodayapura m	Tower Vision	GBT	50	0	IP connected	INFRA PROVIDE R	INFRA PROVIDER	katoor mb
52	Alupuzha	RP01015	Pollathai	BSNL Infra	GBT	40	0	IP connected	Y	7.5 KVA EICHER	Pollethai flc
53	Alupuzha	RP07783	Chethi	BSNL Infra	GBT	40	0	IP connected	Y	15KVA KOEL	Marrari beach, Chethy mb,
54	Alupuzha	RP06889	ThiruvizhaWest	BSNL Infra	GBT	40	0	IP connected	Y	15KVA EICHER	Chenna valley flc, cherthala south flc
55	Alupuzha	RP01001	Alungal	BSNL Infra	GBT	40	0	IP connected	Y	7.5 KVAEICHER	Arthungal flc, thaikkal beach flc
56	Alupuzha	RP01011	KADAKKARAPP ALLY	BSNL Infra	GBT	40	0	IP connected	Y	15 KVA EICHER	Oottamassery mb, polakkal kadappuram flc
57	Alupuzha	RP06828	Andakaranazhy	BSNL Infra	GBT	40	0	IP connected	Y	15KVA KOEL	Andhakaranazhi beach, arattuvazhy flc cheriassery flc,
58	Alupuzha	RP08407	PallithodeAlp	Indus Towers	GBT	50	0	IP connected	INFRA PROVIDE R	INFRA PROVIDER	pallithodu flc, anthakaranazhy flc
59	Ernakulam	RP02054	Kannamali	BSNL Infra	GBT	40	0	IP connected	Y	15KVA- EICHER	Puthenthodu flc,
60	Ernakulam	RP00419	Kumbalangi	BSNL Infra	RTT	24	15	IP connected	Y	60KVA- KRILOSKAR	kumbalangi flc
61	Ernakulam	RP06003	FathimaHospita l	BSNL Infra	Wall mount	0	12	IP connected	Y	No DG	kamnawaly flc, cheriya kadavu flc
62	Ernakulam	RP02073	Palluruthywirel ess	BSNL Infra	GBT	40	0	IP connected	Y	15KVA- EICHER	thoppumpady flc, mannassery flc
63	Ernakulam	RP08749	INS-Drona- Central	BSNL Infra	GBT	40	0	IP connected	Y	15KVA- EICHER	beach road flc, fort kochi beach, kochi taluk office,
64	Ernakulam	RP02084	Vallarpadam	BSNL Infra	GBT	40	0	IP connected	Y	15KVA- EICHER	kalmukku flc, gosree puram flc, murikkum flc, kalmukku pvt flc
65	Ernakulam	RP02101	Malippuram	BSNL Infra	RTT	24	12	IP connected	Y	15KVA- EICHER	malipuram flc, elamkunnappuzha flc, puthuvype beach
66	Ernakulam	RP00040	Njarakkal	BSNL Infra	GBT	40	0	IP connected	Y	100KVA- GREAVES	Njarakkal MPC, mb
67	Ernakulam	RP04556	Aniyal	GTL	RTT	24	6	IP connected	INFRA PROVIDE R	INFRA PROVIDER	pathankadappura m flc

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68	Ernakulam	RP00439	EdavanakkadTE	BSNL Infra	GBT	40	0	IP connected	Y	60KVA- GREAVES	Nayaramban flic
69	Ernakulam	RP02032	Kuzhupally	BSNL Infra	GBT	40	0	IP connected	Y	EICHER,15 KVA	Kuzhupilly beach, edavankkadu flic
70	Ernakulam	RP11208	RuralAcademyF orMngmt	BSNL Infra	RTT	15	13	IP connected	Y	NO DG	kuzhupilli flic, ayampilli beach, ezhikara inland
71	Ernakulam	RP0249	Cherai	BSNL Infra	GBT	40	0	IP connected	Y	LEYLAND,6 2 KVA	cherai beach flic
72	Ernakulam	RP11193	SnmClgMaliank ara	BSNL Infra	RTT	12	12	IP connected	Y	NO DG	munnambam flic, kunji thai flic
73	Thrissur	RP06080	Azhikodebeach	ATC	RTT	10	6	IP connected	INFRA PROVIDE R	INFRA PROVIDER	munnambam b mb, beach, munnakal azhikode flic, sreenarayanpura m mb, azhikode flic, beach
74	Thrissur	RP01562	Karajn	BSNL Infra	GBT	40	0	IP connected	Y	15KVA- Mahindra	Kara flic, eriyad flic, edavilangu flic, kathiyalayam flic
75	Thrissur	RP08152	AsmabiClg	Relianc e Infra	GBT	42	0	NO	INFRA PROVIDE R	INFRA PROVIDER	attuppuram flic
76	Thrissur	RP05126	Koolimuttam	Indus Towers	GBT	50	0	IP connected	INFRA PROVIDE R	INFRA PROVIDER	perinjanambhajna madam flic
77	Thrissur	RP06132	SujithJn	BSNL Infra	GBT	40	0	IP connected	Y	15- MAHINDRA	arrattukadavu flic, kaipamangalam mb, vanchipuram flic
78	Thrissur	RP02378	KalamuriWest	BSNL Infra	GBT	40	0	IP connected	Y	20KVA- Kirloskar	companykadavu
79	Thrissur	RP01575	Palapetty	BSNL Infra	GBT	40	0	NO	Y	15KVA- Mahindra	chamakala flic
80	Thrissur	RP06103	Kazhimbram	Indus Towers	GBT	40	0	IP connected	INFRA PROVIDE R	INFRA PROVIDER	palapetty flic, kazhimbram flic, kazhimbram beach
81	Thrissur	RP07771	NattikaBeach	Indus Towers	GBT	45	0	IP connected	INFRA PROVIDE R	INFRA PROVIDER	nattika mb, flic, kaddipuram beach, snehatheeram beach
82	Thrissur	RP02396	Thalikkulam	BSNL Infra	GBT	40	0	IP connected	Y	20KVA- Mahindra	vadanapally flic nambikkadavu th alikulam flic
83	Thrissur	RP03189	Chullipadi	BSNL Infra	GBT	40	0	IP connected	Y	25KVA- Mahindra	chetuva banglamkadavu flic
84	Thrissur	RP01559	Kadappuram	BSNL Infra	RTT	27	7	IP connected	Y	15KVA- Mahindra	kadappuram mpcs, munakkadavu flic, kumbalangi mpc
85	Thrissur	RP06085	ChavakkadBeac h	VIOM Networ ks	GBT	40	0	IP connected	INFRA PROVIDE R	INFRA PROVIDER	chavakkad beach, blangad flic, mb, chavakkad teo
86	Thrissur	RP01554	0	BSNL Infra	GBT	40	0	IP connected	Y	15KVA- Kirloskar	puthen kadappuram flic
87	Thrissur	RP03736	Akalad	BSNL Infra	GBT	40	0	IP connected	Y	30KVA- Mahindra	edakazhiyur flic, panchavadi flic
88	Thrissur	RP03795	Mannalamkunn u	BSNL Infra	GBT	40	0	IP connected	Y	40KVA- Mahindra	punnayur mb
89	Malappuram	RP03810	PuthenpallyWes t	GTL	RTT	30	7	NO	INFRA PROVIDE	INFRA PROVIDER	perumbadappu mpcs, palapetty

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									R		mb
90	Malappuram	RP01434	Palappetty	BSNL Infra	GBT	40	0	IP connected	y	NO DG	veliyancode mb
91	Malappuram	RP07581	Ponnanikodathi ppadi	VIOM Networks	RTT	27	7	IP connected	INFRA PROVIDER	INFRA PROVIDER	ponnani mb, teoc
92	Malappuram	RP03137	Kavilakkad	ATC	GBT	51	0	IP Microwave	INFRA PROVIDER	INFRA PROVIDER	purathur mb, padinjarekkara beach
93	Malappuram	RP01453	Vettom	BSNL Infra	GBT	40	0	IP connected	y	63KVA	mangalam mb, vettam mb, vakkad beach
94	Malappuram	RP08686	Murivazhikkal	BSNL Infra	GBT	40	0	IP connected	y	Koel 15KVA	vettom mpcs
95	Malappuram	RP00621	Tanur	BSNL Infra	GBT	60	0	IP connected	y	Mahindra30KVA	thanur mb
96	Malappuram	RP06074	Parappanangadi Beach	ATC	RTT	25	10	OFC direct to Nokia	INFRA PROVIDER	INFRA PROVIDER	parappanagadi mb
97	Malappuram	RP00625	Vallikunnu	BSNL Infra	GBT	40	0	IP connected	y	63KVA	vallikunnu beach, mb
98	Kozhikode	RP08912	Chaliyam	Indus Towers	GBT	40	0	IP connected	INFRA PROVIDER	INFRA PROVIDER	kadalundi mb
99	Kozhikode	RP08945	BeyporePort	VIOM Networks	GBT	45	0	IP connected	INFRA PROVIDER	INFRA PROVIDER	beypore beach, mb, flc, chaliyam flc
100	Kozhikode	RP08731	RailwayStnRdKK D	BSNL Infra	RTT	6	14	IP connected	Y	NO DG	kozhikode south flc
101	Kozhikode		siren at kasaba mpcs								kasaba mpcs
102	Kozhikode	RP04021	BeachHospital	Indus Towers	RTT	24	10	IP connected	INFRA PROVIDER	INFRA PROVIDER	kozhikode beach, vellayil mb
103	Kozhikode	RP02131	Nadakavu	BSNL Infra	RTT	24	12	IP connected	Y	15 KVA APC	vellayil flc
104	Kozhikode	RP01209	Vengali	BSNL Infra	RTT	27	4	IP connected	Y	15 KVA EICHER	elathur mb, puthiyappa flc
105	Kozhikode	RP01208	Vengalam	BSNL Infra	RTT	24	10	IP connected	Y	63 KVA GREAVES	elathur flc
106	Kozhikode	RP03521	Thiruvangoor	VIOM Networks	GBT	45	0	IP connected	INFRA PROVIDER	INFRA PROVIDER	kappad beach, edakadavu flc
107	Kozhikode	RP00482	QLDYPookadTE	BSNL Infra	GBT	40	0	IP connected	Y	60 KVA GREAVES	kappad flc, chemancherry mb
108	Kozhikode	RP03520	Poilkavu	VIOM Networks	GBT	40	0	IP connected	INFRA PROVIDER	INFRA PROVIDER	polikavu flc
109	Kozhikode	RP01152	Chengotukavu	BSNL Infra	GBT	40	0	IP connected	Y	15 KVA EICHER	kovalad flc, chengotukavu mb
110	Kozhikode	RP08018	QuilandyDEOffice	BSNL Infra	GBT	40	0	IP connected	Y	15 KVA EICHER	quilndy flc, koloth flc, koyilandy teoc
111	Kozhikode	RP01176	Moodady	BSNL Infra	GBT	40	0	IP connected	Y	75 KVA KIRLOSKER	modaadi mb, flc, muthayakadapuram flc, valavil kadapuram flc
112	Kozhikode	RP00477	Melady	BSNL Infra	GBT	40	0	IP connected	Y	60 KVA KIRLOSKER	payyoli beach, thikkodi mpcs, payyoli mb
113	Kozhikode	RP01155	Iringal	BSNL Infra	RTT	21	9	IP connected	Y	15 KVA	kolavi (iringal) flc

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114	Kozhikode	RP02161	CoopHospital	BSNL Infra	RTT	27	10	IP connected	Y	7.5KVA	badagara azhithala flc
115	Kozhikode	RP03653	Veeranchery	BSNL Infra	GBT	40	0	IP connected	Y	30 KVA	vadakara mb, badagara kadalpalam flc, vadakara teoc, chorode mb
116	Kozhikode	RP00476	MadapallyCollege	BSNL Infra	GBT	40	0	IP connected	Y	30 KVA	Onchiyam mb
117	Kozhikode	RP00064	Chombala	BSNL Infra	GBT	40	0	IP connected	Y	70 KVA	chombala flc
118	Kannur	RP00120	Mahe	BSNL Infra	GBT	40	0	IP connected	Y	100KVA,GR EAVES	newmahe mb, flc
119	Kannur	RP02240	Saidarpalli	BSNL Infra	RTT	24	10	IP connected	Y	15KVA,ASIA N POWER	gopalapatai flc, thalayilkunhi kadappuram flc
120	Kannur	RP08601	ThalasseryFort	BSNL Infra	GBT	40	0	IP connected	Y	15KVA,ASO K LEYLAND	thalassery teoc, flc
121	Kannur	RP07978	Swamikunnu	BSNL Infra	GBT	40	0	IP connected	Y	15KVA,EICHER	dharmadam mb, flc, beach
122	Kannur	RP00112	Edakkad	BSNL Infra	GBT	40	0	IP connected	Y	40KVA,KIRL OSKAR	muzzhappilangad mb, beach, flc, thuruth flc
123	Kannur	RP03515	Edakkadtown	BSNL Infra	GBT	40	0	IP connected	Y	15KVA,JEEV AN DIESELS	edakkad flc
124	Kannur	RP07041	Kizhunna	ATC	GBT	50	0	IP connected	INFRA PROVIDER	INFRA PROVIDER	ezhara beach, thottada beach
125	Kannur	RP02873	Firestationqtrs	BSNL Infra	RTT	8	8	IP connected	Y	NO DG	kannur mb, baby beach, ayikkara flc
126	Kannur	RP08500	KannurSangeetha	Tower Vision	RTT	27	7	IP connected	INFRA PROVIDER	INFRA PROVIDER	payyambalam beach, kannur-2 mpcs, kannur teoc,
127	Kannur	RP06678	AyaniVayal	Indus Towers	GBT	50	0	IP connected	INFRA PROVIDER	INFRA PROVIDER	azheecode south flc, meenkunnu beach
128	Kannur	RP01271	Azhikode	BSNL Infra	GBT	40	0	IP connected	Y	15KVA,MA HINDRA	azhikode mb
129	Kannur	RP03513	Chembanal	BSNL Infra	GBT	40	0	IP connected	Y	15KVA,JEEV AN DIESELS	palakode flc
130	Kannur	RP01289	ETTIKULAM	BSNL Infra	GBT	40	0	IP connected	Y	30KVA,GRE AVES	ettikulam beach, flc
131	Kasaragod	RP07043	Edayiilikad	BSNL Infra	GBT	40	0	IP connected	Y	25kva,mahin ndra	thirkaripur mb
132	Kasaragod	RP01332	VALIYAPARAMBA_MINI	BSNL Infra	GBM	24	0	IP connected	Y	15KVA,EICHER	valiyaparamb mb
133	Kasaragod	RP06293	Thuruthy	BSNL Infra	GBT	40	0	IP connected	Y	25kva,mahin ndra	nileshwar mb, azhithala beach, thaikadappuram flc
134	Kasaragod	RP03669	Kadankod	BSNL Infra	GBT	40	0	IP connected	Y	20kva,mahin ndra	chittari flc
135	Kasaragod	RP08776	KallooraviDLCMicro	BSNL Infra	RTP	3	6	IP connected	Y	20kva,kirlos kar	poonchavikadapp uram flc
136	Kasaragod	RP00106	Kanhangad	BSNL Infra	RTT	24	15	IP connected	Y	NO DG	hosdurg teoc
137	Kasaragod	RP03768	Avikkara	BSNL Infra	RTT	24	7	IP connected	Y	15KVA MAHINDRA	kanhagad mb, hosdurg beach flc

138	Kasaragod	RP00528	ATHINHAL	BSNL Infra	RTT	27	9	IP connected	Y	180KVA,KIR LOSKAR	ajanoor-n bella flc
139	Kasaragod	RP07689	Madiyan	BSNL Infra	RTT	18	10	IP connected	Y	15KVAKIRL OSKAR	chittari flc
140	Kasaragod	RP07836	Bekal	VIOM Networ ks	GBT	45	0	IP connected	INFRA PROVIDE R	INFRA PROVIDER	bekal beach, flc, pallikere flc,
141	Kasaragod	RP03507	Thrikkanad	BSNL Infra	GBT	40	0	IP connected	Y	15KVA,KIRL OSKA	pallikkara mb, kotikulam flc
142	Kasaragod	RP02195	KALANAD	BSNL Infra	GBT	48	0	IP connected	Y	15KVA,SYM PSON	kizhur flc
143	Kasaragod	RP00306	Thalangara	BSNL Infra	RTT	18	12	IP connected	Y	40KVA,MA HINDRA	tala gara jetty flc, kizhur harbour flc
144	Kasaragod	RP07060	Nellikunnu	Indus Towers	GBT	45	0	IP connected	INFRA PROVIDE R	INFRA PROVIDER	kasaragod teoc, kasaba flc, mb, adakathbaai flc
145	Kasaragod	RP04053	KblSouthBsnlM arrSite	BSNL Infra	GBT	40	0	IP connected	Y	15KVA,MA HINDRA	mogral flc
146	Kasaragod	RP00122	KUMBALA	BSNL Infra	GBT	40	0	IP connected	Y	15KVA,KIRL OSKAR	arikkadi flc, koipadi flc, kumbala mb, koipady mpcs
147	Kasaragod	RP00314	UPPALA	BSNL Infra	GBT	40	0	IP connected	Y	60KVA,GRE AVES	manjeswaram teoc
148	Kasaragod	RP03502	Hosangadi	BSNL Infra	RTT	24	9	IP connected	Y	15KVA,LITT LE FILTER	uppla flc
149	Kasaragod	RP10923	GovindaPaiMe mGovtClg	BSNL Infra	GBT	40	0	IP connected	Y	15KVA KIRLOSKAR	hosabettu flc, manjeshwar mb
150	Kasaragod	RP01304	KUNJATHUR	BSNL Infra	GBT	40	0	IP connected	Y	40KVA,GRE AVES	kunzathur flc

4. List of Beaches:

District	Name of the Beach	Geographic Coordinates
Thiruvananthapuram	Shankumugham Beach	8°28'42.42"N, 76°54'42.86"E
	Vizhinjam Beach	8°22'35.52"N, 76°59'40.46"E
	Varkala Beach	8°43'57.72"N, 76°42'21.81"E
	Poovar Beach	8°18'39.64"N, 77° 4'23.67"E
	Puthenthope Beach	8°34'18.90"N, 76°50'7.48"E
	Kovalam Beach	8°23'17.65"N, 76°58'34.51"E
	Chowara Beach	8°20'29.20"N, 77° 2'8.97"E
Kollam	Kollam Beach	8°52'32.44"N, 76°35'20.10"E
	Thirumullavaram Beach	8°53'39.77"N, 76°33'13.67"E
	Azheekal Beach	9° 7'56.69"N, 76°27'49.74"E
Alappuzha	Marari Beach, Alappuzha, Kerala	9°36'5.56"N, 76°17'53.85"E
	Alleppey Beach,	9°29'33.94"N, 76°19'3.99"E
	Andhakaranazhi Beach	9°44'55.41"N, 76°17'3.47"E
	Thottappally Beach	9°18'37.35"N, 76°22'55.93"E

Ernakulam	Fort Kochi Beach, Kochi	9°57'49.38"N, 76°14'14.86"E
	Puthuvype Beach	10° 0'38.58"N, 76°12'57.05"E
	Kuzhuppilly Beach,	10° 6'35.15"N, 76°11'14.11"E
	Cherai Beach	10° 8'29.74"N, 76°10'41.82"E
	Munambam	10°10'50.73"N, 76° 9'43.06"E
Thrissur	Snehatheeram Beach	10°25'52.46"N, 76° 4'38.15"E
	Chavakkad Beach	10°34'20.52"N, 76° 0'27.64"E
	Azhikode Munakkal Beach	10°10'49.80"N, 76° 9'44.71"E
	Kaddipuram Beach	10°25'13.08"N, 76° 4'55.42"E
	Vadanapilly Beach	10°27'45.79"N, 76° 3'48.46"E
	Kazhimbram Beach	10°22'10.13"N, 76° 6'8.85"E
Malappuram	Padinjarekkara Beach	10°47'41.70"N, 75°54'32.85"E
	Vakkad Beach	10°52'44.57"N, 75°53'26.09"E
	Vallikunnu Beach	11° 5'36.33"N, 75°50'16.08"E
Kozhikode	Kappad Beach	11°22'50.88"N, 75°43'15.18"E
	Beypore Beach	11° 9'31.12"N, 75°48'6.11"E
	Kozhikode Beach	11°15'42.12"N, 75°46'2.28"E
	Payyoli Beach	11°30'41.62"N, 75°36'32.87"E
Kannur	Muzhappilangad Beach	11°47'46.54"N, 75°26'31.54"E
	Thottada Beach	11°50'13.61"N, 75°24'17.97"E
	Payyambalam Beach	11°52'9.15"N, 75°21'8.97"E
	Dharmadam Beach	11°46'34.99"N, 75°27'16.51"E
	Ezhara Beach	11°49'3.12"N, 75°25'15.92"E
	Meenkunnu Beach	11°54'47.01"N, 75°19'8.53"E
	Choottad Beach	12° 1'16.05"N, 75°13'53.09"E
	Klzhunna Beach	11°49'43.08"N, 75°24'45.71"E
	Ezhimala Beach	12° 1'11.37"N, 75°14'4.29"E
	Ettikulam Beach	12° 0'41.07"N, 75°12'34.80"E
	Baby Beach	11°51'24.47"N, 75°21'44.79"E
Kasaragod	Bekal Beach	12°23'40.63"N, 75° 1'47.79"E
	Azhithala Beach	12°12'39.96"N, 75° 6'57.51"E
	Hosdurg Beach	12°18'38.69"N, 75° 4'31.26"E

v. List of all BSNL Towers available within 5 kms from Sea coast: (given by BSNL)

District	TSP Site ID	Site Name	Latitude	Longitude	Site Type	Tower Height (mts)	Building Height (mts)	IP Broadband connectivity	Availability of power backup(y/n)	DG capacity n details(make and other details)
ALAPPUZHA	RP-00003	RP-00003-Ambalapuzha	9.383	76.356	RTT	24	10	IP connected	Y	60 KVA KIRLOSKAR
ALAPPUZHA	RP-00380	RP-00380-Malimukk	9.51061	76.3222	GBT	40	0	IP connected	Y	15 KVA ASOKLEYLAND
ALAPPUZHA	RP-00382	RP-00382-Punnappa	9.43137	76.346	RTT	24	7	IP connected	Y	15 KVAMAHINDRA
ALAPPUZHA	RP-00391	RP-00391-Thrikkunapuzha	9.259	76.4088	GBT	40	0	IP connected	Y	30 KVA KIRLOSKAR
ALAPPUZHA	RP-00394	RP-00394-Arthunkal	9.66322	76.3071	GBT	40	0	IP connected	Y	15 KVA FGWILSON
ALAPPUZHA	RP-00755	RP-00755-Kalavoor	9.56853	76.321	GBT	40	0	IP connected	Y	15 KVA FGWILSON
ALAPPUZHA	RP-01001	RP-01001-Alungal	9.68681	76.3083	GBT	40	0	IP connected	Y	7.5 KVAEICHER
ALAPPUZHA	RP-01010	RP-01010-Ezhupunna	9.82166	76.2983	GBT	40	0	IP connected	Y	7.5KVA EICHER
ALAPPUZHA	RP-01011	RP-01011-KADAKKARAPPALLY	9.70837	76.2985	GBT	40	0	IP connected	Y	15 KVA EICHER
ALAPPUZHA	RP-01015	RP-01015-Pollathai	9.58273	76.3064	GBT	40	0	IP connected	Y	7.5 KVA EICHER
ALAPPUZHA	RP-01027	RP-01027-MARARIKKULAM	9.60207	76.3176	GBT	40	0	IP connected	Y	7.5 KVA EICHER
ALAPPUZHA	RP-02006	RP-02006-Thumboli	9.51827	76.3191	GBT	40	0	IP connected	Y	15 KVA EICHER
ALAPPUZHA	RP-02007	RP-02007-Vattayaljn	9.48044	76.329	GBT	40	0	IP connected	Y	15 KVA EICHER
ALAPPUZHA	RP-02008	RP-02008-Vandanam	9.40588	76.3505	RTT	27	9	IP connected	Y	30KVA GREAVES
ALAPPUZHA	RP-02015	RP-02015-Thottappilly	9.31899	76.385	RTT	24	10	IP connected	Y	30KVA KIRLOSKAR
ALAPPUZHA	RP-03303	RP-03303-Paravoorwest	9.44936	76.3369	GBT	40	0	IP connected	Y	15KVA EICHER
ALAPPUZHA	RP-03588	RP-03588-Ezhupunnasouth	9.80217	76.3061	GBT	40	0	IP connected	Y	15KVA FGWILSON
ALAPPUZHA	RP-03766	RP-03766-Purakkad	9.34637	76.3682	GBT	40	0	IP connected	Y	15KVA MAHINDRA
ALAPPUZHA	RP-04301	RP-04301-Arattupuzha	9.20385	76.4373	GBT	40	0	IP connected	Y	30KVA GREAVES
ALAPPUZHA	RP-04733	RP-04733-Neerkunnam	9.39471	76.3528	GBT	40	0	IP connected	Y	15KVA EICHER
ALAPPUZHA	RP-04734	RP-04734-Ambalapuzha temple	9.38471	76.3681	GBT	40	0	IP connected	Y	15KVA KIRLOSKAR
ALAPPUZHA	RP-06828	RP-06828-Andakaranazhy	9.75459	76.2839	GBT	40	0	IP connected	Y	15KVA KOEL
ALAPPUZHA	RP-06856	RP-06856-KocheedaJetty	9.17233	76.457	GBT	40	0	IP connected	Y	7.5KVA EICHER
ALAPPUZHA	RP-06889	RP-06889-ThiruvizhaWest	9.64578	76.3052	GBT	40	0	IP connected	Y	15KVA EICHER
ALAPPUZHA	RP-07772	RP-07772-Kvjetty	9.28938	76.4052	GBT	40	0	IP connected	Y	15KVA LEYLAND

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ALAPPUZHA	RP-07783	RP-07783-Chethi	9.61191	76.305	GBT	40	0	IP connected	Y	15KVA KOEL
ALAPPUZHA	RP-08198	RP-08198-Manivelikadavu	9.1504	76.4699	GBT	40	0	IP connected	Y	15KVA EICHER
ALAPPUZHA	RP-09078	RP-09078-Ntpcplant	9.23814	76.4328	GBT	40	0	IP connected	Y	No DG
ALAPPUZHA	RP-09087	RP-09087-VandanamTDMC	9.4086	76.348	RTP	3	18	IP connected	Y	No DG
ALAPPUZHA	RP-09301	RP-09301-SPofficeALP	9.49322	76.3231	RTT	9	12	IP connected	Y	No DG
ALAPPUZHA	RP-09304	RP-09304-WnCHospitalALP	9.48949	76.3203	RTT	8	12	IP connected	Y	No DG
ERNAKULAM	RP-00252	RP-00252-Chellanam	9.82342	76.2729	GBT	24	0	IP connected	Y	30KVA-KRILOSKAR
ERNAKULAM	RP-00419	RP-00419-Kumbalangi	9.87449	76.2896	RTT	24	15	IP connected	Y	60KVA-KRILOSKAR
ERNAKULAM	RP-02059	RP-02059-Kumbalangaisouth	9.86057	76.2927	GBT	40	0	IP connected	Y	15KVA-EICHER
ERNAKULAM	RP-00040	RP-00040-Njarakkal	10.0448	76.2214	GBT	40	0	IP connected	Y	100KVA-GREAVES
ERNAKULAM	RP-00249	RP-00249-Cherai	10.1387	76.1956	GBT	40	0	IP connected	Y	LEYLAND,62 KVA
ERNAKULAM	RP-00422	RP-00422-Ochanthuruthu	10.0043	76.2311	GBT	40	0	IP connected	Y	15KVA-FGWILSON
ERNAKULAM	RP-00439	RP-00439-EdavanakkadTE	10.091	76.207	GBT	40	0	IP connected	Y	60KVA-GREAVES
ERNAKULAM	RP-02032	RP-02032-Kuzhupally	10.1107	76.2031	GBT	40	0	IP connected	Y	EICHER,15 KVA
ERNAKULAM	RP-02033	RP-02033-Pallipuram	10.1684	76.1808	RTT	21	10	IP connected	Y	EICHER,15 KVA
ERNAKULAM	RP-02054	RP-02054-Kannamali	9.87466	76.2642	GBT	40	0	IP connected	Y	15KVA-EICHER
ERNAKULAM	RP-02073	RP-02073-Palluruthywireless	9.92602	76.2643	GBT	40	0	IP connected	Y	15KVA-EICHER
ERNAKULAM	RP-02084	RP-02084-Vallarpadam	9.99011	76.2478	GBT	40	0	IP connected	Y	15KVA-EICHER
ERNAKULAM	RP-02086	RP-02086-Vypin	9.98499	76.2423	GBT	40	0	IP connected	Y	75KVA-KRILOSKAR
ERNAKULAM	RP-02101	RP-02101-Malippuram	10.0205	76.2252	RTT	24	12	IP connected	Y	15KVA-EICHER
ERNAKULAM	RP-02102	RP-02102-Nayarambalam	10.0632	76.2133	RTT	21	6	IP connected	Y	15KVA-EICHER
ERNAKULAM	RP-02807	RP-02807-Mundanvelli	9.92997	76.253	GBT	40	0	IP connected	Y	15KVA-EICHER
ERNAKULAM	RP-05910	RP-05910-KristhuJayanthiH	10.0372	76.2249	RTT	15	9	IP connected	Y	No DG
ERNAKULAM	RP-06003	RP-06003-FathimaHospital	9.90166	76.2759	Wall mount	0	12	IP connected	Y	No DG
ERNAKULAM	RP-07644	RP-07644-Puthvype	9.98841	76.2236	GBT	50	0	IP connected	Y	No DG
ERNAKULAM	RP-08749	RP-08749-INS-Drona-Central	9.95377	76.2408	RTP	3	27	IP connected	Y	No DG
ERNAKULAM	RP-11193	RP-11193-SnmClgMaliankara	10.1815	76.1833	RTT	12	12	IP connected	Y	NO DG
ERNAKULAM	RP-11208	RP-11208-RuralAcademyForMngmt	10.1209	76.201	RTT	15	13	IP connected	Y	NO DG
ERNAKULAM	RP-08748	RP-08748-INS-Drona-North	9.96011	76.2378	RTP	3	24	IP connected	N	No DG
ERNAKULAM	RP-08757	RP-08757-INS-DronaSouth	9.94563	76.2421	RTP	3	27	IP connected	N	No DG
KOZHICODE	RP-00061	RP-00061-Vadakara	11.5995	75.5872	RTT	20	20	IP connected	Y	250 KVA

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KOZHIKODE	RP-00064	RP-00064-Chombala	11.6706	75.557	GBT	40	0	IP connected	Y	70 KVA
KOZHIKODE	RP-00065	RP-00065-Quilandy	11.4426	75.6935	GBT	60	0	IP connected	Y	70 KVA KIRLOSKER
KOZHIKODE	RP-00072	RP-00072-Panniankara	11.2265	75.7933	GBT	100	0	IP connected	Y	60 KVA GREAVES
KOZHIKODE	RP-00073	RP-00073-KKDWest	11.282	75.7702	RTT	33	12	IP connected	Y	60 KVA GREAVES
KOZHIKODE	RP-00074	RP-00074-Elathur	11.3373	75.7404	GBT	40	0	IP connected	Y	63 KVA CROMPTON
KOZHIKODE	RP-00278	RP-00278-kadalundy	11.1393	75.8256	GBT	40	0	IP connected	Y	50 KVA ASHOKLYLAN D
KOZHIKODE	RP-00476	RP-00476-MadapallyCollege	11.6495	75.567	GBT	40	0	IP connected	Y	30 KVA
KOZHIKODE	RP-00477	RP-00477-Melady	11.5118	75.622	GBT	40	0	IP connected	Y	60 KVA KIRLOSKER
KOZHIKODE	RP-00482	RP-00482-QLDYPookadTE	11.3981	75.7251	GBT	40	0	IP connected	Y	60 KVA GREAVES
KOZHIKODE	RP-00483	RP-00483-Beyepore	11.1798	75.8079	RTT	24	10	IP connected	Y	30 KVA KIRLOSKER
KOZHIKODE	RP-00491	RP-00491-Pavangad	11.3094	75.7588	RTT	24	10	IP connected	Y	15 KVA FG WILSON
KOZHIKODE	RP-01152	RP-01152-Chengotukavu	11.4209	75.7121	GBT	40	0	IP connected	Y	15 KVA EICHER
KOZHIKODE	RP-01155	RP-01155-Iringal	11.5628	75.6096	RTT	21	9	IP connected	Y	15 KVA
KOZHIKODE	RP-01176	RP-01176-Moodady	11.4718	75.6442	GBT	40	0	IP connected	Y	75 KVA KIRLOSKER
KOZHIKODE	RP-01179	RP-01179-Vallikkad	11.6336	75.5821	GBT	40	0	IP connected	Y	15 KVA
KOZHIKODE	RP-01208	RP-01208-Vengalam	11.365	75.7392	RTT	24	10	IP connected	Y	63 KVA GREAVES
KOZHIKODE	RP-01209	RP-01209-Vengali	11.3207	75.7501	RTT	27	4	IP connected	Y	15 KVA EICHER
KOZHIKODE	RP-01805	RP-01805-Southbeachcto	11.2512	75.7717	GBT	40	0	IP connected	Y	30 KVA KIRLOSKER
KOZHIKODE	RP-02119	RP-02119-Idiyankara	11.2401	75.7781	RTT	21	10	IP connected	Y	15 KVA KIRLOSKER
KOZHIKODE	RP-02126	RP-02126-Arakkinar	11.2	75.8023	RTT	27	10	IP connected	Y	15 KVA EICHER
KOZHIKODE	RP-02131	RP-02131-Nadakavu	11.2749	75.773	RTT	24	12	IP connected	Y	15 KVA APC
KOZHIKODE	RP-02137	RP-02137-Westhillchungam	11.2922	75.7647	RTT	27	10	IP connected	Y	15 KVA APC
KOZHIKODE	RP-02161	RP-02161-CoopHospital	11.5869	75.5919	RTT	27	10	IP connected	Y	7.5KVA
KOZHIKODE	RP-02848	RP-02848-Kallai2	11.2338	75.7897	GBT	40	0	IP connected	Y	NO DG
KOZHIKODE	RP-02850	RP-02850-Naduvattom	11.1895	75.805	GBT	40	0	IP connected	Y	15 KVA EICHER
KOZHIKODE	RP-02852	RP-02852-Elavangattakam	11.3	75.7609	RTT	24	10	IP connected	Y	15 KVA KIRLOSKER
KOZHIKODE	RP-03032	RP-03032-Badagarabusstand	11.5949	75.5932	RTT	25	9	IP connected	Y	15 KVA
KOZHIKODE	RP-03519	RP-03519-Kollam-KKD	11.4635	75.6713	GBT	40	0	IP connected	Y	15 KVA EICHER
KOZHIKODE	RP-03652	RP-03652-Nutstreet	11.602	75.5949	RTT	15	9	IP connected	Y	15 KVA
KOZHIKODE	RP-03653	RP-03653-Veeranchery	11.6056	75.5819	GBT	40	0	IP connected	Y	30 KVA
KOZHIKODE	RP-04002	RP-04002-BigBazar	11.2495	75.7753	RTT	18	8	IP connected	Y	15 KVA EICHER

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KOZHICODE	RP-07900	RP-07900-MathottamWest	11.2107	75.7899	GBT	40	0	IP connected	Y	20 KVA EICHER
KOZHICODE	RP-08018	RP-08018-QuilandyDETOoffice	11.4467	75.6887	GBT	40	0	IP connected	Y	15 KVA EICHER
KOZHICODE	RP-08731	RP-08731-RailwayStnRdKKD	11.2429	75.7817	RTT	6	14	IP connected	Y	NO DG
KOZHICODE	RP-09106	RP-09106-PuthupanamMicro	11.5795	75.5994	GBM	6	0	IP connected	Y	No DG
KO LAM	RP-00086	RP-00086-Chavara	8.97549	76.5345	GBT	40	0	IP connected	Y	TE site
KO LAM	RP-00092	RP-00092-Velleatambalam	8.90019	76.5639	GBT	40	0	IP connected	Y	TE site
KO LAM	RP-00287	RP-00287-Vallikavu	9.09321	76.4933	GBT	40	0	IP connected	Y	TE site
KO LAM	RP-00515	RP-00515-Kavanad	8.92381	76.5575	GBT	40	0	IP connected	Y	TE site
KO LAM	RP-00520	RP-00520-Mayyanadu	8.84166	76.6355	GBT	40	0	IP connected	Y	TE site
KO LAM	RP-01214	RP-01214-Alumkadavu	9.05965	76.5109	GBT	40	0	IP connected	Y	7.5KVA, EICHER
KO LAM	RP-01234	RP-01234-Kozhikode	9.04392	76.5226	GBT	40	0	IP connected	Y	7.5KVA, EICHER
KO LAM	RP-01237	RP-01237-Edapallikkotta	9.01182	76.538	GBT	40	0	IP connected	Y	TE site
KO LAM	RP-01247	RP-01247-Neendakara	8.93043	76.5425	GBT	40	0	IP connected	Y	Eicher_3P_15 KVA
KO LAM	RP-02168	RP-02168-Beach	8.87869	76.5881	GBT	40	0	IP connected	Y	Eicher_3P_15 KVA
KO LAM	RP-02169	RP-02169-Eravipuram	8.85757	76.6288	GBT	40	0	IP connected	Y	Eicher_3P_15 KVA
KO LAM	RP-02171	RP-02171-Mundakkal	8.87169	76.6002	GBT	40	0	IP connected	Y	Eicher_3P_15 KVA
KO LAM	RP-02172	RP-02172-Thirumullavaram	8.89226	76.5557	GBT	50	0	IP connected	Y	Eicher_3P_15 KVA
KO LAM	RP-02868	RP-02868-Kallupalam	8.88434	76.5833	RTT	24	11	IP connected	Y	APC_1P_15KV A
KO LAM	RP-03071	RP-03071-Sangapura	9.0771	76.5093	GBT	40	0	IP connected	Y	7.5KVA, EICHER
KO LAM	RP-03367	RP-03367-Vallikkeezhu	8.9109	76.5642	GBT	40	0	IP connected	Y	Kirloskar_3P_15KVA
KO LAM	RP-03564	RP-03564-Kulangara	8.83347	76.6495	GBT	40	0	IP connected	N	NO DG
KO LAM	RP-04205	RP-04205-SankaramangalamCvr	8.9939	76.5288	GBT	40	0	IP connected	Y	15KVA Kirloskar
KO LAM	RP-04211	RP-04211-Parimanam	8.95154	76.5374	GBT	40	0	IP connected	Y	7.5KVA, EICHER
KO LAM	RP-04225	RP-04225-Ayiramthengu	9.11897	76.4771	GBT	40	0	IP connected	Y	7.5KVA, EICHER
KO LAM	RP-04226	RP-04226-Pallikadav	9.09923	76.4854	GBT	40	0	IP connected	Y	15KVA, Kirloskar
KO LAM	RP-05487	RP-05487-AmrithaAyurvedaClg	9.08862	76.4932	RTP	3	12	IP connected	Y	NO DG
KO LAM	RP-05632	RP-05632-ThekkumbhagamKlm	8.79465	76.6685	GBT	40	0	IP connected	Y	Eicher 15KVA
KO LAM	RP-09110	RP-09110-AlappadTEMicro	9.05058	76.5031	RTT	9	7	IP connected	Y	TE site
KO LAM	RP-09171	RP-09171-VallikkavuAshram	9.08933	76.4871	RTP	2	33	IP connected	N	NO DG
KO LAM	RP-09393	RP-09393-CollectorsBglwKLM	8.87549	76.5938	RTP	3	8	No	Y	NO DG
KO LAM	RP-09394	RP-09394-AllSeasonTGSY	8.88197	76.5674	RTP	3	12	No	Y	NO DG
KO LAM	RP-09249	RP-09249-	8.89213	76.5749	RTP	3	21	IP	Y	NO DG

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		CivilStationKLM						connected		
KANNUR	RP-00112	RP-00112-Edakkad	11.797	75.4514	GBT	40	0	IP connected	Y	40KVA,KIRLOS KAR
KANNUR	RP-00119	RP-00119-Thalaserry	11.7499	75.4887	RTT	21	20	IP connected	Y	500KVA,GREAVES
KANNUR	RP-00120	RP-00120-Mahe	11.7117	75.5345	GBT	40	0	IP connected	Y	100KVA,GREAVES
KANNUR	RP-00534	RP-00534-Thottada	11.8424	75.4198	RTT	24	7	IP connected	Y	40KVA,GREAVES
KANNUR	RP-00550	RP-00550-TLSYMW	11.7627	75.4763	GBT	50	0	IP connected	Y	15KVA,FG WILSON
KANNUR	RP-00552	RP-00552-Mahehospital	11.7	75.5352	RTT	24	7	IP connected	Y	15KVA,FG WILSON
KANNUR	RP-01288	RP-01288-Dharmadam	11.7752	75.4693	GBT	40	0	IP connected	Y	60KVA,GREAVES
KANNUR	RP-02207	RP-02207-Adikadalayi	11.8494	75.4064	GBT	40	0	IP connected	Y	15KVA,EICHER
KANNUR	RP-02238	RP-02238-Punnol	11.7238	75.5164	GBT	40	0	IP connected	Y	15KVA,JEEVA N DIESELS
KANNUR	RP-02239	RP-02239-Thalaserrybusstand	11.7485	75.4941	RTT	21	15	IP connected	Y	15KVA,ASIAN POWER
KANNUR	RP-02240	RP-02240-Saidarpalli	11.7389	75.5	RTT	24	10	IP connected	Y	15KVA,ASIAN POWER
KANNUR	RP-02878	RP-02878-Ottamavu	11.862	75.3948	GBT	40	0	IP connected	Y	15KVA,EICHER
KANNUR	RP-02879	RP-02879-Kannurpadanna	11.8549	75.3932	GBT	40	0	IP connected	Y	15KVA,EICHER
KANNUR	RP-03515	RP-03515-Edakkadtown	11.8136	75.4382	GBT	40	0	IP connected	Y	15KVA,JEEVA N DIESELS
KANNUR	RP-04060	RP-04060-TlsyNorth	11.7628	75.4866	GBT	40	0	IP connected	Y	15KVA,JEEVA N DIESELS
KANNUR	RP-07978	RP-07978-Swamikunnu	11.7718	75.4631	GBT	40	0	IP connected	Y	15KVA,EICHER
KANNUR	RP-08601	RP-08601-ThalasseryFort	11.75	75.4868	GBT	40	0	IP connected	Y	15KVA,ASOK LEYLAND
KANNUR	RP-00109	RP-00109-KNRCityExge	11.859	75.3825	RTT	24	10	IP connected	Y	75KVA,GREAVES
KANNUR	RP-00533	RP-00533-Skcomplex	11.8681	75.3621	RTT	21	10	IP connected	Y	15KVA,FG WILSON
KANNUR	RP-00537	RP-00537-Alavil	11.8994	75.348	GBT	50	0	IP connected	Y	60KVA,GREAVES
KANNUR	RP-01271	RP-01271-Azhikode	11.9396	75.3128	GBT	40	0	IP connected	Y	15KVA,MAHI NDRA
KANNUR	RP-01289	RP-01289-ETTIKULAM	12.0146	75.2058	GBT	40	0	IP connected	Y	30KVA,GREAVES
KANNUR	RP-01311	RP-01311-Mattool	11.9763	75.2834	GBT	40	0	IP connected	Y	30KVA,MAHI NDRA
KANNUR	RP-01719	RP-01719-EZHIMALA	12.0398	75.1909	GBT	40	0	IP connected	Y	15KVA,MAHI NDRA
KANNUR	RP-01722	RP-01722-RAMANTHALI	12.0645	75.1896	GBT	60	0	IP connected	Y	30KVA,MAHI NDRA
KANNUR	RP-02231	RP-02231-Puthiyangadi	12.0165	75.2499	RTT	24	10	IP connected	Y	15KVA,APC
KANNUR	RP-02873	RP-02873-Firestationqtrs	11.8636	75.3681	RTT	8	8	IP connected	Y	NO DG
KANNUR	RP-02875	RP-02875-Chalad	11.8803	75.3549	RTT	21	9	IP connected	Y	15KVA,EICHER
KANNUR	RP-03513	RP-03513-Chembanal	12.0403	75.2381	GBT	40	0	IP connected	Y	15KVA,JEEVA N DIESELS
KANNUR	RP-04032	RP-04032-Manal	11.8891	75.3475	GBT	40	0	IP connected	Y	15KVA, KIRLOSKAR
KANNUR	RP-04983	RP-04983-Palakode	12.05	75.221	GBT	40	0	IP connected	Y	30KVA, KIRLOSKAR

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KANNUR	RP-07733	RP-07733-Payambalam	11.8583	75.361	RTP	6	12	IP connected	Y	NO DG
KANNUR	RP-07717	RP-07717-Vadukkumbadu	12.0734	75.1837	GBT	40	0	IP connected	Y	15KVA, KIRLOSKAR
KASARAGOD	RP-00106	RP-00106-Kanhangad	12.3162	75.0901	RTT	24	15	IP connected	Y	NO DG
KASARAGOD	RP-00527	RP-00527-PADANE	12.1762	75.1477	GBT	40	0	IP connected	Y	25kva,mahindra
KASARAGOD	RP-00528	RP-00528-ATHINHAL	12.334	75.0804	RTT	27	9	IP connected	Y	180KVA,KIRLOSKAR
KASARAGOD	RP-01328	RP-01328-Thaikadapuram	12.2423	75.1075	GBT	40	0	IP connected	Y	30KVA, KIRLOSKAR
KASARAGOD	RP-01332	RP-01332-VALIYAPARAMBA_MINI	12.1553	75.14	GBM	24	0	IP connected	Y	15KVA,EICHER
KASARAGOD	RP-02205	RP-02205-HOSDURG	12.3097	75.0951	GBT	40	0	IP connected	Y	30KVA KIRLOSKAR
KASARAGOD	RP-02244	RP-02244-KANHANGAD_NEW_EX G	12.3249	75.0863	GBT	40	0	IP connected	Y	30KVA ASHK LEYLAND
KASARAGOD	RP-03106	RP-03106-UDUMBUMTHALA	12.1061	75.175	GBT	40	0	IP connected	Y	15kva EICHER
KASARAGOD	RP-03510	RP-03510-Padanakkad	12.2693	75.1118	GBT	40	0	IP connected	Y	30KVA MAHINDRA
KASARAGOD	RP-03669	RP-03669-Kadankod	12.2153	75.1337	GBT	40	0	IP connected	Y	20kva,mahindra
KASARAGOD	RP-03768	RP-03768-Avikkara	12.3161	75.079	RTT	24	7	IP connected	Y	15KVA MAHINDRA
KASARAGOD	RP-06293	RP-06293-Thuruthy	12.2189	75.1262	GBT	40	0	IP connected	Y	25kva,mahindra
KASARAGOD	RP-07043	RP-07043-Edayiilikad	12.1368	75.1648	GBT	40	0	IP connected	Y	25kva,mahindra
KASARAGOD	RP-07689	RP-07689-Madiyan	12.35	75.0723	RTT	18	10	IP connected	Y	15KVAKIRLOSKAR
KASARAGOD	RP-08053	RP-08053-KanhangadBusStand	12.3205	75.0875	RTT	24	10	IP connected	Y	25kva,mahindra
KASARAGOD	RP-08505	RP-08505-NHJnKanhangad	12.2978	75.1041	RTT	27	7	IP connected	Y	15KVA,EICHER
KASARAGOD	RP-08776	RP-08776-KallooraviDLCMicro	12.2849	75.0963	RTP	3	6	IP connected	Y	20kva,kirloskar
KASARAGOD	RP-08291	RP-08291-KanhangadNewBusStand	12.306	75.098	RTT	25	12	IP connected	Y	25kva,eicher
KASARAGOD	RP-00116	RP-00116-Kasargod	12.5099	74.9846	GBT	80	0	IP connected	Y	15KVA,KIRLOSKAR
KASARAGOD	RP-00301	RP-00301-UDUMA	12.4304	75.0228	GBT	46	0	IP connected	Y	40kva,eicher
KASARAGOD	RP-00306	RP-00306-Thalangara	12.4852	74.9919	RTT	18	12	IP connected	Y	40KVA,MAHINDRA
KASARAGOD	RP-00529	RP-00529-PALLIKARA	12.3881	75.0438	GBT	49	0	IP connected	Y	30KVA,KIRLOSKAR
KASARAGOD	RP-02195	RP-02195-KALANAD	12.4663	75.0067	GBT	48	0	IP connected	Y	15KVA,SYMPSON
KASARAGOD	RP-02217	RP-02217-Cpcri	12.5229	74.9723	GBT	40	0	IP connected	Y	30KVA,GREAVES
KASARAGOD	RP-02218	RP-02218-Kasargodete	12.5028	74.9897	RTT	24	18	IP connected	Y	30KVA, KIRLOSKAR
KASARAGOD	RP-03505	RP-03505-Mogralputhur	12.5486	74.9613	RTT	25	9	IP connected	Y	40KVA,ESCORT
KASARAGOD	RP-03506	RP-03506-Southkalanad	12.4504	75.023	GBT	40	0	IP connected	Y	250KVA,CUMMINS
KASARAGOD	RP-03507	RP-03507-Thrikkanad	12.4152	75.0271	GBT	40	0	IP connected	Y	15KVA,KIRLOSKA
KASARAGOD	RP-03508	RP-03508-Chittari	12.3629	75.066	GBT	40	0	IP	Y	15KVA,MAHI

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								connected		NDRA
KASARAGOD	RP-04052	RP-04052-Kasaragodfort	12.4954	74.9899	GBT	40	0	IP connected	Y	15KVA,JEEVA N DIESELS
KASARAGOD	RP-04053	RP-04053-KblSouthBsnlMarrSite	12.5727	74.9569	GBT	40	0	IP connected	Y	15KVA,MAHI NDRA
KASARAGOD	RP-07044	RP-07044-KasaragodNewBusStand	12.5071	74.9943	RTT	18	15	IP connected	Y	15KVA,EICHER
KASARAGOD	RP-07114	RP-07114-Chowky	12.5362	74.9688	GBT	40	0	IP connected	Y	25kva,mahindra
KASARAGOD	RP-07746	RP-07746-Chembarika	12.4494	75.0035	GBT	40	0	IP connected	Y	25kva,mahindra
KASARAGOD	RP-07914	RP-07914-UdumaNorth	12.4398	75.0255	RTT	23	9	IP connected	Y	15KVA,EICHER
KASARAGOD	RP-08848	RP-08848-Poochakkad	12.3789	75.0516	RTT	24	6	IP connected	Y	20kva,mahindra
KASARAGOD	RP-00122	RP-00122-KUMBALA	12.591	74.947	GBT	40	0	IP connected	Y	15KVA,KIRLOSKAR
KASARAGOD	RP-00123	RP-00123-MANJESHWARAM	12.7156	74.8896	GBT	40	0	IP connected	Y	NO DG
KASARAGOD	RP-00314	RP-00314-UPPALA	12.6706	74.9119	GBT	40	0	IP connected	Y	60KVA,GREAVES
KASARAGOD	RP-01304	RP-01304-KUNJATHUR	12.7453	74.8845	GBT	40	0	IP connected	Y	40KVA,GREAVES
KASARAGOD	RP-02221	RP-02221-BANDIYODU	12.6409	74.926	RTT	27	9	IP connected	Y	63KVA,GREAVES
KASARAGOD	RP-03501	RP-03501-ManjeswaramNorth	12.7289	74.8846	GBT	40	0	IP connected	Y	15KVA,KIRLOSKAR
KASARAGOD	RP-03502	RP-03502-Hosangadi	12.7064	74.9033	RTT	24	9	IP connected	Y	15KVA,LITTLE FILTER
KASARAGOD	RP-03503	RP-03503-UppalaGate	12.6834	74.9064	GBT	40	0	IP connected	Y	15KVA,KIRLOSKAR
KASARAGOD	RP-03504	RP-03504-MuttamRlyGate	12.6213	74.9273	GBT	40	0	IP connected	Y	15KVA,KIRLOSKAR
KASARAGOD	RP-03790	RP-03790-Mangalpadi	12.6527	74.917	GBT	40	0	IP connected	Y	15KVA,MAHI NDRA
KASARAGOD	RP-07117	RP-07117-Kumbala	12.606	74.9393	GBT	40	0	IP connected	Y	15KVA,MAHI NDRA
KASARAGOD	RP-08382	RP-08382-Kaikamba	12.6608	74.9192	RTT	25	9	IP connected	Y	15KVA,KIRLOSKAR
KASARAGOD	RP-10923	RP-10923-GovindaPaiMemGovtClg	12.7234	74.8945	GBT	40	0	IP connected	Y	15KVA KIRLOSKAR
MALAPPURAM	RP-00154	RP-00154-Parapanamgady	11.0445	75.8603	GBT	60	0	IP connected	Y	15 KVA KIRLOSKAR
MALAPPURAM	RP-00621	RP-00621-Tanur	10.9791	75.8762	GBT	60	0	IP connected	y	Mahindra30KVA
MALAPPURAM	RP-00625	RP-00625-Vallikunnu	11.108	75.8369	GBT	40	0	IP connected	y	63KVA
MALAPPURAM	RP-01434	RP-01434-Palappetty	10.7298	75.9462	GBT	40	0	IP connected	y	NO DG
MALAPPURAM	RP-01453	RP-01453-Vettom	10.869	75.8984	GBT	40	0	IP connected	y	63KVA
MALAPPURAM	RP-02296	RP-02296-Chettipadi	11.0764	75.8516	RTT	24	7	IP connected	y	Greeves 15KVA Scrapped
MALAPPURAM	RP-03524	RP-03524-Ariyallure	11.0912	75.8501	GBT	40	0	NO	Y	Jeevan 15KVA
MALAPPURAM	RP-03525	RP-03525-Ayyappankavu	11.0645	75.8552	GBT	40	0	IP connected	y	Jeevan 15KVA
MALAPPURAM	RP-03527	RP-03527-Mukkala	11.0014	75.8737	GBT	46	0	IP connected	y	15KVA
MALAPPURAM	RP-03528	RP-03528-Vattathani	10.9528	75.8955	GBT	82	0	IP	y	Eicher 15KVA

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								connected		
MALAPPURAM	RP-07580	RP-07580-Koottayi	10.844	75.9013	GBT	40	0	IP connected	y	Eicher 15KVA
MALAPPURAM	RP-07596	RP-07596-Kalad	10.9432	75.8884	GBT	40	0	IP connected	y	Eicher 15KVA
MALAPPURAM	RP-08686	RP-08686-Murivazhikkal	10.9093	75.8977	GBT	40	0	IP connected	y	Koel 15KVA
THRISSUR	RP-00187	RP-00187-EriyadTE	10.2083	76.1647	GBT	40	0	IP connected	Y	15KVA-Eicher
THRISSUR	RP-00361	RP-00361-EngandiyoorTE	10.5035	76.0615	GBT	40	0	IP connected	Y	15KVA-Eicher
THRISSUR	RP-00683	RP-00683-Chavakkadjn	10.5817	76.0247	RTT	21	12	IP connected	Y	15KVA-Eicher
THRISSUR	RP-01554	0	10.6113	76.002	GBT	40	0	IP connected	Y	15KVA-Kirloskar
THRISSUR	RP-01559	RP-01559-Kadappuram	10.5372	76.0278	RTT	27	7	IP connected	Y	15KVA-Mahindra
THRISSUR	RP-01562	RP-01562-Karajn	10.2353	76.1527	GBT	40	0	IP connected	Y	15KVA-Mahindra
THRISSUR	RP-01574	RP-01574-PVemballur	10.276	76.1399	GBT	40	0	IP connected	Y	15KVA-Mahindra
THRISSUR	RP-01575	RP-01575-Palapetty	10.3609	76.1234	GBT	40	0	NO	Y	15KVA-Mahindra
THRISSUR	RP-02378	RP-02378-KalamuriWest	10.3329	76.1327	GBT	40	0	IP connected	Y	20KVA-Kirloskar
THRISSUR	RP-02396	RP-02396-Thalikkulam	10.441	76.0938	GBT	40	0	IP connected	Y	20KVA-Mahindra
THRISSUR	RP-03189	RP-03189-Chullipadi	10.5212	76.0524	GBT	40	0	IP connected	Y	25KVA-Mahindra
THRISSUR	RP-03214	RP-03214-Thrithallur	10.482	76.0749	GBT	40	0	IP connected	Y	30KVA-Eicher
THRISSUR	RP-03736	RP-03736-Akalad	10.6329	75.9894	GBT	40	0	IP connected	Y	30KVA-Mahindra
THRISSUR	RP-03795	RP-03795-Mannalamkunnu	10.6558	75.9738	GBT	40	0	IP connected	Y	40KVA-Mahindra
THRISSUR	RP-03797	RP-03797-Manathala	10.59	76.0116	GBT	40	0	IP connected	Y	60KVA-Asokleyland
THRISSUR	RP-03798	RP-03798-Thiruvanchery	10.3969	76.1062	GBT	40	0	IP connected	Y	No DG
THRISSUR	RP-03881	RP-03881-Andathode	10.679	75.968	GBT	40	0	IP connected	Y	15-FG WILSON
THRISSUR	RP-06092	RP-06092-EdakkaraTCR	10.6491	75.989	GBT	40	0	IP connected	Y	15-FG WILSON
THRISSUR	RP-06094	RP-06094-Thambankadavu	10.4486	76.0763	GBT	40	0	IP connected	Y	15-EICHER
THRISSUR	RP-06132	RP-06132-SujithJn	10.3128	76.1273	GBT	40	0	IP connected	Y	15-MAHINDRA
THIRUVANANTHAPURAM	RP-00232	RP-00232-Shangumugham	8.48467	76.9322	RTT	27	7	IP connected	Y	30KVA KIRLOSKAR
THIRUVANANTHAPURAM	RP-00236	RP-00236-Vizhinjam	8.38898	76.9907	GBT	35	0	IP connected	Y	63KVA Kirloskar
THIRUVANANTHAPURAM	RP-00365	RP-00365-Edava	8.76312	76.7005	RTT	24	6	IP connected	Y	15 KVA Eicher
THIRUVANANTHAPURAM	RP-00369	RP-00369-Kanjiramkulam	8.36002	77.056	GBT	40	0	IP connected	Y	50 KVA KIRLOSKAR
THIRUVANANTHAPURAM	RP-00374	RP-00374-Kochuveli	8.50622	76.9009	GBT	35	0	IP connected	Y	30KVA KIRLOSKAR
THIRUVANANTHAPURAM	RP-00375	RP-00375-AirportTE	8.47667	76.9161	GBT	18	0	IP connected	Y	30KVA KIRLOSKAR
THIRUVANANTHAPURAM	RP-00707	RP-00707-Perumkuzhy	8.63602	76.8107	GBT	40	0	IP connected	Y	20 KVA
THIRUVANANTHAPURAM	RP-00709	RP-00709-Eudytower	8.73481	76.7251	RTT	30	13	IP connected	Y	15 KVA Eicher

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THIRUVANANTHAPURAM	RP-00721	RP-00721-Poovar	8.32517	77.0646	GBT	40	0	IP connected	Y	15 KVA EICHER
THIRUVANANTHAPURAM	RP-00722	RP-00722-Beemapally	8.45795	76.9327	GBT	40	0	IP connected	Y	No DG
THIRUVANANTHAPURAM	RP-00730	RP-00730-Konchiravilla	8.46476	76.9537	GBT	40	0	IP connected	Y	15KVA FG WILSON
THIRUVANANTHAPURAM	RP-00739	RP-00739-Poonkulam	8.42262	76.9746	GBT	40	0	IP connected	Y	15KVA FG WILSON
THIRUVANANTHAPURAM	RP-00750	RP-00750-Vznpulinkudy	8.3606	77.0126	GBT	35	0	IP connected	Y	15 KVA EICHER
THIRUVANANTHAPURAM	RP-01601	RP-01601-Kappil	8.77985	76.6785	GBT	40	0	IP connected	Y	15 KVA Eicher
THIRUVANANTHAPURAM	RP-01612	RP-01612-Perumathura	8.61304	76.8109	GBT	46	0	IP connected	Y	15KVA, Mahindra
THIRUVANANTHAPURAM	RP-01617	RP-01617-Pulluvila	8.34637	77.0349	GBT	40	0	IP connected	Y	15 KVA EICHER
THIRUVANANTHAPURAM	RP-01618	RP-01618-Punnakkulam	8.37089	77.0231	GBT	40	0	IP connected	Y	15 KVA EICHER
THIRUVANANTHAPURAM	RP-01626	RP-01626-Uchakkada	8.30909	77.0973	GBT	40	0	IP connected	Y	15 KVA EICHER
THIRUVANANTHAPURAM	RP-02419	RP-02419-Anayara	8.49924	76.9197	GBT	40	0	IP connected	Y	15KVA, KIRLOSKAR
THIRUVANANTHAPURAM	RP-02427	RP-02427-Gkjunction	8.47575	76.9343	GBT	40	0	IP connected	Y	30 KVA EICHER
THIRUVANANTHAPURAM	RP-02432	RP-02432-Kallattumukku	8.45567	76.9501	RTT	21	12	IP connected	Y	15 KVA KIRLOSKAR
THIRUVANANTHAPURAM	RP-02438	RP-02438-Venpalavattom	8.51053	76.9085	RTT	21	4	IP connected	Y	15KVA, Mahindra
THIRUVANANTHAPURAM	RP-02440	RP-02440-TVM-Kulathur	8.54202	76.8803	GBT	40	0	IP connected	Y	15KVA, KIRLOSKAR
THIRUVANANTHAPURAM	RP-02445	RP-02445-Menamkulamte	8.55344	76.8608	GBT	40	0	IP connected	Y	62.5KVA, LG
THIRUVANANTHAPURAM	RP-02453	RP-02453-Pachaloor	8.43298	76.9691	GBT	40	0	IP connected	Y	15 KVA KIRLOSKAR
THIRUVANANTHAPURAM	RP-02462	RP-02462-TVM-PoundKadav	8.52522	76.8818	GBT	40	0	IP connected	Y	15KVA, KIRLOSKAR
THIRUVANANTHAPURAM	RP-02474	RP-02474-VazhamuttamTVM	8.41089	76.9726	GBT	40	0	IP connected	Y	15 KVA EICHER
THIRUVANANTHAPURAM	RP-02477	RP-02477-Vettukadu	8.50266	76.8964	GBT	40	0	NO	Y	NO DG
THIRUVANANTHAPURAM	RP-02482	RP-02482-Kovalam	8.3909	76.9769	GBT	40	0	IP connected	Y	15KVA FG WILSON
THIRUVANANTHAPURAM	RP-02829	RP-02829-Poonthura	8.44668	76.9446	GBT	40	0	IP connected	Y	NO DG
THIRUVANANTHAPURAM	RP-02831	RP-02831-Manacaud2	8.47047	76.9457	GBT	40	0	IP connected	Y	15 KVA KIRLOSKAR
THIRUVANANTHAPURAM	RP-02840	RP-02840-TVMWestfort	8.48306	76.9382	RTT	24	10	IP connected	Y	NO DG
THIRUVANANTHAPURAM	RP-03231	RP-03231-Vettoor	8.71342	76.7512	GBT	40	0	IP connected	Y	15 KVA Kirloskar
THIRUVANANTHAPURAM	RP-03234	RP-03234-Venganoor	8.40387	77.0058	GBT	40	0	IP connected	Y	15 KVA KIRLOSKAR
THIRUVANANTHAPURAM	RP-03565	RP-03565-Punnamooduatngl	8.74746	76.7167	RTT	27	12	IP connected	Y	15 KVA Kirloskar
THIRUVANANTHAPURAM	RP-03566	RP-03566-Melevettoor	8.71909	76.7406	GBT	40	0	IP connected	Y	15 KVA Eicher
THIRUVANANTHAPURAM	RP-03567	RP-03567-Akathumuri	8.70521	76.7524	GBT	45	0	IP connected	Y	15 KVA Mahindra
THIRUVANANTHAPURAM	RP-03584	RP-03584-Sarkkara	8.65846	76.7809	RTT	24	7	IP connected	Y	15 KVA Eicher
THIRUVANANTHAPURAM	RP-04072	RP-04072-Madhupalam	8.45196	76.9654	GBT	40	0	IP connected	Y	15KVA FG WILSON
THIRUVANANTHAPURAM	RP-04076	RP-04076-Muttakkadu	8.40997	76.9882	GBT	40	0	IP connected	Y	15KVA FG WILSON

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THIRUVANANTHAPURAM	RP-04085	RP-04085-Paraniyam	8.34189	77.0568	GBT	40	0	IP connected	Y	15 KVA EICHER
THIRUVANANTHAPURAM	RP-04096	RP-04096-Veyiloor	8.62222	76.8213	GBT	40	0	IP connected	Y	15 KVA Mahindra
THIRUVANANTHAPURAM	RP-04149	RP-04149-Chackai	8.49097	76.9237	RTT	9	9	IP connected	Y	15 KVA EICHER
THIRUVANANTHAPURAM	RP-04150	RP-04150-Kuzhivila	8.528	76.8898	RTP	6	19	IP connected	Y	NO DG
THIRUVANANTHAPURAM	RP-05087	RP-05087-StXaviersCollege	8.56139	76.8493	RTT	15	13	IP connected	Y	15KVA EICHER
THIRUVANANTHAPURAM	RP-05265	RP-05265-VSSCProjComplex	8.51971	76.8829	RTP	6	19	IP connected	Y	NO DG
THIRUVANANTHAPURAM	RP-05321	RP-05321-VSSCQtrsStationkadavu	8.5469	76.8702	GBT	40	0	No	Y	15 KVA, ASHOK LEYLAND
THIRUVANANTHAPURAM	RP-05744	RP-05744-DomAirportTmITVM	8.47446	76.9205	RTP	6	7	IP connected	Y	15 KVA EICHER
THIRUVANANTHAPURAM	RP-06204	RP-06204-PoovarTe	8.32397	77.0734	GBT	40	0	IP connected	Y	60 KVA Kirloskar
THIRUVANANTHAPURAM	RP-06205	RP-06205-ChackaITl	8.48866	76.9188	RTP	6	9	IP connected	Y	15 KVA EICHER
THIRUVANANTHAPURAM	RP-06244	RP-06244-ChappathPulinkudy	8.35934	77.0285	GBT	40	0	IP connected	Y	15 KVA EICHER
THIRUVANANTHAPURAM	RP-06263	RP-06263-ManavaNagarJn	8.48636	76.9283	RTP	6	11	IP connected	Y	15 KVA EICHER
THIRUVANANTHAPURAM	RP-07435	RP-07435-Muttathura	8.46818	76.9371	RTT	15	5	IP connected	Y	15 KVA KIRLOSKAR
THIRUVANANTHAPURAM	RP-07745	RP-07745-VeliVssc	8.51779	76.887	RTP	6	12	IP connected	Y	NO DG
THIRUVANANTHAPURAM	RP-07794	RP-07794-VakkomRWGate	8.68835	76.7602	GBT	40	0	IP connected	Y	15 KVA Kirloskar
THIRUVANANTHAPURAM	RP-07983	RP-07983-AllSaintsClgCnvt	8.49782	76.9078	RTP	6	7	IP connected	Y	15 KVA EICHER
THIRUVANANTHAPURAM	RP-08006	RP-08006-AkkulamICCC	8.52533	76.8975	GBT	40	0	IP connected	Y	15 KVA, KIRLOSKAR
THIRUVANANTHAPURAM	RP-08570	RP-08570-ChithranjaliStudio	8.4427	76.9627	RTP	6	9	IP connected	Y	No DG
THIRUVANANTHAPURAM	RP-09029	RP-09029-TravancoreHeritageResort	8.3586	77.0179	RTP	3	8	IP connected	Y	110 KVA DG