OFFSHORE SAND MINING FOR THE DEVELOPOMENT OF GREENFIELD VADHAVAN PORT PROJECT

Impact Assessment of Proposed Sand Mining on the Marine Fisheries and Fisher Community of Daman Union Territory

Project Technical Report

Jawaharlal Nehru Port Authority

Nariman Point, Mumbai

INDIA

OCTOBER 2023

***PREPARED BY*:**

ICAR-Central Marine Fisheries Research Institute, Mumbai Regional Station, ICAR-CMFRI

TABLE OF CONTENTS

LIST OF ACRONYMS

CMFRI	Central Marine Fisheries Research Institute
CMPA	Coastal and Marine Protected Area
CRZ	Coastal Regulation Zone
DGPS	Differential Global Positioning System
EAC	Expert Appraisal Committee
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EMP	Environmental Monitoring Plan
FRAEED	Fishery Resources Assessment, Economics & Extension Division
JNPA	Jawaharlal Nehru Port Authority
MMB	Maharashtra Maritime Board
MoEFCC	Ministry of Environment, Forests, and Climate Change
MOU	Memorandum of Understanding
NH	National Highway
PP	Project Proponent
TEU	Twenty-foot Equivalent Unit
TSHD	Trailing Suction Hopper Dredger
ToR	Terms of Reference

1. Background

Development of deep draft all weather port at Vadhavan in Dahanu, Palghar District, Maharashtra has been long recognized. The proposal (Proposal No. IA/MH / NCP / 295375 /2022 & File No. 10-52/2020-IA.III) for the setting up of a port at Vadhavan in Dahanu was approved by the Union Cabinet in its meeting held on 5th February, 2020.

The project proponent (PP) is the Jawaharlal Nehru Port Authority (JNPA). The project will be jointly implemented by JNPA and Maharashtra Government's Maharashtra Maritime Board (MMB) with equity share of 74% and 26% respectively. Notification of major port at Vadhavan was published on 19-02-2020 by Government of India. The ToR for the Environmental Clearance of the project approved in a meeting with EAC of MoEF&CC held on 26-08-2020 and formal copy of approved ToR received on 07.10.2020. The Project Proponent has further proposed to change the scope of the earlier ToR dated 07th October, 2020. The volume of the fill materials for the reclamation requirement for the construction of port in the present proposal is about 200 million cubic metres as compared to earlier ToR which was 86.88 million cubic metres. Moreover, the location of the port was changed from onshore to offshore requiring large scale of reclamation requirement. It was decided to extract the fill material through marine sand borrow pit as against the earth filling borrowed from land location and in view of the ecological sensitivity of the region, the change of location is proposed to borrow the material from offshore. The location of the offshore is in the northern side of the proposed Vadhavan Port where sand bed is available. The marine sand borrow pit was identified in the offshore of the Daman Coast about 50 km from the proposed Vadhavan Port site at a depth varying from 20-25m. In view of the environmental requirements, the studies have already been carried out as part of the port development - Bathymetric survey, Geophysical Survey-shallow seismic survey, current and tide measurements, collection of water and sediment samples, mathematical model studies, hydrodynamic and flow modelling, dredged dispersion studies, impact of dredging and dumping on marine ecology.

Application for amendment in ToR submitted to MoEF&CC on 6th December 2022 for reclamation material from marine borrow sand pit near Daman Coast and same has been recommended by EAC of MoEF&CC in its 324th meeting during 19 21st April 2023. However, since the configuration of the project has been changed, the Project Proponent has to conduct

the studies as per the revised configuration for the EIA/EMP studies. The EAC of MoEF&CC, further prescribed the additional ToRs for conduct of additional studies.

i. Justification for the site suitability and variability of the project location shall be submit.

ii. Traffic assessment studies for the increase of the traffic due to port related activities on NH-8/Vadodara Expressway.

iii. JNPA has identified a burrow pit at around 50-65 kms into sea from the proposed Vadhavan port for obtaining sand for creating reclaimed land at the proposed Vadhavan port. The marine sand will be dredged using Trailing Suction Hopper Dredger (TSHD) and the sand will be transported and dumped at the reclamation location. This has involved the mining in the marine in this regard Comments/permission shall obtained from the Ministry of Earth Sciences.

iv. A detailed and additional biodiversity study for the burrow pit region covering monsoon and winter season (considering the sand flats are active breeding areas for fishes and other sand burrowing fauna) should be undertaken by Zoological Survey of India.

v. A comprehensive and dedicated socio-economic studies to be conducted with specific focus on fisherman community both in Dahanu and Daman region considering large scale sand mining that may have an impact on active fishing grounds. Such fishing grounds to be documented by Central Marine Fisheries Research Institute (CMFRI) or similar competent nationally reputed institute with expertise in fisheries. Details regarding the impact, mitigation and R&R for fisherman community be envisaged.

vi. The mining also proposed after 12 nautical miles around 50-65 kms into sea Ministry shall obtained the Comments from the CRZ division in this regard.

vii. Public hearing shall be conduct at Dahanu district and Daman districts.

viii. No LNG and LPG terminal shall be allowed on the proposal at this time.

ix. Two seasons additional baseline data shall be collected by Zoological Survey of India covering monsoon and winter season with specific focus on offshore marine mammals movement and fish aggregation sites if any with special focus on offshore sand mining areas and port reclamation areas.

x. Impact of breakwaters and transport carriageway on the erosion/accretion to be evaluated by National Centre for Coastal Research.

Additional TOR for carrying out the additional studies by CMFRI is given below

To quote the ToR, ‘’*Comprehensive and dedicated socio-economic studies to be conducted with specific focus on fisherman community both in Dahanu and Daman region considering large scale sand mining that may have an impact on active fishing grounds. Such fishing grounds to be documented by Central Marine Fisheries Research Institute (CMFRI) or similar competent nationally reputed institute with expertise in fisheries. Details regarding the impact, mitigation and R & R for fishermen community be envisaged.*’’

JNPA in its letter No. D.O. No. PP&D/DGM/VPPL/2023/63j informed that additional studies covering the Dahanu region as mentioned in the Term of Reference has already been carried out by CMFRI and the draft final report has been prepared in response to the ToR and submitted to JNPA. JNPA requested to carry out the additional studies in response to the TOR for Daman region only.

Based on the request from JNPA, Central Marine Fisheries Research institute (CMFRI) has proposed the consultancy project entitled, ‘’ *Impact Assessment of proposed sand mining on the marine fisheries and fisher community of Daman Union Territory’’* for conducting the additional studies in order to fulfil one of the aforementioned ToR.

The significance and the extent of the effects of aggregate extraction on the seabed will depend upon a range of factors including the location of the borrow pit area, nature of the surface and underlying sediment, the method of extraction and the sensitivity of the habitats and fisheries in the locality.

This report is intended to enable the organization(s) responsible for licensing to establish whether dredging in the proposed sand mining area will have 1) any impact on the abundance and composition of marine fisheries resource 2) any potential impact on fisheries, local or regional.

Extent and Scope of the Study

The present study is to evaluate the impacts of removing a volume of approximately 200 million cubic metres of well graded medium to coarse sand from the marine borrow pit area located offshore of Daman region of Daman and Diu Union Territory. The area of sea sand is available approximately at 50 km offshore of Daman and 50-65 km from the proposed Vadhavan Port, just west of India. The average sea depth at the borrow pit area is 22.5 m below the low tide level. Area of dredging is 60 km^2 and the average depth of excavation will be approximately 1 m.

The scope of the study is to evaluate the effect of the removal of sea sand on the fisheries composition and socio-economic conditions of dependent local community of Daman based on the available secondary data. Secondary data comprises the published and unpublished data/literature of research organizations/institutions /fisheries department related to socio-economic conditions and fishing activities of Daman.

2. Details of the Port Project

The need for the development of Greenfield Port at Vadhavan, Palghar District, Maharashtra has been envisaged and recognized in the recent past. The construction of the port was finally approved by the Union Cabinet in its meeting held on 5th Feb, 2020 after a prolonged planning process which included extensive public consultations.

Design of Port Area

The total area for the construction of the port is 17,471 ha. Out of which 16,900 ha has been declared as port limit and 571 ha outside port limit. The port limit area has three components namely, waterfront area 15,363 ha, reclamation area 1,473 ha and berth area 63.5 ha. The proposed port project area are bounded within CRZ - I (A), CRZ - I (B), CRZ - III,(C) and CRZ – IV (D). (Table 1 & Figure 3). However, development works are not proposed in CRZ-I (A). Reclamation and land filling of 1,473 ha was located in intertidal zone. Two hundred million cubic metres of fill material will be extracted from the marine sand borrow pit located offshore of Daman.

Figure 1. *Stakeholder consultation meeting with officials of Daman Administration, Ministry of Ports, Shipping and Waterways, Ministry of Environment, Forest and Climate Change, Zoological Survey of India, Indian Coast Guard, Fishery Survey of India, Jawaharlal Nehru Port Authority and Indian Reserve Battalion*

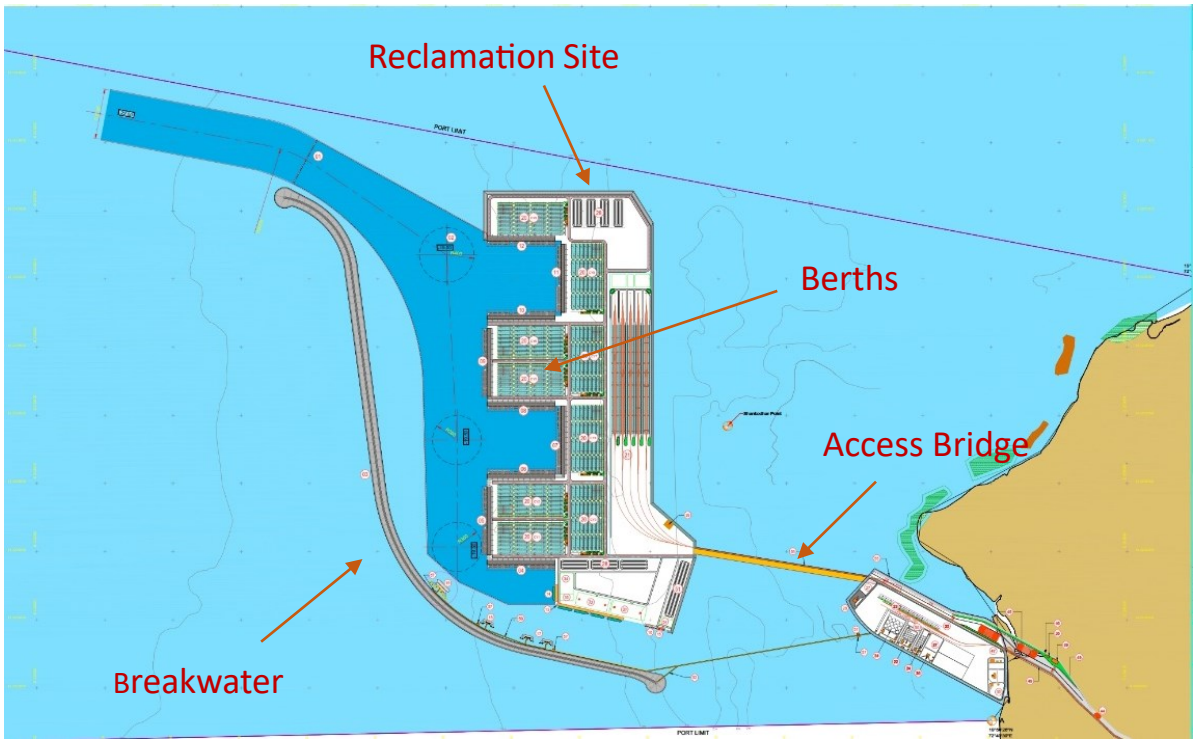


Figure. 2. Proposed Vadhavan Port near Dahanu, Maharashtra

Figure 3. Proposed port area bounded within CRZ I-IV (A-D) zone

Table 1. Details of geographic coordinates for the proposed port area

Point	Latitude	Longitude
A	19 ° 54′ 26.0″ N	72 ° 40′34.0″ E
B	19 ° 57′ 59.0″ N	72 ° 42′18.0″ E
C	20 ° 00′ 00.0″ N	72 ° 30′ 00.0″ E
D	19 ° 54′ 05.0″ N	72 ° 30′ 00.0″ E

Dedicated Rail and Road connectivity

The rail and road connectivity are also envisaged as a part of the project and EIA study covered 34 km stretch of the road and 12 km of rail connectivity. The road connectivity will be implemented by NHAI and Railway Board has decided to implement the rail connectivity by Western Railway.

Justification of the Port Project

Mumbai and Jawaharlal Nehru Port (JNPA) are the two major ports in Maharashtra. Both the ports have a constrained in the evacuation of cargo for the past several decades due to the development of the city around it as well as due to limited depths in the harbour which allows only small ships to berth. Vadhavan located at the north of Mumbai is identified as the most suitable and ideal site for the development of a new port where natural depth of 20 meters is available at a distance of about four and half nautical miles. This site is located about 10 km from the National Railway Grid and about 35-40 km from NH8. The JNPA has proposed to develop Vadhavan Port along with the participation of Government of Maharashtra and Maharashtra Maritime Board (MMB). A memorandum of understanding (MOU) was signed on 5th June 2015 to set up a new port at Vadhavan as a major port to be notified under the Indian Ports Act 1908 by Government of India.

The need for deep draft port has been established for the following reasons

- Deep draft port will give advantage of economy of scale and will reduce the logistics cost.
- Size of container ship is increasing, requiring deep draft of 18 to 20 m.
- No port in India has the draft to accommodate the largest container ship.
- JNPA will exhaust its full capacity of 10 million TEUs (for mid-size vessels only) and cannot be dredged further from the 15 m draft.
- In order to be one of the top 10 container ports in the world, port with capacity to handle container vessels of size 16,000 TEU and above with deep draft from 18 to 20 m is essential. Seven of the top 10 container ports are in China with Shanghai as the largest handling container with the volume of 40 million TEUs.
- The Vadhavan Port has potential to be amongst the top 10 container ports in the world.

Prominent features of Vadhavan Port Site

- The proposed port is located at Vadhavan point near Dahanu in the District of Palghar, Maharashtra.
- Development of a Greenfield Port at Vadhavan has been conceived under Sagarmala Program an initiative of the Govt. of India to augment port led development and development of coast lines to contribute in India‘s growth.
- The new port at Vadhavan will be developed as a deep draught port to cater to large container, bulk, crude vessels and soon.

Advantages of Vadhavan Port Site

- No capital dredging is required in the navigational channel and harbour area as draft of 18 m is naturally available.
- A natural water depth of 20 m is available at a distance of 10 km and 15 m contour is available at 6 km from the shore, which allows safe voyage and mooring for the new generation vessels.
- 1,473 ha. (3639.86 acres) land will be reclaimed and 571 ha (1410.97 acres) land consists of private, tribal, forest and government land will be acquired for rail and road connectivity. In addition, 1000 ha government land will be available for port related facilities.
- Mumbai-Delhi western railway line can be tapped at a distance of 12 km only; flat terrain with no natural obstruction.
- NH-8 from Mumbai to Delhi is about 34 km and Mumbai Vadodara Express highway is at 18 km only; will be linked to port by dedicated rail and road.
- The Vadhavan Port will add container capacity of 15 million TEUs in the year 2035, which will increase to 23.9 million TEUs by 2040.

Procedure of Offshore Dredging Operation

Offshore source of sand and gravel (aggregates) have been exploited in some countries in many decades. Offshore areas supply a major volume of aggregates used for land reclamation. Offshore marine sand extraction is undertaken by dredging vessels in three stages viz. excavation, transport and offloading. These stages may be combined in one vessel

or done by three separate vessels/machinery (GESAMP, 2016). Extraction of marine aggregates from offshore excavation site will be carried out by hydraulic dredger. This vessel can contain the excavated material in the vessel's hull which is termed as hopper. Sand will be dredged using Trailing Suction Hopper Dredger (TSHD) and excavated material will be either being pumped to the reclamed site through a pipeline or be directly offloaded to the site, provided sea conditions permit such an operation. The area to be dredged are bounded within the Indian EEZ grid northings between point A: 20 ° 28′ 08.39″ N, 72° 20′ 42.1″ E and point B: 20°27′12.58 ″ N, 72°22′ 48.9″E and southings between point C 20° 20′30.87″ N , 72°17 ′57.7″ E and point D 20° 21′ 25.23 ″ N, 72° 15 ′51.1 ″E (Table 2). Total area of offshore excavation site is 60 km^2 (15 x 4 km).

Table 2. Details of offshore excavation site

Dredging Ground Corners	Geographic Locations	
	Latitude	Longitude
A	20 ° 28′ 08.39″ N	72° 20′ 42.1″ E
B	20°27′12.58 ″ N	72°22′ 48.9″E
C	20° 20′30.87″ N	72°17 ′57.7″ E
D	20° 21′ 25.23 ″ N	72° 15 ′51.1 ″E

The area to be dredged will have depth varying from 20 -25 m and the site remain outside the active longshore and cross-shore sediment transport zone that influence the coastal stability. Lanka Hydraulic Institute Ltd. (2000) studying the EIA of offshore sand mining using TSHD disclosed that the extraction of sand from the considerable distance offshore of the wave breaking zone does not have any impact on the nearshore sediment budget, which is vital for the coastal stability. The positioning system onboard the Trailing Suction Hopper Dredger (TSHD) will have a Differential Global Positioning System (DGPS) (with a positional accuracy of less than 1 m) which will enable the vessel to maintain precise positioning and restrict the dredging within the proposed sand mining area. TSHD has on-board screening of the sediment facilities which will enable to remove particular sizes of dredged material at sea or in other words, screening may remove either sand to provide a mostly gravel material or coarser materials may be removed to provide sand to the cargo (BMAPA/TCE, 2017). The sand/ water

mixture will be pumped from the seabed into the hopper. Once the hopper is full, the vessel will sail towards the land reclamation site and connect up with the long pipeline or directly contents of the hopper will be pumped into the site. Outer embarkment/bund will be constructed in the reclamed site before offloading the sand. There will be a sporadic increase in turbidity at excavation site during the dredging. This turbidity will be cleared between dredging operations. Lanka hydraulic Institute Ltd. (2000) studying the offshore sand mining using TSHD revealed that any impact on marine organisms due to intermittent increase in turbidity would be within the acceptable limits.

Figure 4: Location of dredging ground

Due to high tidal range and associated strong currents, concentration of the sediment plume gets weakened immediately during the dredging activity. Moreover, the location of marine borrow pit is far away from the coastal region approximately 50 - 60 km, the turbid flume does not reach the shore. This was validated by model simulation studies of IIT, Madras (A extract copy of the report is enclosed as Annexure 3 to this report). Based on the scenarios, it was observed that, the plume trajectory of the dredged sediment does not move towards the coast, and it appeared not to cause any impact on the shore and the marine environment.

A detailed Geophysical Survey- shallow seismic survey has already been carried out to quantify the total sand reserve available within the proposed sand mining area**.** A copy of seismic survey report is included as Annexure 4 in this report.

Sea bed at site is completely flat and does not contain any reefs or habitats such as seaweed bed, seagrass bed, coral reef etc. as evinced by the detailed bathymetric survey (Extract of silt dispersion report and geophysical survey report are enclosed in the Annex 3 and 4). Zoological Survey of India in its technical report also mentioned that there is no significant nesting /breeding grounds for any endemic or threatened marine species observed in the proposed sand mining area.

Assessment of Alternatives

The mining of the sand from the offshore areas for the purpose of artificial replenishment of beaches, landfill in nearshore regions and reclamation is an accepted practice which has been successfully implemented both in the developed and developing world (LHIL, 2000). The extraction of offshore sandmining from the seabed is in several cases more viable and environmentally less troublesome, than using landfill material from inland sources. This is predominantly applicable when a large amount of fill materials is required for the purpose of filling. The extraction of materials on a large quantity from inland borrow pits has had a larger impact on the environment than the excavation from the seabed.

The selection of the borrow sites within the reasonable distance (more than 10 km) from the proposed site is ideal procedure for the sand mining. Sand mining in territorial water, continental shelf, and EEZ of India is governed by the Offshore Areas Minerals (Development and regulation) Act 2002, dated 30th January 2002.

Sand mining very close to the shoreline or in the nearshore have severe impact on coastal erosion and hence dredging cannot be considered as practical alternative. Removal of sand from very deeper areas of seabed and pumping to the reclamed site is extremely costly and such an exercise will also be economically unviable.

From both an economical and engineering point of view, offshore sand mining is an viable option. it is imperative that dredging has to be carried out at an adequate distance from the shore, so that it does not have an impact on the offshore-onshore sand movement

of the coastal sedimentary budget and shore drift for the proposed sand mining region. Lanka hydraulic Institute Ltd. (2000) studying the EIA of offshore sand mining indicates that extraction of sand, well beyond the wave breaking zone, has no impact upon coastal erosion. Geophysical Survey and Silt dispersion studies have established that dredging of sand in the present borrow pit site is safe from the point of view that it would have no impact on near shore processes that contribute to coastal erosion. In view of the above observations, the site chosen by the project proponent (PP) for borrowing of sand is acceptable.

The possible substitutes other than the proposed sand mining that can be accessible for the extraction of sea sand could be classified as

i. dredging of sand from nearshore;
ii. dredging of sand in deeper areas beyond the proposed borrow area

Removing sand from the nearshore area is not acceptable because of interference with coastal sedimentation processes. Extraction of sand from deeper areas would make the operation uneconomical because of the distances involved.

Fill material from land or river based sand sources is normally an alternative. It should be noted that the volume of fill materials required is very huge viz. upto 200 million cubic metres. No large land based sand sources have so far been discovered. Furthermore, the environmental consequences of mining, such a large amount of sand in the densely populated inland areas are likely to be unacceptable. Two possible large river sources are Narmada and Tapti. Both the rivers are declared restricted for sand mining because of having dense population along the bank. Hence, there is a possibility of coastal erosion if sand mining takes place. Any further extraction of sand from these rivers would eventually have the worst adverse impact as the removal of sand from the nearshore region. Thus, the supply of 200 million cubic metres of sand from land or river sources is completely non-viable.

Hence it is concluded that the only possibility is to obtain the required fill material from the proposed offshore borrow site, which is the only available site at reasonable distance which has not been reserved by other users.

3. Marine Borrow Pit Area and Dredging

Technique of dredging

The Trailer Hopper Suction Dredger will be placed in a particular position which cause the minimum disturbance to the seabed. The key source of turbidity will be the amount of runoff water from the hopper which can be reduced by maximizing the transport density into the hopper. Simultaneously the spillage occurred during the dredging can be lessened by not overfilling the hopper. As dredgers are being used seasonally approximately 8 months in a year, the dredging operation will not be continuous. The estimated cycle, time of dredging, transportation and pumping into reclaimed site will be approximately 6 hours. Thus every six hour cycle, there will be about 2 hours for the turbidity raised by each dredging operation to settle down.

Rate, Area and Timing of Production

The excavation site to be dredged will be carefully regulated using DGPS position fixing. Offshore sandmining plan and schedule will be intimated to the concerned authority well in advance prior to commencement. The dredging plan shall take into account the recommendations made for mitigation of impacts.

Vessel Movements

A plan containing vessel registration numbers and movements will be filed with the naval authorities and the Fisheries Department well before implementation of the dredging plan.

Dredging Monitoring and Control

The dredging plan will be executed by the dredging contractor and a representative of the client shall be permitted to come on board to monitor progress.

Liaison and Notification

Offshore sandmining plan and schedule should also be notified to a concerned officer of the Fisheries Department to make sure that the fisher community aware about the movements of the dredger. These contacts will be facilitated through the good offices of JNPA.

Biotic Environment

The magnitude of the impacts rendered will depend on the following three key factors

- Methodology employed
- Frequency of sand removal
- Duration of the borrowing operations

The need to minimize the impact of above three activities will guide the selection of best practice in planning and carrying out the dredging activities.

4. Projected Environmental Impacts and Mitigatory Measures

Physical Effects

- *Transport and settlement of fine material suspended by the dredging activity*

Excavation method adopted in this project utilizes a TSHD. Unlike in the case of other dredgers including a cutter suction dredger, a grab or a bucket dredger, the increase in turbidity is less in the case of a trailing suction dredger. The absence of any cutting or excavating action will reduce the amount of turbidity generated at the point of dredging. There would however be an outwash plume resulting from hopper overflow. This will be controlled by limiting the dredging activity to areas of sandy bed. Unlike the high turbidity caused by sediment plume under normal condition in the river system outflow. The contribution to turbidity from this dredging activity is not expected to contribute significantly. There will, however, be some increase in turbidity during dredging operations. The dredging operation is discontinuous and will allow time for settlement between trips.

- *Implications for coastal erosion*

As the dredging operation is taking place at 22-25 m depth at a distance in excess of 50 km from the coastline, there will be no impact on coastal erosion. The temporary increase in depth will be around 1 metre and will be spread over the entirety in three season in three years of operation. This increase in depth will have no impact on the wave regime at this depth and consequently have no impact on the sediment transport process onshore. The waves experienced along this coastline are also not capable causing any measurable movement of bed sediment at a depth of 25 metres. Thus the sediment being removed from the bed does

not form a part of the sediment budget of the shoreline which determines whether the beaches are stable.

- *Likely Effects on changes in waves and tidal conditions*

The dredging is spread over a 60 km^2 areas and average depth of removal is less than 1 metre. The seabed topography is such that there will be no measurable impact on wave and tidal conditions.

- *Likely Effects on the water quality*

No new soil type will be exposed as a result of dredging. The only impact will be a marginal and temporary increase in turbidity at site. Any impact will be insignificant and of a temporary nature.

Biological Effects

The biological impact will be the short-term impact on the productivity of the proposed sand mining area. Mostly sandy bed in the area to be excavated indicates a relatively low productivity compared to the other areas with fine sediment on the surface. The short-term increase in turbidity will also affect a decrease in productivity. This temporary increase in turbidity could be diminished by the sporadic use of the trailer suction hopper dredger, which must be regulated to extract in a given area only once. The impact on the fisheries productivity could be lessened using best practice guidance during the dredging operations. In view of the total available area of nearshore for fisheries productivity, the affected area is only an insignificant fraction. However, impacts could be decreased even further if the sand could be mined from the smallest possible area within the designated grid area.

Predicting the disturbance of mobile species such as fish and other marine organisms is particularly difficult because there are few studies that have directly investigated disturbance in relation to marine aggregate extraction or suggested that significant impacts occur (ICES, 2016). Mobile species are also likely to be influenced by other impacts or anthropogenic activities outside of the sand mining area again making difficult to predict impacts between marine aggregate extraction and mobile species (ICES, 2016). Majority of the bony fish produce large number of floating eggs and the larvae which hatch from them drift in the surface currents.

Todd *et al.* 2014 reviewing the impact of dredging on marine mammals concluded that sediment plumes are generally localized and marine mammal reside often in turbid waters, so significant impacts from turbidity are less critical. The period of time required for seabed topography to recover is often site specific and dependent on the unique combination of local conditions (Wan Hussin et al., 2012)

In many habitats were aggregate dredging occurs, a return to pre-dredge conditions often takes years. The timescale for faunal recovery depends on the seabed sediment and the hydrodynamic regime (mainly tidal currents) present the area which play a large part in determining the character and stability of surficial sediments as well as broad scale community patterns (Eggleton, 2011). Recolonization of dredged area may start to take place relatively rapidly with the restoration of biomass to pre-dredge levels anticipated to occur within 3-4 years, if the activity is short term (Kenny and Rees, 1994, 1996). The most rapid recovery may also occur in habitats subject to high level of natural disturbance, for example, dredge furrows on sand banks which are naturally subject to high levels of sediment mobility may disappear within few tidal cycles. Similarly dredge tracks at an area of North Sea exposed to high level of wave action, disappeared in less than a year. In order to improve depth and water quality, dredging the sand spit in Chilika Lake has resulted in many positive impacts such as improvements in the water quality particularly, the salinity regime, flushing out of silt, substantial increase in fish, prawn and crab production as well as species diversity including the reappearance of the threatened species (CDA, 2004; Mohanty et al., 2005).

5. Demography features of Daman

Details about the demographic features of Daman was extracted from Marine Fisheries Census, 2016 (ICAR-CMFRI-DOF, 2020) is given in Annexure 1**.** There are six marine fishing villages and five landing centres in Daman. There are 3163 marine fishermen families in the Union Territory (Daman & Diu) of which Daman have 438 families. The total marine fisherfolk population in the Daman is 1990 out of which adult male constitute 39.6 %, adult female 37.6% and children 22.8 %. Among 438 fishermen families, 84.7 % are traditionally into fishing. The average number of families in a village is 73, with 332 persons per village. The average family size is five in Daman district. Females form 47.3 % of the population and female to male ratio is 899 per 1000 males.

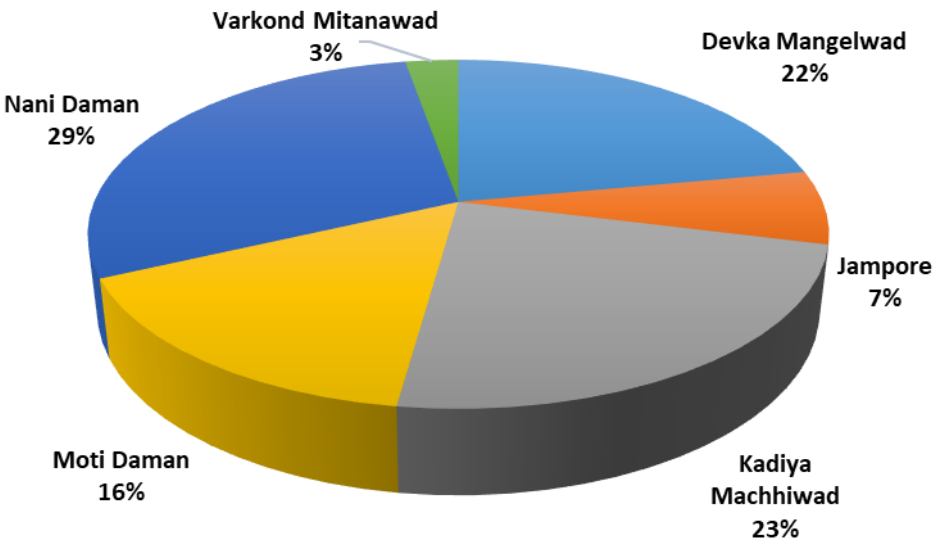


Figure: 5. Fisherfolk population of Daman fishing villages
(Source: Marine Fisheries Census 2016-Daman & Diu)

In Daman, 79% of the eligible fisherfolk are educated with different levels of education. About 35% of eligible fisherfolk have education upto primary level, 54 % have education upto higher secondary level, 10 % have senior secondary level education and 2% are graduates and above. The rest 21% of the population are unschooled.

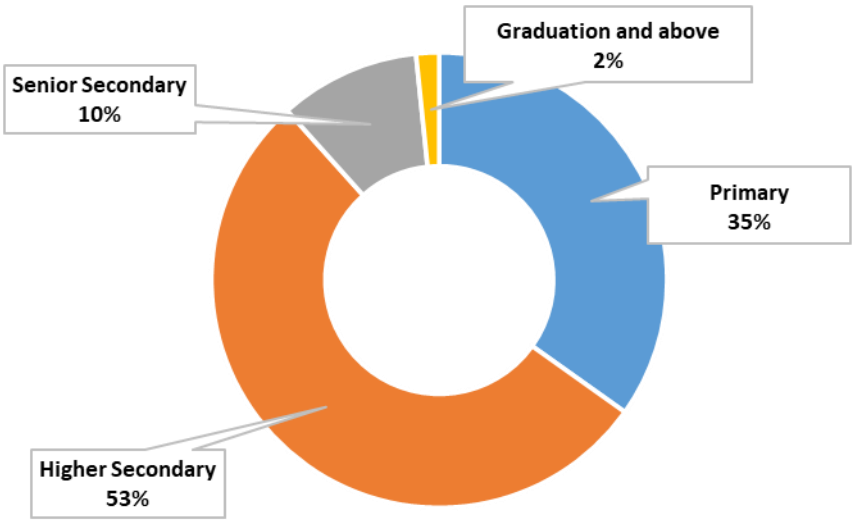


Figure:6 Education status of Daman fisherfolk
(Source: Marine Fisheries Census 2016-Daman & Diu)

There are about 364 active marine fishermen in Daman of which 96% are full time, 4 % are part time. Among the occupied, 48 % of fisherfolk are engaged in active fishing and 46 % in fishing allied activities and 6% in other areas not related to fishery.

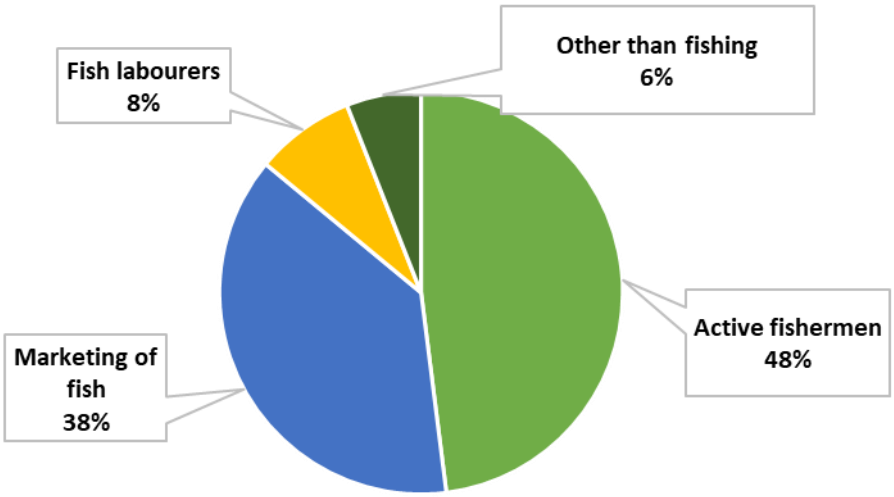


Figure:7 Occupation profile of Daman fisherfolk *(Source: Marine Fisheries Census 2016-Daman & Diu)*

Fisherfolk engaged in fishing allied activities are marketing, making/repairing nets, curing/ processing and labourers. Women outweigh men in fishing allied activities. Among the major fishing allied activities, women dominate in marketing of fish. Among the total families, most

of the families (99.8%) belong to Hinduisim, including SC/ST community (4%). Around 30 % of the adult fisherfolk are having membership in co-operative societies.

Infrastructure

In Daman, 98% of fishermen houses are *pucca* houses and rest are formed by *kutcha* houses. All the houses of fishermen are electrified in Daman region. All the houses are having drinking water facilities like well, tap, bore well/ hand pump, etc. There are nine primary schools, eight secondary schools, three colleges and four technical institutions in the fishing villages of Daman. All the fishing villages have cellphone coverage and other facilities such as hospitals, post office, police station, cyclone shelters, boat jetties, market facilities, auction sheds, petrol bunks, community centres, cinema theatres, etc are available.

According to Fisheries Department, Daman, there are three known fisheries co-operative societies namely

1. Matsya Udyog Vividh Karyakari Sah. Society Ltd. , Nani Daman
2. Matsya Gandha Fishing Co-op Society, Nani Daman
3. Daman Ganga Fisheries Society, Nani Daman

6. Fishing activities and socio-economic conditions

Information regarding the fishing villages, fish landing centre, fisher population, craft and gears, housing and amenities , education status , occupation profile, commercial fishery resources, fish composition , marine fish production are given in annexure 2.

The species enclosed in this report belonging to three main biological groups namely fin-fish, crustaceans and molluscs. Fin-fish are further divided into the bony fishes and cartilaginous fishes. Bony fishes comprise the majority of fish species while cartilaginous fish such as sharks and rays form much smaller group. Major commercially important crustacean groups are lobsters, crabs, prawns and shrimps. Prawns and shrimps form the largest crustacean fisheries. Molluscs and crustaceans are commonly referred as shellfish. Molluscs are further divided into bivalves, gastropods and cephalopods. Bivalves have two hinged shells e.g. oysters, mussels and clams. Gastropods have a single shell which is often coiled e.g. whelks. Cephalopods do not have an outer shell e.g. squids, cuttlefish and octopus.

Based upon various ecological habitats, fishes are typically divided into three groups namely pelagic fish, demersal fish and benthic fish. Pelagic fish live in open water whereas demersal fish live near the seabed. Benthic species live and feed on the seabed. Most commercial pelagic species such as tuna, dolphin fish, flying fish and mackerel are caught in upper zone (≤ 200m). Benthic species include flat-fish, rays, most crustaceans and almost all shellfish. Half of the commercial catch comes from two main groups namely pelagic fish and demersal fish.

Past fisheries activities in daman coast indicated the presence of more than 130 species of fin fish and more than 30 species of crustaceans. Fishing activities in Daman are carried out by four gears namely trawl net , gill net, bag net and traditional gears. In trawl fishing operation, three hauls per day is carried out and each haul consist of 3 hours apart from journey/searching time. In case of bagnet, single haul per day is operated with 3-5 nets for 3 hours. For multiday gillnet operation, a total of two haul per day is carried out and each haul takes 6 hours. For single day operation, only one haul for six hour duration is carried out. According to marine fisheries census, 2016 (ICAR-CMFRI- DoF, 2020) there are 170 fishing crafts operated in the five landing centres of Daman, of which 75 are mechanized and 95 are

inboard motorized. Trawlers (28) and gill netters (57) are the main craft in mechanized sector. There are no non-motorized craft operating in Daman region, all are operated from Diu only.

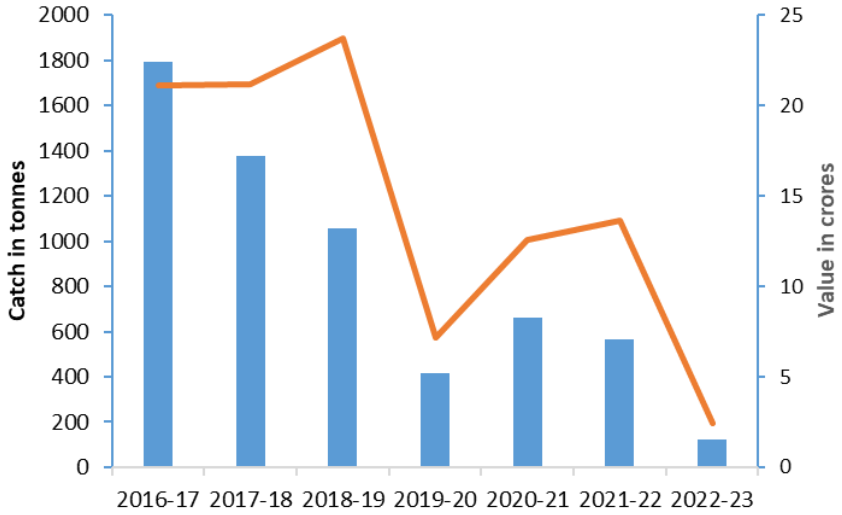


Figure: 8. Marine fish catch of Daman during 2016-2023 (Source: Fisheries Department, Daman)

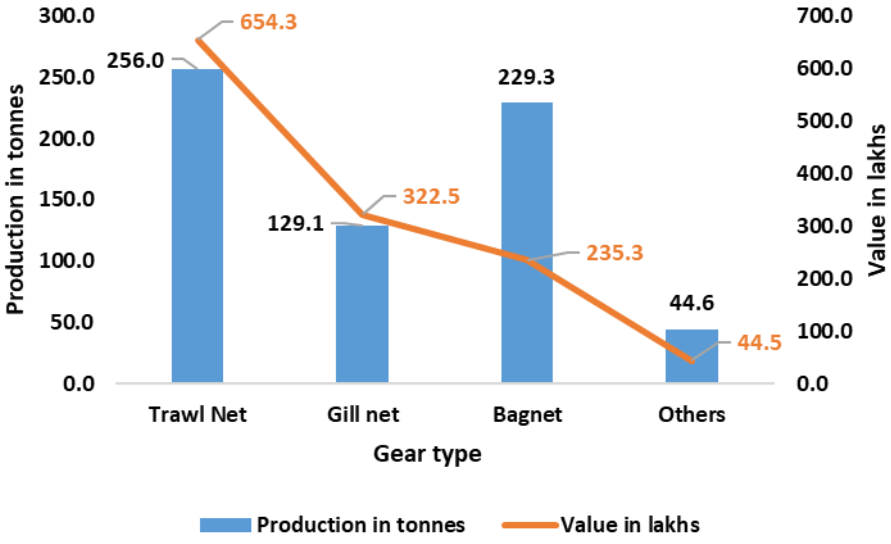


Figure 9. Gear-wise fish production and its price for the year 2020-2021
Source: Fisheries Department, Daman

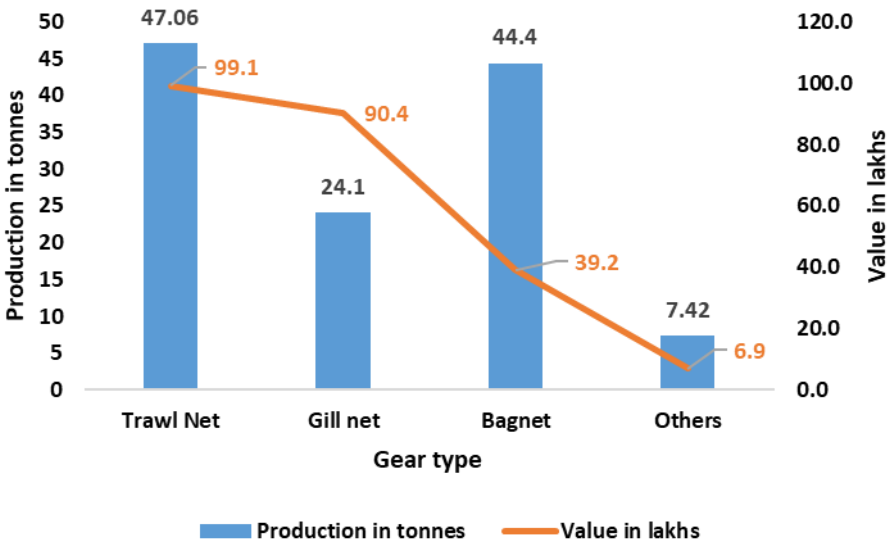


Figure 10. Gear-wise fish production and its price for the year 2022-2023
Source: Fisheries Department, Daman

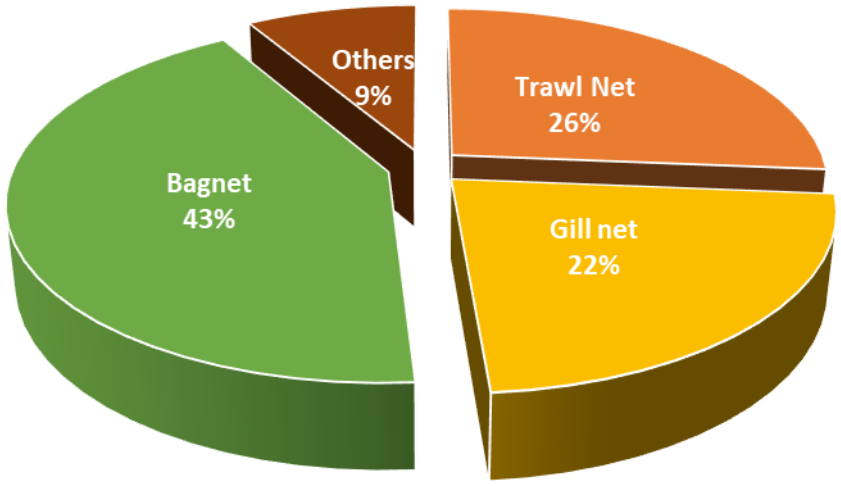


Figure 11. Gear-wise mean fish composition of Daman during 2019-23
Source: Fisheries Department, Daman

According to Fisheries Department, Daman there are only mechanized crafts operated in Daman. Trawlers and gill netters are the main crafts in the mechanized sector. Fishing crafts operating off Daman coast is varying between 96-182 nos. Fish production during 2016-17 and 2017-18 was 1796 tonnes and 1375 tonnes respectively with its respective price values varies from 21.14 and 21.15. Fish production during 2016-2023 showed a decreasing trend due to reduction in operating fishing crafts. In 2018-19, the fishing craft operating off Daman coast were 182 which was reduced to 96 in 2022-23. Similarly the fish production from the

landing centres of Daman during 2016-17, was 1796 tonnes which was declined to 123 tonnes during 2022-23. Gill netters use both gears such as bag net and Gill net for fishing. Details of catch trend and value fluctuation during 2016-23 is given in Figure 8. Gearwise mean fish production of Daman Coast during 2019-23 is given in Figure 11. Fish catch by Bag net (43%) was dominant followed by trawl net(26%) , gill net (22%) and other gears (9%). Mean percentage composition of major fish resources of Daman is depicted in the figure 12. Among the commercially important fishery resources, Top five species namely Bombay duck (36.82%), catfishes (16.41%), pomfret (11.06%), clupeids (7.6%) and shrimps (6%) were contributed more than 75 % of total fish production Daman. The details about the gearwise fish production and its price value for the years 2020-21 and 2022-23 are given in the figure 9 and 10 respectively. In 2020-21, Trawl catch (256 t; 654 lakhs) was dominant followed by gillnet (129 t;322.5 lakhs), bagnet (229.3 t; 235.3 lakhs) and others (44.6; 44.5 lakhs) while in 2022 - 23 also, trawl (47.1 t; 99.1 laksh) catch was dominant followed by bagnet (44.4 t;39.2 lakhs), gillnet (24.1; 90.4 laksh) and others (7.42 t ; 6.9 lakhs).

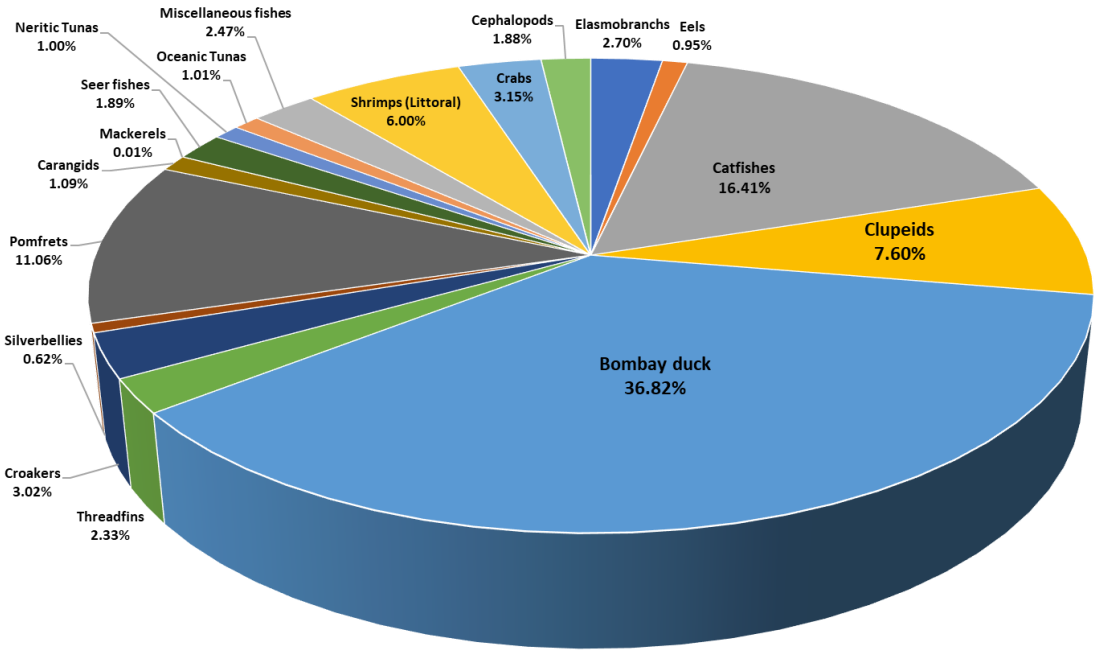


Figure: 12 Percentage composition of major resources of Daman coast
(Source: Fisheries Department, Daman)

Magnitude of the impact due to sand borrowing will be dependent on the mechanism, frequency and the duration of borrowing operations. The removal of sand layer would have an impact on the productivity of the dredged area, which would recover fully over a period of time.

7. Conclusion and recommendations

- The offshore sand borrow method is the most environmentally acceptable method of obtaining the required fill material. The site is selected with a view to achieving the smallest and least persistent environmental impact as possible. The method of dredging, the area of dredging and times of the dredging operations have all been selected with this in view.

- Lanka Hydraulic Institute Ltd. (2000) studying in offshore sand mining reported that the impact of removal of 1 m of bed is not expected to create a significant physical impact, the maximum possible impact will be from the temporary raising of the turbidity levels during dredging operations. The loss of productivity in the dredged area will be temporary. The inconvenience and restrictions imposed on small scale fishermen have to be minimized. The distance and depth at which dredging takes place will ensure that this activity will in no way have an impact on coastal stability.

- As the marine borrow pit location far away from the coastal region approximately 50 - 60km with high tidal range and associated strong currents, the concentration of the sediment plume gets weakened immediately during the dredging activity. This was validated by model simulation studies of IIT Madras (Extract copy of silt dispersion report- Annexure3). The model simulation shows that the turbid plume does not reach the shore. Based on the above scenarios, it can be observed that, the plume trajectory of the dredged sediment does not move towards the coast, and they appear not to cause any impact on the shore and the marine environment.

- Project proponent should allocate a reasonable amount of funds to monitor long term effects of dredging operation on the ecosystem.

- Fishermen affected during the operation period of dredging need to be compensated against the non-accessibility of fishing ground by the fishers. In case of trawl and gillnet fishing operations, diesel cost has to be compensated if they are moving to new fishing ground.
- Guidelines for Management of Marine Sediment Extraction may be followed strictly to prevent any harmful effect on fisheries and their dependent community.

- Proposed mitigatory measures should be followed stringently in order to prevent the impact of dredging activity on productivity and fisheries of proposed sand mining area.

- A number of commonly accepted and proven practices are available for mitigation of specific effects associated with offshore extraction of sand mining. These practices reduce the potential for deleterious/ detrimental effects on the environment of the proposed sand mining area.

- Sea bed at site is completely flat and does not contain any reefs or habitats such as seagrass bed, coral reef etc. as evinced by the detailed bathymetric survey (Extract of silt dispersion report and geophysical survey report are enclosed in the Annex 3 and 4). Zoological Survey of India in its technical report also mentioned that there is no significant nesting /breeding grounds for any endemic or threatened marine species observed in the proposed sand mining area.

Literature Cited

BMAPA/TCE (2017) Good Practice Guidance: Extraction by Dredging of Aggregates from England's Seabed. Produced by the British Marine Aggregate Producers Association and The Crown Estate in consultation with Defra, the Marine Management Organisation, Natural England, JNCC, Historic England and Cefas. 24pp. https://www.bmapa.org/documents/BMAPA_TCE_Good_Practice_Guidance_04_2017.pd

CDA, 2004. Chilika- A living lagoon. Chilika Development Authority, Bhubaneswar, Orissa, India, 8 pp.

CMFRI, K., 2020. Marine Fisheries Census 2016: Daman & Diu.

Eggleton, J., Dolphin, T., Ware, S., Bell, T., Aldridge, J., Silva, T., Forster, R. 2011. Natural variability of REA regions, their ecological significance and sensitivity. MEPF– MALSF Project 09-P114, Cefas, Lowestoft. 171 pp.

GESAMP, 2019. Sand and gravel mining in marine environment- New insights on a growing environmental problem. 46th Annual Session of GESAMP. Agenda item 7.

Geophysical Survey Report, 2022. SGS/ROS/JNPT/VADHAWAN/2022/01, 15 June 2022/India West Coast, 133 pp

ICES, 2016. Effects of Extraction of Marine sediments on the Marine Ecosystem. Cooperative Research Report No. 330, 206 pp. http://www.ices.dk/sites/pub/Publication%20Reports/Cooperative%20Research%20Report %20(CRR)/crr330/CRR%20330.pdf

Kenny, A.J. and Rees, H.L. 1994. The effects of marine gravel extraction on the macrobenthos: early post dredging recolonisation. Marine Pollution Bulletin 28, 442-447. https://www.sciencedirect.com/science/article/pii/0025326X94901309.

Kenny, A.J. and Rees, H.L. 1996. The effects of marine gravel extraction on the macrobenthos: Results 2 years post-dredging. Marine Pollution Bulletin 32, 615-622. https://www.sciencedirect.com/science/article/pii/0025326X96000240.

LHIL, 2000. Environmental Impact Assessment Report – offshore sand mining for the Colombo Katunayake Expressway Project. Lanka Hydraulics Institute Ltd.

Mohanty, S.K, Bhatta, K. S., Mishra, S., Mohapatra A. and Pattnaik, A. K. 2005. Fisheries enhancement after hydrological intervention in Chilika lagoon and strategies for responsible management. *J. Aqua.,* 13 (2005): 45-56.

Nallayarasu, 2022. Dispersion of silt during dredging from marine burrow pit for reclamation, IIT, Madras, Chennai, 33pp.

Todd, V.L.G., Todd, I.B., Gardiner, J.C., Morrin, E.C.N., MacPherson, N.A., DiMarzio, N.A., and Thomsen, F. 2014. A review of impacts of dredging activities on marine mammals. ICES Journal of Marine Science 72, 328-340. https:// academic.oup.com /icesjms /article/72/2/328/676320.

Wan Hussin, W. M. R., Cooper, K. M., Barrio Froján, C. R. S., Defew, E. C., and Paterson, D. M. (2012) Impacts of physical disturbance on the recovery of a macrofaunal community: A comparative analysis using traditional and novel approaches. Ecological Indicators 12, 37– 45. https://www.researchgate.net/publication

Annexure 1 – Demographic Features of Daman

1.1. Demographic Features of Daman

Demographic profile	Number
Number of landing centre	5
Number of fishing villages	6
Fishermen families	371
Fisherfolk population	1990
Total households	438
Pucca households	420
Kutcha households	18
Active fishermen	423
Numbers of individuals involved in fishing allied activities	452
Members in fisheries co-operatives (All are from Nani Daman fishing village)	108

Source: Marine Fisheries Census 2016-Daman&Diu

1.2. Fishing villages & landing centres

Fishing Villages:	Fish Landing Centres
• **Devka Mangelwad** • **Jampore** • **Kadaiya Machhiwad** • **Moti Daman** • **Nani Daman** • **Varkund Mitnawad**	• Devka Mangelwad • Jampore • Kadaiya Machhiwad • Moti Daman • Nani Daman

Source: Marine Fisheries Census 2016-Daman&Diu

1.3. Fishing craft

Fishing craft		Craft owned by fisherfolk (100% ownership)	
Total mechanized fishing craft	**75**	**Mechanized**	**33**
Trawlers	18	Trawler	13
Gillnetters	57	Gill netter	1
Dolnetters	Nil	Purse seiner	19
Total Motorized Craft	**95**	Dolnetter	Nil
Inboard	95	**Motorized**	**150**
Outboard	Nil	Inboard Woodfibre	150

Source: Marine Fisheries Census 2016-Daman&Diu

1.4. Profile of Amenities and Facilities

Particulars	No.	Particulars	No.
Bus Stops	5	Technical Institution	4
Hospitals	3	Banks	13
Post office	4	Fisheries Co-operative Society	3
Police Station	3	Community centres	8
Primary schools	9	Cinema theatres	2
Secondary schools	8	Petrol bunks:	1
Colleges	3	Cyclone shelters	1
Boat Jetties	2	Market facilities	2
Auction sheds	3	Boat yards	1
Ice factories	8	Fish freezing plants	Nil
Fish Processing plants	Nil		

Source: Marine Fisheries Census 2016-Daman&Diu

1.5. Village-wise Demographic Details of Daman Fishing Villages

Villages	Fishermen Families	Traditional Fishermen Families	Fisherfolk Population	BPL Families
Devka Mangelwad	90	90	439	0
Jampore	26	26	136	1
Kadiya Machhiwad	105	105	464	0
Moti Daman	67	41	316	13
Nani Daman	135	109	580	4
Varkond Mitanawad	15	0	55	0
Total	438	371	1990	18

Source: Marine Fisheries Census 2016-Daman&Diu

1.6. Fishermen Housing & Amenities of Daman Fishing Villages

Fishing Villages	Total Households	Pucca	Kutcha	Rooms less than 3	Electrified
Devka Mangelwad	90	82	8	16	90
Jampore	26	25	1	6	26
Kadiya Machhiwad	105	103	2	4	105
Moti Daman	67	61	6	24	67
Nani Daman	135	134	1	9	135
Varkond Mitanawad	15	15	0	4	15
Total	438	420	18	63	438

Source: Marine Fisheries Census 2016-Daman&Diu

1.7. Population Distribution Structure of Daman Fishing Villages

Fishing Villages	Male			Female		
	Adult	Children		Adult	Children	
		≤5 yrs	> 5 yrs		≤5 yrs	> 5 yrs
Devka Mangelwad	182	32	8	184	29	4
Jampore	54	6	13	48	5	10
Kadiya Machhiwad	194	14	27	184	15	30
Moti Daman	124	11	28	127	7	19
Nani Daman	213	43	17	186	35	33
Varkond Mitanawad	22	3	4	19	5	2
Total	789	109	150	748	96	98

Source: Marine Fisheries Census 2016-Daman&Diu

1.8. Population Structure of Daman Fishing Villages

Fishing Village	Active Fishermen	Fisherfolk Population	Average Family Size	Sex Ratio (Females per 1000 males)
Devka Mangelwad	89	439	5	977
Jampore	28	136	5	863
Kadiya Machhiwad	162	464	4	974
Moti Daman	48	316	5	939
Nani Daman	96	580	4	779
Varkond Mitanawad	0	55	4	897
Total	423	1990	5	899

Source: Marine Fisheries Census 2016-Daman&Diu

1.9. Educational status of Daman Fishing Villages

Fishing Villages	Primary		Higher Secondary		Senior Secondary		Graduation and above	
	Male	Female	Male	Female	Male	Female	Male	Female
Devka Mangelwad	74	120	99	41	9	5	0	0
Jampore	7	17	44	27	4	4	5	0
Kadiya Machhiwad	31	15	164	148	19	21	0	1
Moti Daman	31	44	85	50	14	6	6	2
Nani Daman	92	100	95	86	55	20	9	0
Varkond Mitanawad	11	12	6	6	2	0	2	1
Total	246	308	493	358	103	56	22	4

Source: Marine Fisheries Census 2016-Daman&Diu

1.10. Occupation Profile of Daman Fishing Villages

Fishing Villages	Active fishermen	Fishing allied activities		Other than fishing	Total Occupied
		Marketing of fish *	Labourer**		
Devka Mangelwad	89	90	0	8	187
Jampore	28	35	2	4	69
Kadiya Machhiwad	162	102	0	6	270
Moti Daman	48	56	30	32	166
Nani Daman	96	47	22	0	165
Varkond Mitanawad	0	2	16	0	18
Total	423	332	70	50	875

* Marketing of fish is carried out by females only (100%); **Labourers involved in fishing allied activities are contributed by male (100%)

Source: Marine Fisheries Census 2016-Daman&Diu

1.11. Religion and Community of Daman Fishing Villages

Fishing Villages	Hinduism	Christianity	Total	Community (SC/ST)
Devka Mangelwad	90	0	90	0
Jampore	26	0	26	0
Kadiya Machhiwad	105	0	105	6
Moti Daman	67	0	67	3
Nani Daman	134	1	135	2
Varkond Mitanawad	15	0	15	8
Total	437	1	438	19

Source: Marine Fisheries Census 2016-Daman&Diu

Annexure 2. Fishing activities of Daman

2.1. Craft Owned by Fisherfolk (Full ownership) of Daman Fishing Villages

Fish landing Centre	Mechanized	Inboard	Outboard	Non-motorized	Total
Devka Mangelwad	Nil	10	Nil	Nil	10
Jampore	Nil	26	Nil	Nil	26
Kadiya Machhiwad	Nil	1	Nil	Nil	1
Moti Daman	Nil	11	Nil	Nil	11
Nani Daman	33	102	Nil	Nil	135
Total	33	150	Nil	Nil	183

Source: Marine Fisheries Census 2016-Daman&Diu

2.2. Fishing Craft in the Fish Landing Centre of Daman

Fish landing Centre	Mechanized			Motorized Inboard	Non-motorized	Total
	Trawlers	Gillnetter	Total			
Devka Mangelwad	1	Nil	1	15	Nil	16
Jampore	0	1	1	15	Nil	16
Kadiya Machhiwad	0	0	0	3	Nil	3
Moti Daman	0	2	2	17	Nil	19
Nani Daman	17	54	71	45	Nil	116
Total	18	57	75	95	Nil	170

*Mechanized dolnetters, motorized outboard and non-motorized crafts are not operating from these landing centres (*Source: Marine Fisheries Census 2016-Daman&Diu*)

2.3. Commercial fishery resources of Daman Coast

Resources	Scientific Name	Order
Sharks	*Chiloscyllium spp., Carcharhinus spp., Rhizoprionodon acutus, Scoliodon laticaudus, Chiloscyllium griseum*	Orectolobiformes, Carcharhiniformes etc.
Skates/Guitarfish	*Rhinobatos spp., Rhynchobatus djiddensis*	Coleoptera
Rays	*Himantura spp., Dasyatis zugei, Mobula spp.*	Myliobatiformes
Eels	*Congresox spp., Muraenesox spp.*	Angilliformes
Catfishes	*Arius spp., Osteogeneiosus militaris, Nemapteryx caelata, Plicofollis dussumieri*	Siluriformes
Wolf herring	*Chirocentrus nudus, C. nudus*	Clupeiformes
Lesser sardines	*Sardinella longiceps*	Clupeiformes
Other sardines	*Sardinella fimbriata, S. gibbosa*	Clupeiformes
Hilsa shad	*Tenualosa ilisha*	Clupeiformes
Other shads	*Tenuolosa toli*	Clupeiformes
Anchovies	*Coilia dussumieri, Escualosa thoracata, Stolephorus indicus*	Clupeiformes
Thryssa	*Thryssa dussumieri, T. dayi, T. malabarica, T. setirostris*	Clupeiformes
Other clupeids	*Ilisha filigera, Pellona ditchella*	Clupeiformes
Bombay duck	*Harpodon nehereus*	Aulopiformes
Lizard fishes	*Saurida tumbil, S. undosquamis*	Aulopiformes
Bulls eye	*Priacanthus hamrur, P. prolixus*	Perciformes
Threadfin breams	*Nemipterus japonicus, N.randalli*	Perciformes
Groupers	*Epeniphelus diacanthus, E. coioides, E.malabaricus*	Perciformes
Snappers	*Lutjanus 40utjanus, L. argentimaculatus, L. johnii*	Perciformes
Silver grunts	*Pomadasys kaakan, P. maculatus, P. argenteus*	
Pig face breams	*Lethrinus spp.*	Perciformes
Other perches	*Lobotes surinamensis, Gerres filamentosus*	Perciformes
Goatfishes	*Upeneus moluccensis*	Perciformes
Threadfins	*Eleutheronema tetradactylum, Polynemus heptadactylus, P. indicus, Leptomelanosoma indicum, Polydactylus mullani*	Perciformes
Croakers	*Protonibea diacanthus, Johnius borneensis (=Johnieops vogleri), Johnieops sina, Johnius dussumieri, Otolithes spp., Otolithoides biauritus*	Acanthuriformes
Silver bellies	*Leiognathus berbis, Karalla daura*	Perciformes
Halibut	*Psettodes erumei*	Pleuronectiformes
Flounders	Pleuronectus spp.	Pleuronectiformes

2.3. Commercial fishery resources of Daman Coast

Resources	Scientific Name	Order
Soles	*Cynoglossus macrolepidotus, C. macrostomus*	Pleuronectiformes
Big jawed jumper	*Lactarius lactarius*	Carangaria
Indian drift fish	*Ariomma indica*	Scombriformes
Barracudas	*Sphyraena putnamae, S. barracuda, S. obtusata*	Carangaria
Pomfret	*Pampus candidus, P. chinensis*	Scombriformes
Carangids	*Parastromateus niger, Caranx sexfasciatus, C. heberi, C. ignobilis, Megalaspis cordylla, Decapterus russelli, Scomberoides tol, S. tala, S. lysan, S. commersonius, Seriolina nigrofasciata, S. rivoliana, Alepes spp., Carangoides spp.,*	Carangiformes
Rainbow runner	*Elagatis bipinnulata*	Carangiformes
Cobia	*Rachycentron canadum*	Carangiformes
Ribbon fishes	*Trichiurus lepturus, Lepturacanthus savala, Euplerogrammus muticus*	Scombriformes
Mackerel	*Rastrelliger kanagurta*	Scombriformes
Seer fishes	*Scomberomorus commerson, S. guttatus, S. lineolatus, Acanthocybium solandri*	Scombriformes
Neritic Tunas	*Auxis rochei, A. thazard, Euthynnus affinis Thunnus tonggol*	Scombriformes
Oceanic Tuna	*Thunnus obeseus, Katsuwonus pelamis, T. albacares, Sarda orientalis*	Scombriformes
Billfishes	*Istiophorus platypterus, Xiphias gladius*	Carangiformes
Marlins	*Istiompax indica, Makaira mazara*	Carangiformes
Dolphin fishes	*Coryphaena hippurus*	Carangiformes
Flying fishes	*Cheilopogon suttoni, Exocoetoides*	Beloniformes

2.3. Commercial fishery resources of Daman Coast

Resources	Scientific Name	Order
Full beaks and half beaks	*Ablennes hians, Tylosurus crocodilus, Hemiramphus spp., Strongylura strongylura*	Beloniformes
Penaeid shrimp	*Metapenaeus affinis, M. brevicornis, M. dobsoni, M.s monoceros, Parapenaeopsis sculptilis, P. stylifera, Penaeus indicus, P. japonicus, P. merguiensis, P. monodon, P. semisulcatus, Solenocera crassicornis, S. choprai*	Decapoda
Non-penaeid shrimp	*Acetes indicus, Nematopalaemon tenuipes, Exhippolysmata ensirostris*	Decapoda
Lobsters	*Panulirus polyphagus, P. homarus, P. versicolor, Thenus orientalis*	Decapoda
Crabs	*Portunus pelagicus, P. sanguinolentus, Charybdis feriatus, C. lucifera, C. callianassa*	Decapoda
Cephalopods	*Sepia aculeata, S.pharaonis, Sepiella inermis Cistopus indicus, Uroteuthis(P.) duvaucelii*	Sepiida, Octopoda Myopsida
Miscellaneous fishes	*Platycephalus spp., Gerres filamentosus, Myctophids, Chanos chanos, Scolopsis spp., Mene maculata, Mugil cephalus, Liza spp., Drepane punctata, Sillago sihama, Scatophagus argus Holocentrus spp., Paracanthurus hepatus, Megalops cyprinoides, Terapon jarbua, T. theraps Triacanthus biaculeatus, Odonus niger, Bregmaceros macclellandi*	Perciformes, Myctophiformes, Gonorynchiformes Carangari, Mugiliformes, Acanthuriformes Eupercaria, Holocentriformes, Elopiformes, Centrarchiformes, Tetradontiformes, Gadiformes

2.4. Year wise marine fish production from Daman

Year	Fishing craft	Craft used in Numbers	Fish Production (in tonnes)	Value (in Crores)
2018-19	Trawler, Gillnetter, Bagnetter & traditional crafts	182	1058.12	23.69
2019-20	Trawler, Gillnetter, Bagnetter & traditional crafts	192	415.74	7.14
2020-21	Trawler, Gillnetter, Bagnetter & traditional crafts	171	659.45	12.56
2021-22	Trawler, Gillnetter, Bagnetter & traditional crafts	156	566.94	13.62

Source: Fisheries Department, Daman

2.5. Gear-wise production and its price of marine fish catch of Daman during 2019-23

Gear Type	2019-20		2020-21		2022-23	
	Production (in tonnes)	Value (INR in lakhs)	Production (in tonnes)	Value (INR in lakhs)	Production (in tonnes)	Value (INR in lakhs)
Trawl Net	12.1		256	654.3	47.1	99.1
Gill Net	116.9		129.1	322.5	24.1	90.5
Bag Net	236.4		229.8	235.3	44.4	39.2
Traditional/ other gears	50.3		44.6	44.5	7.4	6.9

Source: Fisheries Department, Daman

2.6. Month-wise mean percentage fish composition of Daman during 2019-23

Resources	April	May	June	July	August	September	October	November	December	January	February	March
Elasmobranchs	1.38	0.00	Nil	-	1.56	1.95	2.42	2.67	4.81	4.06	2.93	3.15
Eels	0.28	0.00	-	-	1.47	1.13	0.56	0.71	1.65	1.42	1.07	0.84
Catfishes	5.45	1.27	-	-	1.40	1.14	16.93	16.47	33.34	31.37	22.99	53.28
Clupeids	5.32	4.39	-	-	15.39	7.39	5.14	8.60	10.71	11.11	6.71	4.71
Bombay duck	31.17	39.82	-	-	28.72	39.40	49.84	38.84	19.05	23.63	21.05	5.72
Threadfins	10.36	26.21	-	-	0.00	0.00	0.07	2.47	2.16	4.40	21.53	5.71
Croakers	24.23	5.66	-	-	0.00	0.00	0.22	7.00	10.35	1.81	3.33	3.28
Silverbellies	4.13	0.00	-	-	0.00	0.00	0.44	1.25	0.39	1.04	1.49	1.85
Pomfrets	2.84	12.73	-	-	27.01	25.97	9.57	4.44	0.76	1.12	0.49	0.43
Carangids	0.00	0.00	-	-	0.00	1.39	1.18	1.89	0.35	0.34	0.41	0.00
Mackerels	0.00	0.00	-	-	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
Seer fishes	0.00	0.00	-	-	0.00	3.75	2.00	1.38	0.54	0.68	0.37	0.43
Neritic Tunas	0.00	0.00	-	-	0.00	2.38	1.17	0.36	0.00	0.00	0.00	0.00
Oceanic Tunas	0.00	0.00	-	-	0.00	2.62	1.12	0.18	0.00	0.00	0.00	0.00
Miscellaneous fishes	0.00	0.00	-	-	0.00	3.84	2.28	3.47	1.93	0.53	0.20	0.00
Shrimps	9.34	6.37	-	-	12.77	4.88	3.98	5.52	7.84	9.80	9.02	10.74
Crabs	3.97	2.24	-	-	6.68	2.50	1.91	2.77	3.85	5.80	5.82	6.94
Cephalopods	1.55	1.32	-	-	5.00	1.61	1.18	1.97	2.27	2.90	2.61	2.90

Source: Fisheries Department, Daman

Annexure 3. Silt Dispersion Investigation Report by IIT Madras, October 2022

Silt Dispersion Investigation Report (Extract Copy)

DEVELOPMENT OF GREENFIELD VADHAVAN PORT

DISPERSION OF SILT DURING DREDGING FROM MARINE BURROW PIT FOR RECLAMATION

TABLE OF CONTENTS

Scope of this report

a) Setup a hydrodynamic model covering the area of interest and calibrate the hydrodynamic model with observed or published currents and tidal elevation data

b) Device a suitable dredging methodology

c) Simulate the dredging operations in the hydrodynamic model for different seasons expected at site location i.e., monsoon and non-monsoon.

d) Estimate the changes in the suspended sediment concentrations of the water column, changes in the seabed in the vicinity of the burrow pit and nearby coastline due to the spill generated by the dredging operations based on the results from the above study

e) If it is found that the sea water column, seabed, and coastline are adversely impacted by the dredging operations, modify the dredging methodology such that the effect of the dredging on the surrounding areas of the burrow pit is minimized.

Physical Parameter

Tides

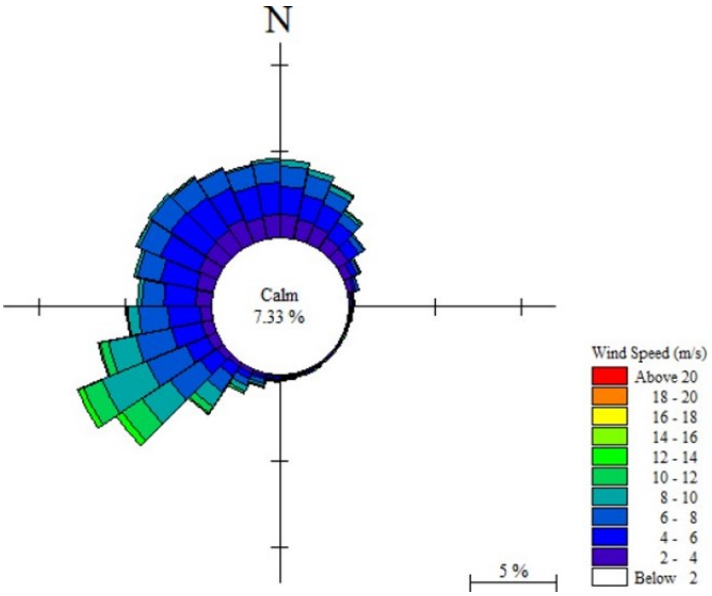
The tides at Daman are of mixed semi-diurnal type characterized by large tidal ranges. The Mean High Water Spring reported at Daman is 6.2 m. The design tide levels with respect to chart datum for Daman as published by Survey of India in NHC No. 209 is listed below

Heights in meters above chart datum

Mean High water Spring	:	6.2 m
Mean High Water Neap	:	4.9 m
Mean Sea Level	:	*3.8 m*
Mean Low Water Neap	:	2.7 m
Mean Low Water Spring	:	1.4 m

Winds

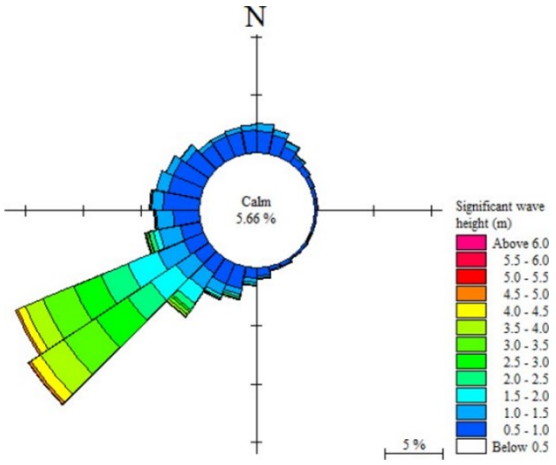
Based on the available inhouse wind data, the wind characteristics are compiled, the monthly and annual wind roses are shown in Fig. 2.1. It is observed that the wind speed varied 2 m/s – 12 m/s and the wind direction varied between 0° - 45° & 225° - 360°.



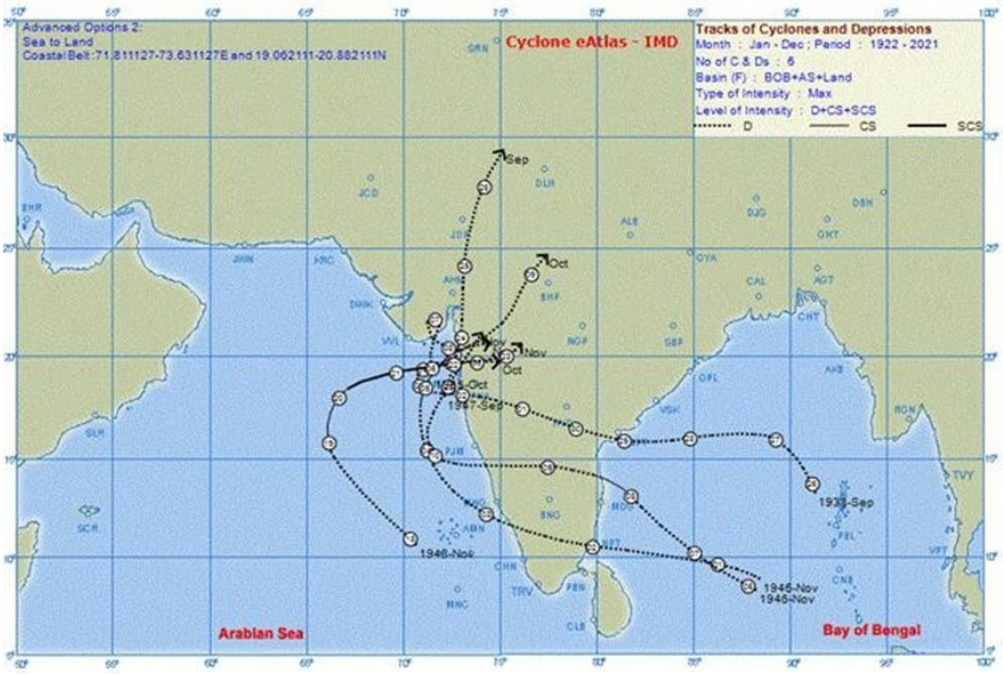
Annual Wind Roses

Waves

Based on the available In-house wave data, the wave characteristics are compiled, the annual wave rose is shown in Fig. 2.2. It is observed that the significant wave height is varying between 0.5 m and 3.0 m. The predominant wave direction remains between 202.5° and 270°. The wave period varies between 4 s to 14 s.



Annual Wave Roses



Number of cyclones crossed within 100 km project radius

Month	Cyclones crossed within 100 km project radius
January	-
February	-
March	-
April	-
May	-
June	-
July	-
August	-
September	2
October	1
November	3
December	-
Total	6

Source: cyclone e-atlas published by IMD – 2021

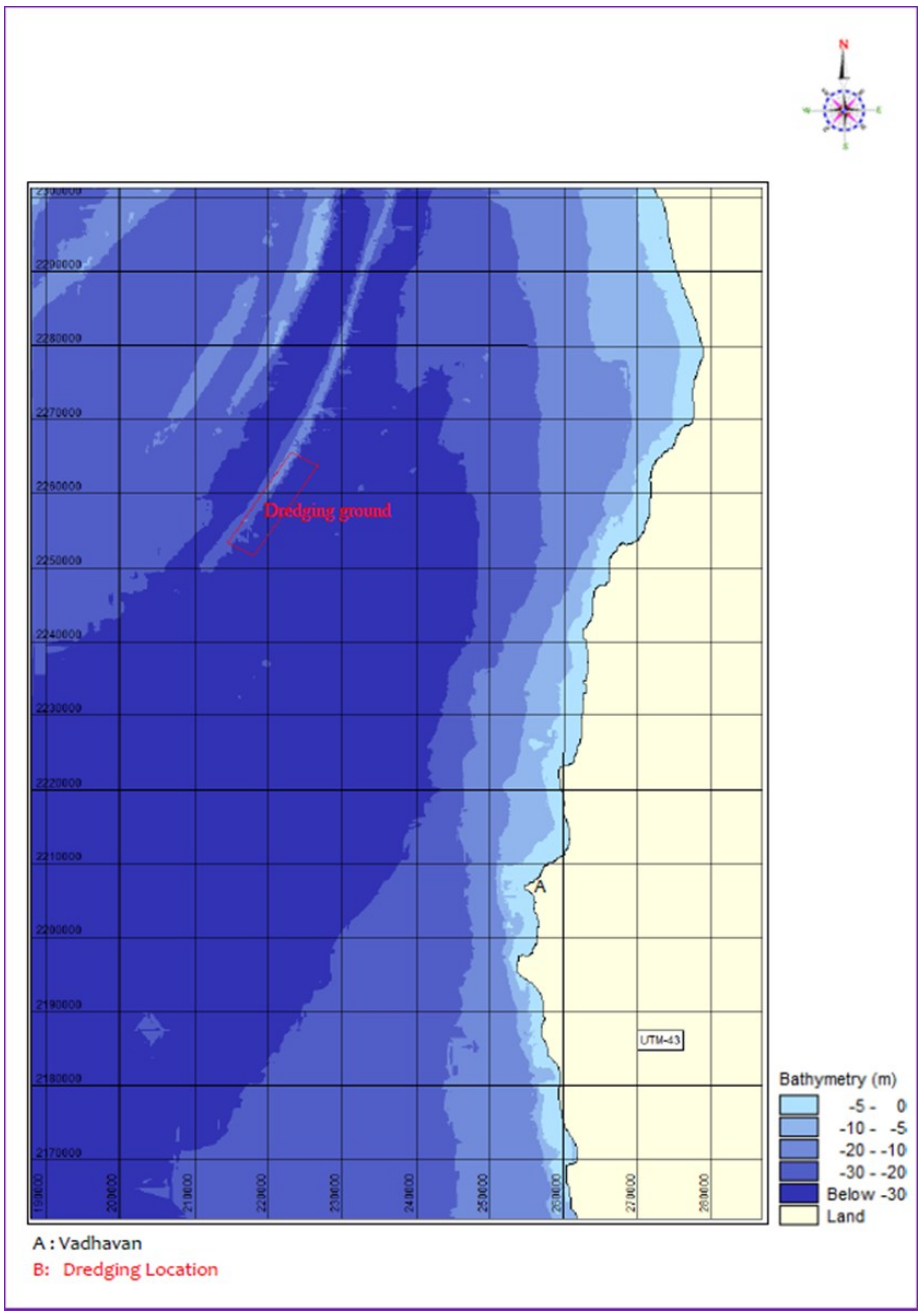
Modelling Approach

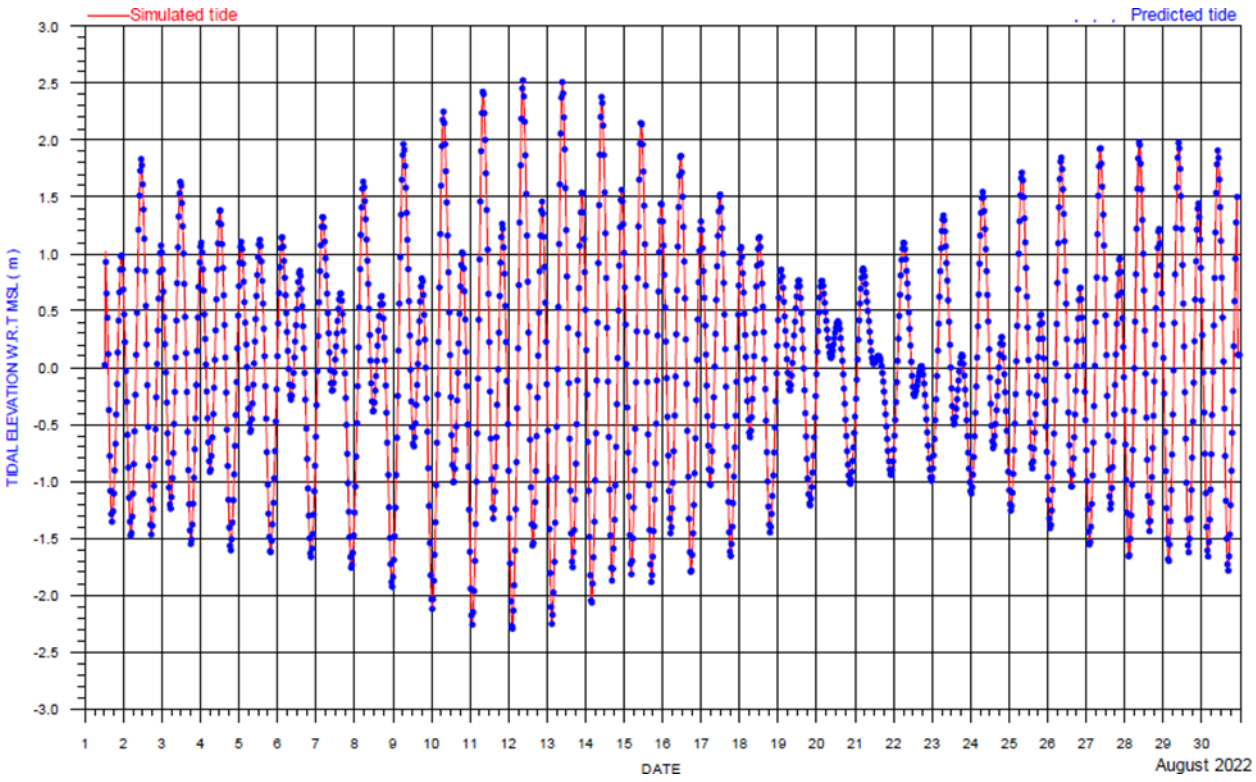
DHI- MIKE 21

Description- Mathematical modelling studies were used to simulate the variation of tides and currents under different tidal condition. DHI - MIKE 21 suites were used to study the variation

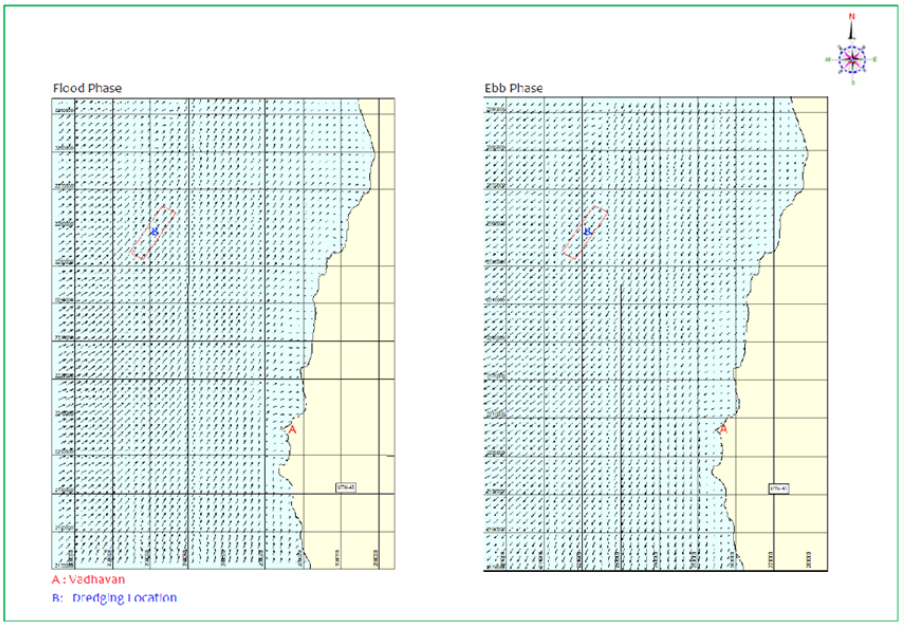
of tides and currents in the project region. DHI - MIKE 21 models have been developed by Danish Hydraulic Institute (DHI), Denmark, and are being used worldwide for many coastal engineering applications. The study was carried out using the Mike21 software suite available with Indomer Coastal Hydraulics (P) Ltd.

Bathymetry

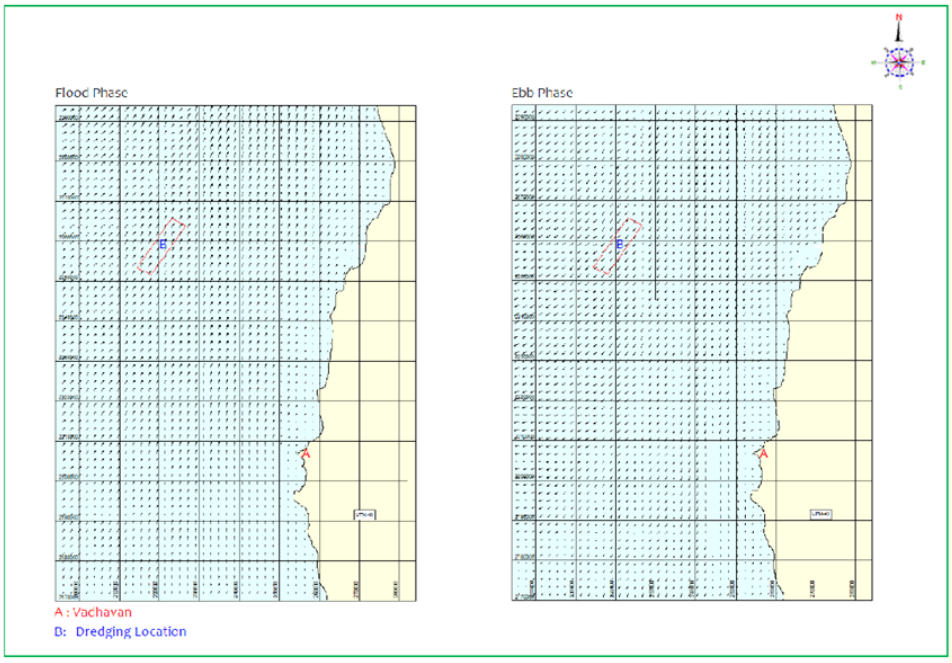




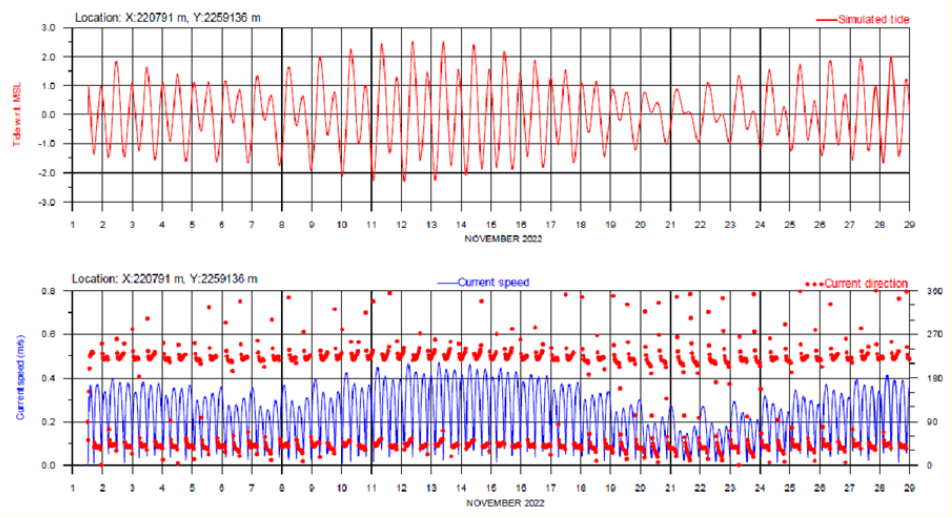
Comparison of simulated and predicted tide



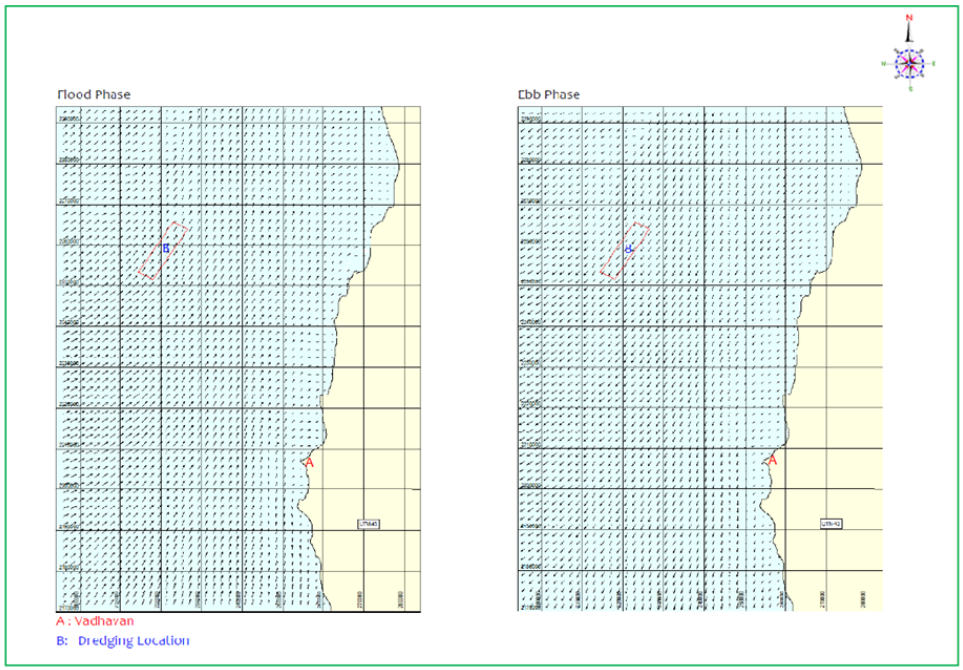
Flow field: Non-monsoon-Spring tide



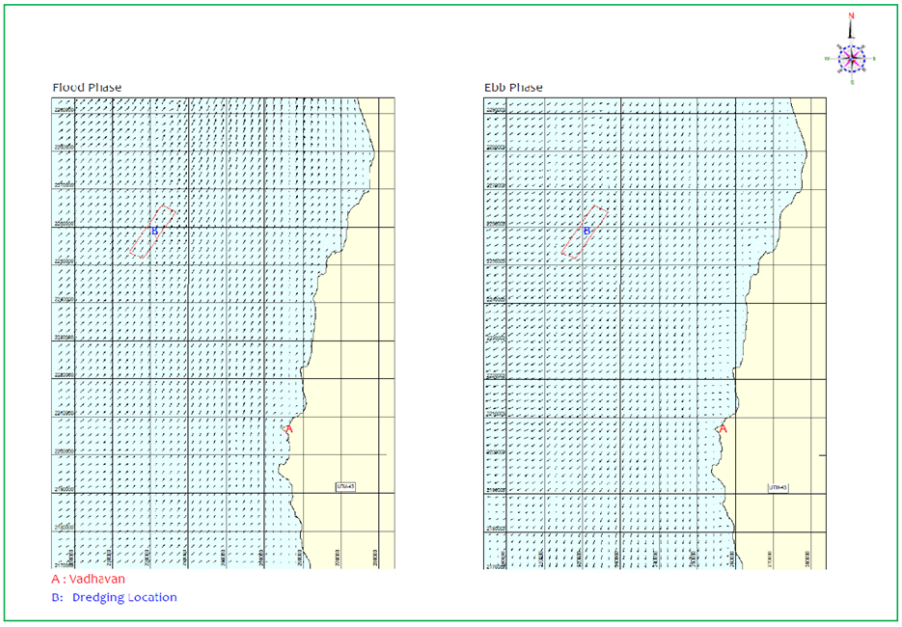
Flow field: Non-monsoon-Neap tide



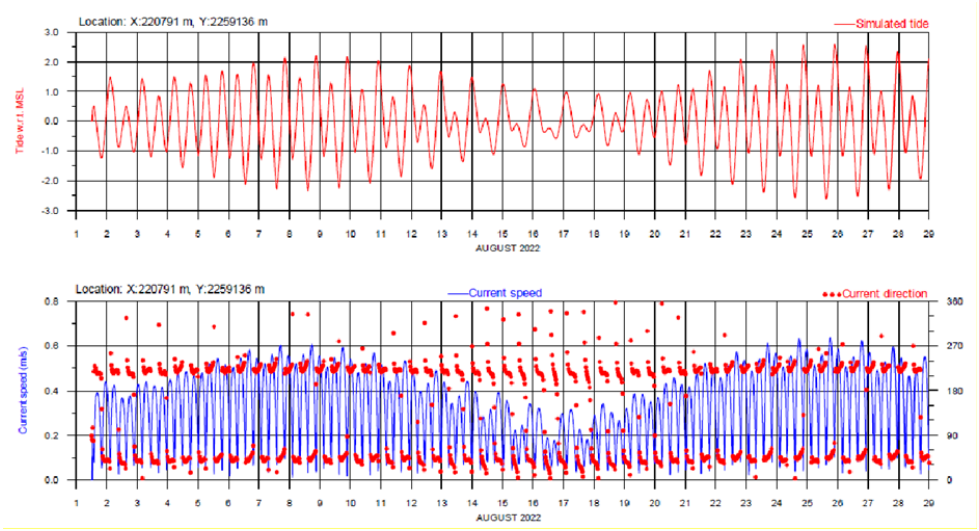
Variation of Simulated Tides & Currents Near to Dredge Ground-Non Monsoon



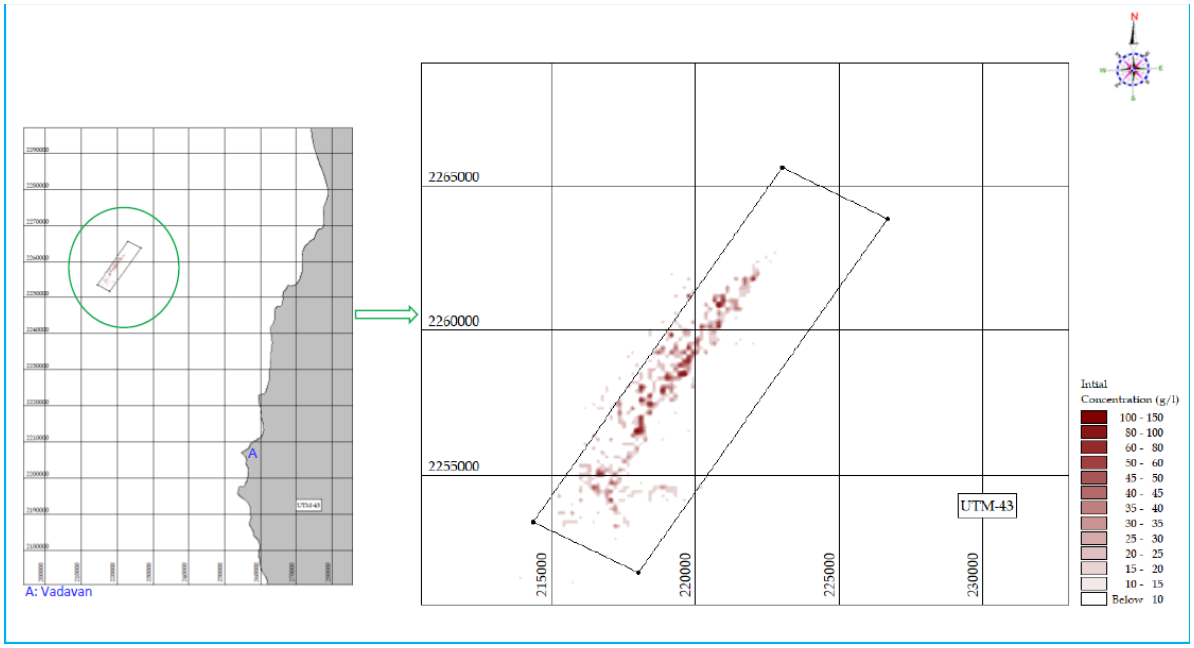
Flow field: Monsoon-Spring tide



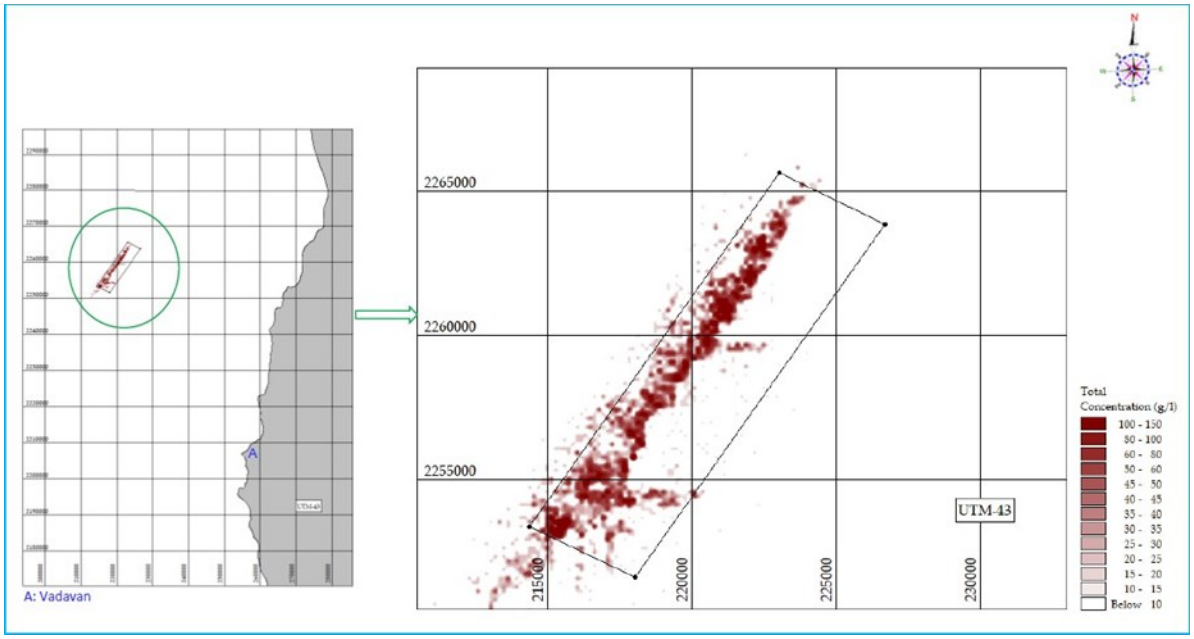
Flow field: Monsoon-Neap tide



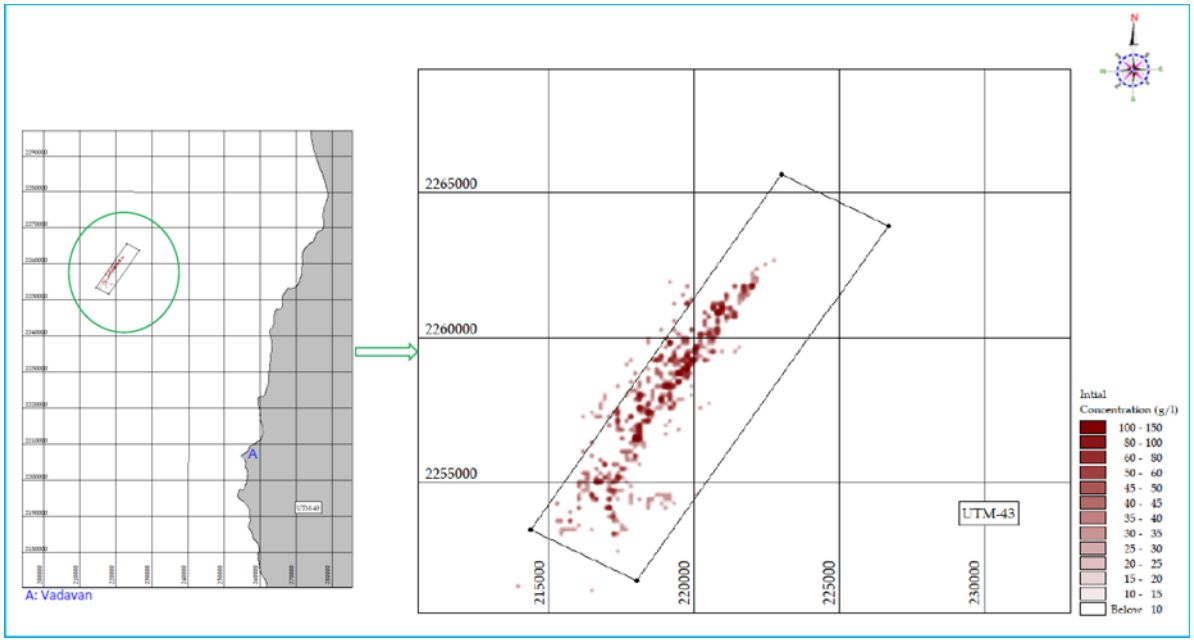
Variation of Simulated Tides & Currents Near to Dredge Ground- Monsoon



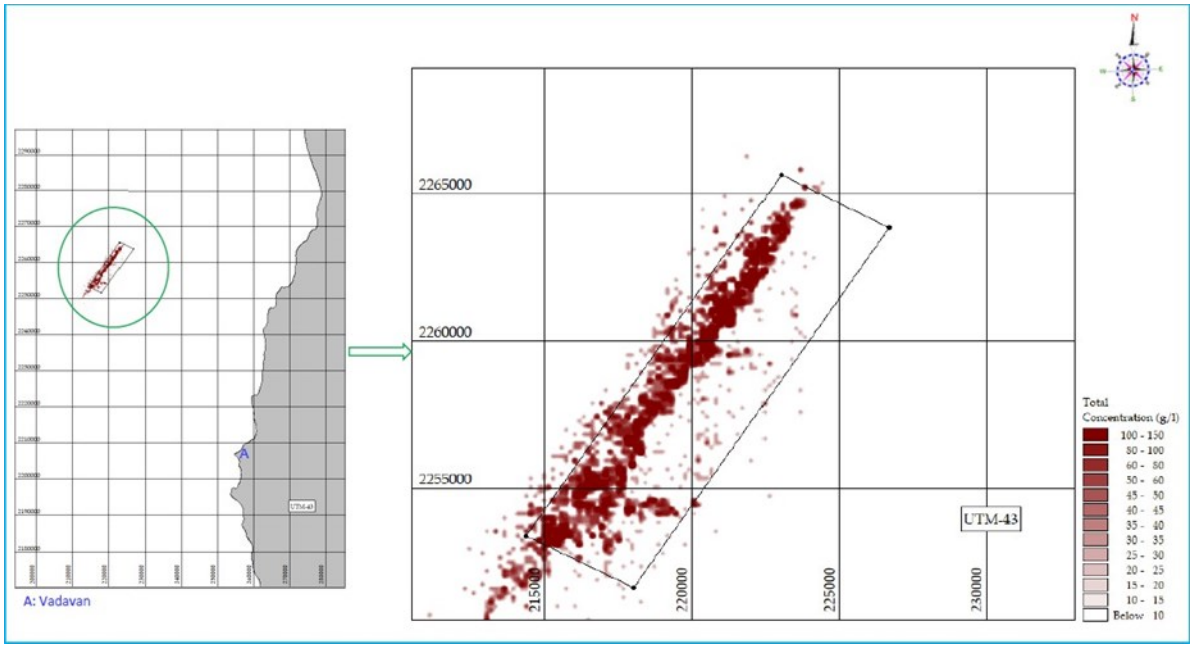
Initial concentration of plume over the entire dredging ground – Case I (10 % Dispersion)



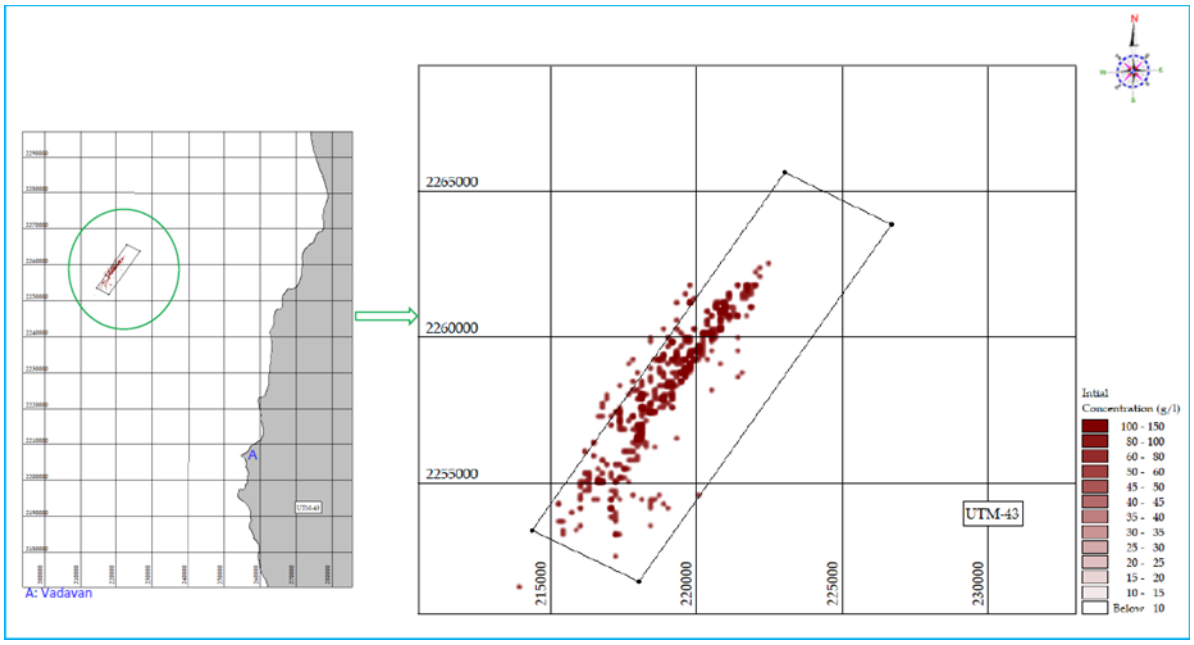
Cumulative concentration of plume over the entire dredging ground – Case I (10 % Dispersion)



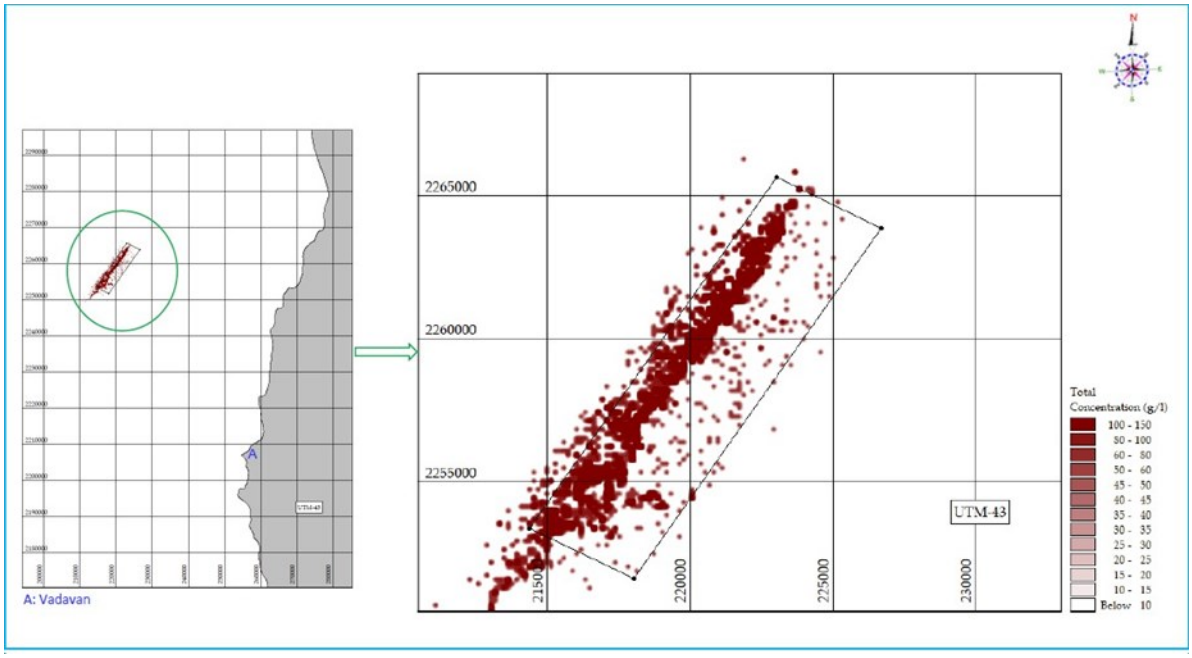
Initial concentration of plume over the entire dredging ground – Case II (20 % Dispersion)



Cumulative concentration of plume over the entire dredging ground – Case II (20 % Dispersion)



Initial concentration of plume over the entire dredging ground – Case III (30 % Dispersion)



Cumulative concentration of plume over the entire dredging ground – Case III (30 % Dispersion)

Conclusion and Recommendation

Simulation study has been carried out to study the impact of sediment transport from the marine burro pit towards the coastal region of Vadhavan port. Following scenarios has been investigated.

(a) Sediment loss from the drag head of Trailing Suction Hopper dredger (TSHD)

(b) Overflow from Hopper

Sensitivity study has been carried out for 10%, 20% and 30% sediment loss.

As the marine burrow pit location far away from the coastal region approximately 50km to 60km with high tidal range and associated strong currents, the concentration of the sediment plume gets weakened immediately during the dredging activity. The model simulation shows that the turbid plume does not reach the shore. Based on the above scenarios, it can be observed that, the plume trajectory of the dredged sediment does not move towards the coast, and they appear not to cause any impact on the shore and the marine environment.

Annexure 4. Geophysical Survey Report

SGS/ROS/JNPT/VADHAWAN/2022/01, 15 June 2022/India West Coast

Geophysical Survey Report

CONTENTS

1. INTRODUCTION

1.1 **Aim.** The aim of this assignment was to carry out qualitative services of geophysical surveys (Shallow seismic survey) & collect sample using Vibro-core for understand the type of suitable sand for reclamation in proposed greenfield Vadhavan Port Project.

1.1.1 To obtain continuous seabed & sub-seabed profiles at the proposed site in order to establish seabed and sub-seabed geology, rock out/ sub crops/ hard rock levels, if any, sub-surface stratigraphy, individual stratigraphic units and their thickness and mark the interfaces deploying shallow seismic equipment.

1.1.2 To carryout patch survey for the area starting from 10 kms of port limit of Vadhavan of proposed site for burrow pits to explore the possibilities of identification of sand patches and thereafter detailed survey for these areas. The project site given in the tender is tentative for reference.

1.1.3 To provide complete exploration of a sub-surface geology of the proposed site area.

1.1.4 Core extraction at random locations followed by grab sampling of the seabed for validation of the survey results.

1.1.5 Vibro-cores based on the findings of geophysical survey.

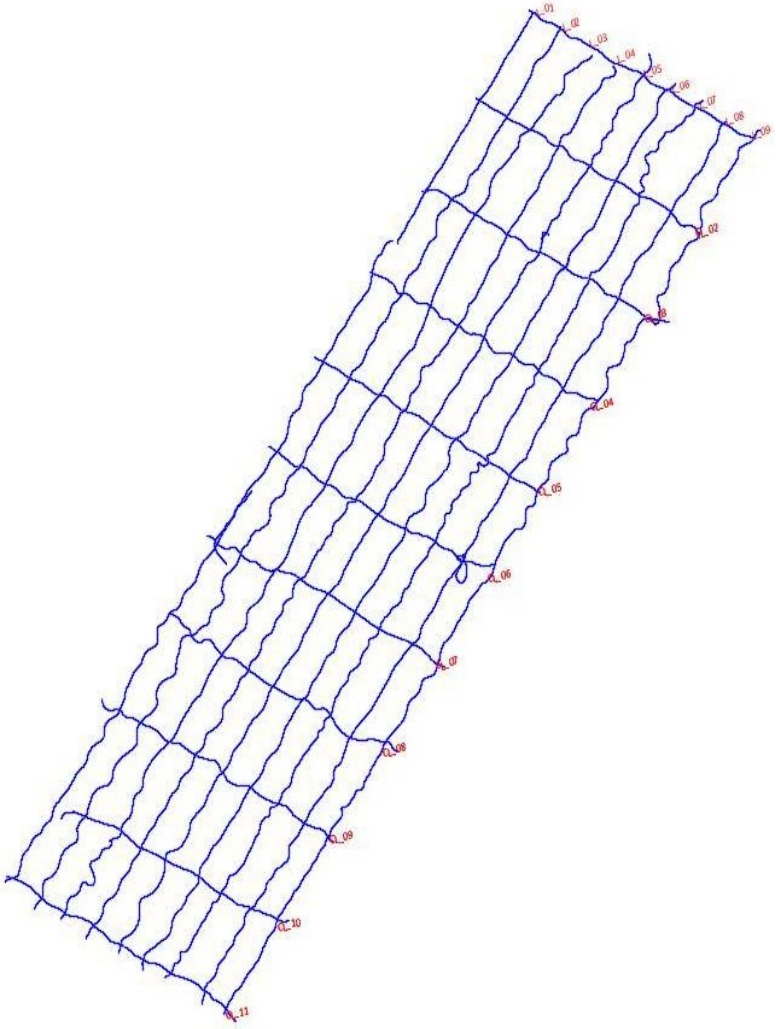
1.1.6 Grain size distribution of samples extracted from vibro-cores for determination of fines content.

CONTENTS

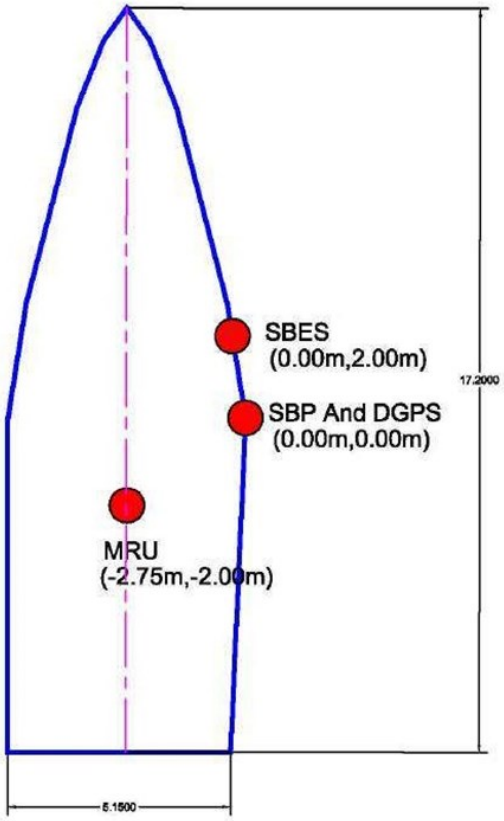
PART II – TECHNICAL

DIGITAL SURVEYING SYSTEM

B.1 The Geophysical survey (Single beam and Sub-bottom profiler) was carried out by running lines longitudinal and transverse to the shoreline with the Main line spacing of 500 m and Cross line spacing of 1500 m in the survey area. An image showing survey track Lines is given below:

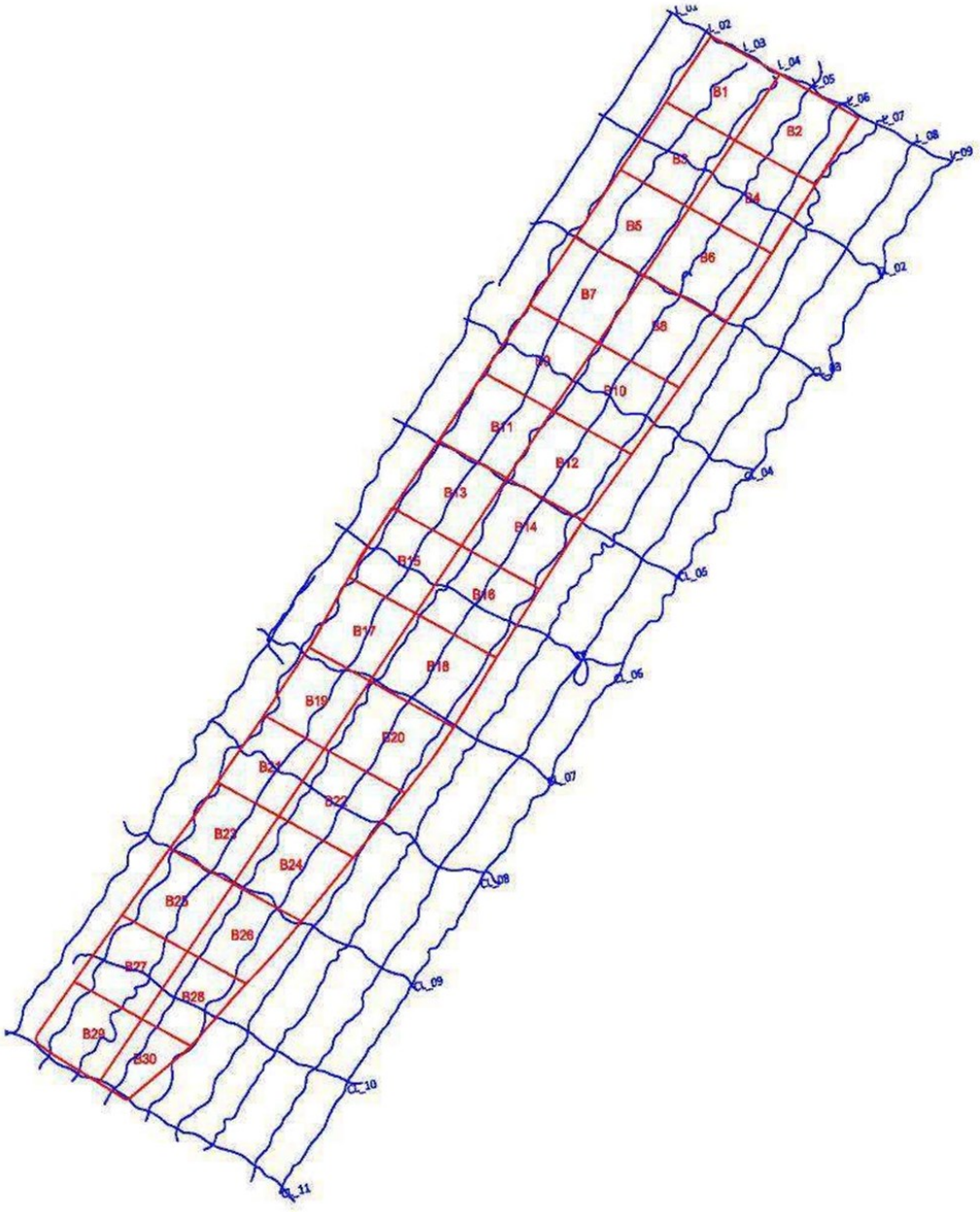


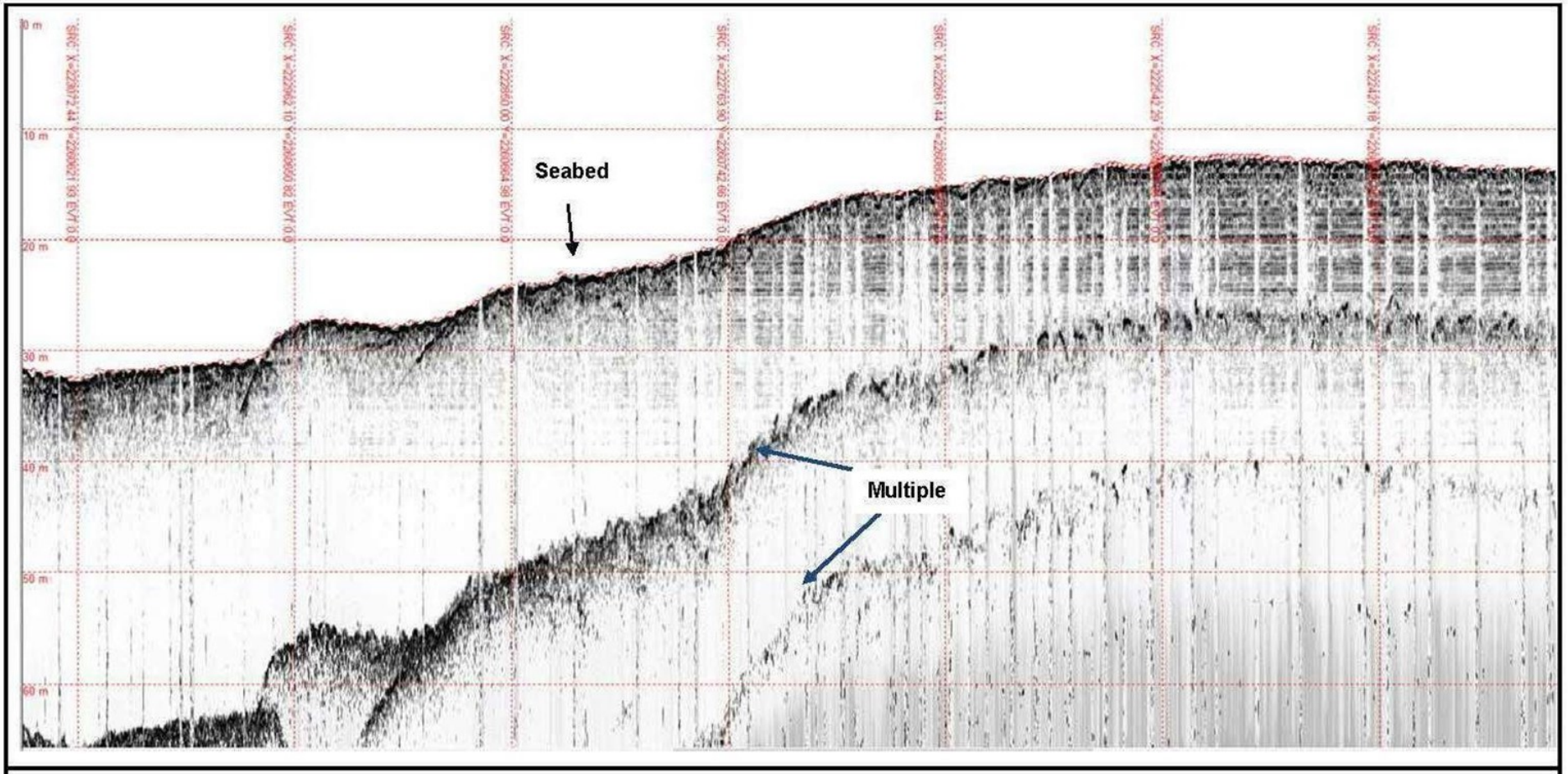
VESSEL NAME - KULDEVI



Sensors	Offset		
	X (m)	Y (m)	Z (m)
DGPS	0.00	0.00	0.00
SBES	0.00	0.20	1.00
MRU	-2.75	-2.00	-1.50
SBP	0.00	0.00	0.00

VESSEL OFFSET	NTS	00	00
DIAGRAM TITLE	SCALE	REVISION No.	DIAGRAM No.


B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
B12
B13
B14
B15
B16
B17
B18
B19
B20
B21
B22
B23
B24
B25
B26
B27
B28
B29
B30



Extract 4 : Extract of sub bottom profiler showing Sand beneath Seabed

Annexure 5 : List of Boat Owners & Registration No.

(Source: Fisheries Department Daman)

List of Boat Owners & Registration Details of Daman Region

Sl.No.	Name of vessel	Registration No.	Boat Owner/Master with Address	Mobile
1	Satya Sagar	DD-03-MM-00002	Diwaliben Bhula Tandel, Bodajiva Sheri, Nani Daman	9725402662
2	Mahi Sagar	DD-03-MM-00005	Suresh Gulam Mangela, Mangelwad, Devka Nani Daman	9687683314
3	Dhan Laxmi	DD-03-MM-00006	Suresh Fakir Tandel, Sangia Shri, Nani Daman	-
4	Ram Prasad	DD-03-MM-00007	Jagdish Fakir Tandel, Barudia Sheri, Nani Daman	-
5	Harsiddhi	DD-03-MM-00008	Manesh Vallabh Tandel, 12/191, Bodajiva Sheri, N.D.	-
6	Amarnath Shiv Sagar	DD-03-MM-00009	Haresh Bagoan, 11/376, Kolimar Sheri, N.D.	8980351038
7	Laxmi Sagar	DD-03-MM-00010	Satish Gulab Mangela, 1290 Khadi, Falia, Jampore, M.D.	9924123464
8	Shiv Prasad	DD-03-MM-00012	Dinesh Deugi, Yash Kamal Appartment, Dilip Nagar, N.D.	9624317891
9	Daria Darshan	DD-03-MM-00013	Haribhai Kalyanbhai Tandel, 11/240, Dabha Sheri, N.D.	-
10	Daria Ram	DD-03-MM-00014	Hira Gojia Tandel, 11/107, Andhia Sheri, N.D.	9925357085
11	Prem Prasad	DD-03-MM-00015	Narmada Narshihbhai Tandel, 12/93a, Sangia Sheri, N.D	9925996880
12	Jal Jyoti	DD-03-MM-00016	Keval Raman Tandel, 9/207, Master Sheri, N.D	-
13	Hari Krupa	DD-03-MM-00017	Yes Jayesh Patel, 15/155, Koliwad, Khariwad, N.D.	9879952324
14	Dariya Dolat	DD-03-MM-00018	Urvashi Hiteshbhia Mistry, 903, Avenue Apartment, Kathiria, N.D.	9879495550
15	Dariya Dolat	DD-03-MM-00020	Nagin Kalidas Tandel, Fakirjiva Sheri, Nani Daman	9978195816
16	Jamna Prasad	DD-03-MM-00021	Bhadresh Ramji & Ramji Makan, 14/52A, Dilip Nagar, Nani Daman	-

17	Padmavati	DD-03-MM-00024	Manjuben Nanabhai Tandel, 12/251, Borajiva Sheri, Nani Daman	7567088069
18	Naran Prasad	DD-03-MM-00025	Tejal Chandrakant Naik, Borajiva Sheri, Nani Daman	8980944421
19	Kashi Prasad	DD-03-MM-00026	Mukesh Gopalbhai Tandel, Sangia Sheri, Nani Daman	9978195845
20	Vishnu Prasad	DD-03-MM-00027	Ravi Mahexa, Kathiria, Nani Daman	9924300070
21	Narayan Prasad	DD-03-MM-00028	Jecky Kanjibhai Tandel, H. No. 9/153, Batli Sheri, Nani Daman	9537267936
22	Devi Prasad	DD-03-MM-00030	Vijay Bana, Motegam Sheri, Nani Daman	9879360416
23	Limdimata Prasad	DD-03-MM-00031	Bhartiben Nemabhai Tandel, Fakirjiva Sheri, Nani Daman	-
24	Jaldevi Prasad	DD-03-MM-00032	Eddie Allenedo Rosario, Dhaklini Wadi, Japabar, N.D.	-
25	Narmada	DD-03-MM-00033	Jayanti Hari Tandel, Barudia Sheri, Nani Daman	7069111737
26	Jai Ambe Prasad	DD-03-MM-00035	Tandel Tejash Fakir, Motegam Sheri, Nani Daman	9909059005
27	Hari Prasad	DD-03-MM-00036	Prabhu Mohan Halpati, Mahyavanshi Falia Kadaiya, N.D.	9913973383
28	Har Siddhi Prasad	DD-03-MM-00037	Pankaj Taeur, Navi Ori, Nani Daman	998158660
29	Sagar Prasad	DD-03-MM-00038	Haribhai Bhulabhai Tandel, Sangia Sheri, Nani Daman	-
30	Mahalaxmi Prasad	DD-03-MM-00039	Sohina Rajnikandt Patel, 15/10, Khariwad Nani Daman	-
31	Kashi Prasad	DD-03-MM-00040	Manjula Ranchhod Tandel, Parkota Sheri, Nani Daman	-
32	Narayan Prasad01	DD-03-MM-00041	Haresh Bagoan, Kolimar Sheri, Nani Daman	8980153138
33	Lokesh Prasad	DD-03-MM-00042	Usha Thakor Dhodia, 12/11, Kolimar Sheri, Nani Daman	-

34	Hari Prasad	DD-03-MM-00044	Mihirkumar Natwar Patel, H. No. 40/A, Navyug Falia, Magarwada, Moti Daman	9979995522
35	Mahalaxmi Prasad	DD-03-MM-00045	Rajubhai Hira Patel, H. No. 201/4, Vachla Falia, Patlara, M.D.	9824151271
36	Kalai Samart	DD-03-MM-00047	Jayanti Bachu Halpati, Borajiva Sheri, Nani Daman	9979512234
37	Prem Sagar	DD-03-MM-00048	Nitin Arjun Halpati, H. No. 55, Kothi Falia, Nayla Pardi, Moti Daman	9624384559
38	Prem Prasad	DD-03-MM-00049	Bhavesh Thakor, H. No. 239, School Falia, Marwad, Nani Daman	9904111146
39	Ram Prasad	DD-03-MM-00050	Dubrabhai Buchibhai Tandel, Master Sheri, Nani Daman	8469737317
40	Bhaktashri Jalaram	DD-03-MM-00052	Mukesh Narsi Tandel, Master Sheri, Nani Daman	-
41	Shanti Sagar	DD-03-MM-00053	Laxmiben Ishwar Tandel, Kothapat Sheri, Nani Daman	-
42	Gita Sagar	DD-03-MM-00054	Satish Ishwar, Kothapat Sheri, Nani Daman	9925698486
43	Khodiyar Ma Prasad	DD-03-MM-00056	Haresh Mangal Tandel, Parkota Sheri, Nani Daman	9898031738
44	Ishwar Prasad	DD-03-MM-00057	Haresh Mangal Tandel, Parkota Sheri, Nani Daman	9898031738
45	Hari Krupa	DD-03-MM-00058	Prema Gopal Tandel, Batli Sheri, Nani Daman	9998414741
46	Prem Sagar	DD-03-MM-00059	Yogesh Mohan Patel, Vachla Falia, Patlara, Moti Daman	9979145744
47	Devi Prasad	DD-03-MM-00060	Krishna Shankar Mangela, Devka Mangelwad, Daman	9726082357
48	Kanya Kumari	DD-03-MM-00061	Sanjay Dhana Dhodi, School Falia, Zari, Moti Daman	7046482302
49	Hari Prasad	DD-03-MM-00062	Parvatiben Premabhai Tandel, Master Sheri, Nani Daman	9725378919
50	Jay Yogeshwar	DD-03-MM-00063	Devjibhai Bhagwanbhai Tandel, Sangia Sheri, Nani Daman	9925996880

51	Jyoti Prasad	DD-03-MM-00064	Devji Vallabh Tandel, Master Sheri, Nani Daman	9898382210
52	Gita Prasad	DD-03-MM-00065	Devji Vallabh Tandel, Master Sheri, Nani Daman	9898382210
53	Daria Dolat	DD-03-MM-00066	Dinkar Pravin Tandel, Parkota Sheri, Nani Daman	8980756630
54	Ram Sagar	DD-03-MM-00067	Bhumita V. Patel, Dabhel, Nani Daman	9824300090
55	Ram Prasad	DD-03-MM-00068	Rami Jivan Tandel, Parkota Sheri, Nani Daman	989865484
56	Mahalaxmi Prasad	DD-03-MM-00069	Kalpesh Kalidas Mangela, Nani Vankad, Nani Daman	7567374375
57	Ganga Prasad	DD-03-MM-00070	Haresh Bagoan, Kolimar Sheri, Nani Daman	8980351038
58	Jyoti Sagar	DD-03-MM-00071	Bhavin Arvind & Chhibu Dahya Halpati Dukan Falia Marwad, Nani Daman	9574446371
59	Devi Prasad	DD-03-MM-00072	Diwali Bijia, Bodajiva Sheri, Nani Daman	9228228555
60	Kashi Prasad	DD-03-MM-00073	Niru Harishbhai Tandel, Andhia Sheri, Nani Daman	9879775270
61	Puran Prasad	DD-03-MM-00074	Jignesh Prema Tandel, Andhiya Sheri, Nani Daman	-
62	Hansh Prasad	DD-03-MM-00075	Ramesh Dubra, Master Sheri, Nani Daman	8469737317
63	Kanta Prasad	DD-03-MM-00076	Ashok Fakir Tandel, Motegam Sheri, Nani Daman	9724166691
64	Mangleshwari	DD-03-MM-00077	Dilip Amrat Patel, Patel Falia, Magarwada, Moti Daman	7567838666
65	Laxmi Prasad	DD-03-MM-00078	Savita Laxman Tandel, 8/254, Parkota Sheri, Nani Daman	-
66	Ram Prasad	DD-03-MM-00079	Diwaliben Bhulabhai Tandel, Borajiva Sheri, Nani Daman	9998576750
67	Labh Laxmi	DD-03-MM-00080	Dhanu Arjun, Kothapat Sheri, Nani Daman	-
68	Rameshwari	DD-03-MM-00081	Dhanji Durlabh Damania, Doctor Sheri, Moti Daman	-
69	Mahalaxmi Prasad	DD-03-MM-00082	Kirit Ramesh Patel, Dalwada, Nani Daman	9737371280

70	Kunta	DD-03-MM-00083	Artiben Dayaram Mitna, 39, Warliwad Jampore, Moti Daman	9913973335
71	Karuna Sagar	DD-03-MM-00084	Niru Ramji Tandel, Borajiva Sheri, Nani Daman	8460432770
72	Maheshwari	DD-03-MM-00085	Ramesh Bhana Patel, 210/3, Prakash Falia, Nani Daman	-
73	Labh Savai	DD-03-MM-00086	Makan Bhagwan Tandel, Bodajiva Sheri, Nani Daman	9825946015
74	Ambeke	DD-03-MM-00087	Ganesh Bagan Tandel, Dabha Sheri, Nani Daman	-
75	Ram Prasad	DD-03-MM-00089	Godawari Bagaon, Ghati Sheri, Nani Daman	8128284853
76	Akash Sagar	DD-03-MM-00090	Arvind Bhagwan Tandel, Batli Sheri, N.D	9824736900
77	Daria Dolat	DD-03-MM-00091	Kantibahi Pravin Makwana, Mora Falia, Nani Daman	9998126812
78	Krishna Prasad	DD-03-MM-00092	Bhupat Ramji Makwana, Mora Falia, Nani Daman	-
79	Ram Prasad	DD-03-MM-00093	Vikram Kanji Tandel, Parkota Sheri, Nani Daman	9724166691
80	Dariya Dolat	DD-03-MM-00094	Laxman Dhodia, Dabha Sheri, Nani Daman	9099581379
81	Gangotri Prasad	DD-03-MM-00095	Pemiben Laxmanbhai Tandel, Bodajiva Sheri, Nani Daman	9725029396
82	Bhavani Prasad	DD-03-MM-00096	Suresh Parsottam Tandel, Andhiya Sheri, Nani Daman	9725029396
83	Mahakali Prasad	DD-03-MM-00097	Bhagwatiben Kanji Tandel, Batli Sheri, Nani Daman	-
84	Sagar Prasad	DD-03-MM-00099	Arvindbhai Bhagwanbhai, Batli Sheri, Nani Daman	-
85	Hari Prasad	DD-03-MM-00102	Usha Arvind Tandel, Kothapat Sheri, Nani Daman	8128444056
86	Hari Prasad	DD-03-MM-00103	Narshih Ukkad Tandel, Chhapli Sheri, Nani Daman	9824569430
87	Hari Prasad	DD-03-MM-00106	Naran Nema Tandel, Parkota Sheri, Nani Daman	9033396387
88	Ganga Prasad	DD-03-MM-00107	Hitendra Devji Tandel, Parkota Sheri, Nani Daman	-

89	Narayan Prasad	DD-03-MM-00108	Bhanuben Bhagwanbhai Tandel, Batli Sheri, Nani Daman	-
90	Jal Devi	DD-03-MM-00109	Devji Nema Tandel, Master Sheri, Nani Daman	8141823500
91	Devi Prasad	DD-03-MM-00110	Keshavbhai Chhipkabhai Tandel, Dabha Sheri, Nani Daman	-
92	Satya Prakash	DD-03-MM-00111	Dharmishtha Ramanbhai Patel, 1, Medi Falia, Varkund, Nani Daman	-
93	Hari Om	DD-03-MM-00112	Arilal Dalabai, Mangelwad, Nava Jampore, Moti Daman	9726194309
94	Devi Prasad	DD-03-MM-00113	Pratik Kanji, Parkota Sheri, Nani Daman	9687001072
95	Ganga Devi	DD-03-MM-00115	Laxmi Naran Tandel, Master Sheri, Nani Daman	9979688597
96	Gangeshwari	DD-03-MM-00116	Ishwarbhai Madhavbhai Tandel, Batli Sheri, Nani Daman	-
97	Ambika Prasad	DD-03-MM-00117	Kanji Bhagwan Tandel, Dabha Sheri, Nani Daman	9825630322
98	Karuna Sagar	DD-03-MM-00118	Dharmesh Bhagwan Tandel, Batli Sheri, Nani Daman	9913040890
99	Kanaiya Prasad	DD-03-MM-00119	Dharmesh Mohan Tandel, Kothapat Sheri, Nani Daman	9737972848
100	Dariya Dolat	DD-03-MM-00120	Mohan Kalan Tandel, Parkota Sheri, Nani Daman	9879734460
101	MahaSagar	DD-03-MM-00121	Hirenbhai Sumanbhai Patel, 50, School Falia, Moti Vankad, Nani Daman	9825898137
102	Gita Prasad	DD-03-MM-00122	Shankar Laxmanbhai Mangela, Nani Vankad, Nani Daman	9624614369
103	Laxmi Prasad	DD-03-MM-00123	Budhia Mitha Tandel, Dabha Sheri, Nani Daman	-
104	Dhan Laxmi	DD-03-MM-00124	Pushpa Pravin Tandel, Iskat Sheri, Nani Daman	9723803781
105	Prem Sagar	DD-03-MM-00125	Dipak Naran Tandel, Master Sheri, Nani Daman	7383868455
106	Kanaiya Sagar	DD-03-MM-00126	Rohitkumar Isvar, Kolimar Sheri, Nani Daman	9726250001

107	Dariya Dolat	DD-03-MM-00127	Uttam Madhu Machhi, Ghati Sheri, Nani Daman	9824747667
108	Ram Krupa	DD-03-MM-00128	Jignesh Nanu Patel, Vankad, School Falia, Nani Daman	9714240001
109	Ram Prasad	DD-03-MM-00130	Mohan Kalan Tandel, Parkota Sheri, Nani Daman	9879734460
110	Gangotri Prasad	DD-03-MM-00131	Anil Calan, Batli Sheri, Nani Daman	9638788995
111	Ganga Maiya	DD-03-MM-00132	Anil Calan, Batli Sheri, Nani Daman	9638788995
112	Vishnu Prasad	DD-03-MM-00134	Pankaj Gojia, Gathi Sheri, Nani Daman	-
113	Ganga Prasad	DD-03-MM-00135	Damodar Mangaliya Tandel, Chhapli Sheri, Nani Daman	9879952324
114	Durga Prasad	DD-03-MM-00136	Niranjan Dengi, Parkota Sheri, Nani Daman	8128879993
115	Bhagwati Prasad	DD-03-MM-00137	Geetaben Krishnabhai Tandel, Master Sheri, Nani Daman	9924426522
116	Jal Devi	DD-03-MM-00140	Dilip Mangal Bari, Bariawad, Moti Daman	9824771848
117	Dan Sagar	DD-03-MM-00141	Sukar Moral, Kadaiya Machiwad, Nani Daman	-
118	Harsiddhi	DD-03-MM-00142	Pankesh Madhou Tandel, Batli Sheri, Nani Daman	-
119	Naran Prasad	DD-03-MM-00144	Pankesh Thakur, Kolimar Sheri, Nani Daman	-
120	Rameshwari	DD-03-MM-00146	Nirmala Santaram Mangela, Mangelwad, Moti Daman	9727584103
121	Laxmi Prasad	DD-03-MM-00147	Revidas Puna, Devka Mangelwad	9898711441
122	Moti Prasad	DD-03-MM-00148	Laeman Soma, Kolimar Sheri, Nani Daman	9662155022
123	Arti Prasad	DD-03-MM-00149	Dinesh Kishan Mangela, Jampore Beach, Moti Daman	9558627434
124	Dhan Prasad	DD-03-MM-00150	Iralal Bigia, Machhiwad, Moti Daman	9687407022
125	Hari Prasad	DD-03-MM-00151	Mohan Mangal Tandel, Motegam Sheri, Nani Daman	9924121265

126	Jal Vihar	DD-03-MM-00153	Kishor Dhanji Dhodi, Barudiya Sheri, Nani Daman	-
127	Ramdoot	DD-03-MM-00155	Bhagwanbhai Mithabhai Tandel, Mata Sheri, Moti Daman	9723334527
128	Chandra Prasad	DD-03-MM-00156	Mithiben Budhia Tandel, Kadaiya Machiwad, Nani Daman	-
129	Krishna Sagar	DD-03-MM-00157	Mukeshbhai Isvar, Kolimar Sheri, Nani Daman	9824747667
130	Hanuman Sagar	DD-03-MM-00159	Chandravati Makan Tandel, Chiniya Sheri, Nani Daman	-
131	Parashmani	DD-03-MM-00160	Ukadbhai Mithabhai, Patel Sheri, Nani Daman	9727376374
132	Dhan Laxmi	DD-03-MM-00161	Dhinu Nanu Bari, 44/2, Bariawad, Dholar, Moti Daman	-
133	Ram Prasad	DD-03-MM-00163	Dhananjay Lala Tandel, Chinia Sheri, Nani Daman	9909176088
134	Vishnu Sagar	DD-03-MM-00164	Pankaj Makan Tandel, Navi Ori, Nani Daman	-
135	Dhan Prasad	DD-03-MM-00165	Dhanesh Hari Mangela, Devka Mangelwad, Nani Daman	9601014044
136	Uday Prasad	DD-03-MM-00166	Pramod Cangi, Barudia Sheri, Nani Daman	-
137	Jyoti Prasad	DD-03-MM-00167	Devjibhai Narshibhai Tandel, Dabha Sheri, Nani Daman	-
138	Dwarka Prasad	DD-03-MM-00168	Ramabhai Govanbhai Tandel, Kadaiya Machhiwad, Nani Daman	7874143302
139	Devi Prasad	DD-03-MM-00169	Niraben Ramkishan Mangela, Devka Mangelawad, Nani Daman	-
140	Jal Ratna	DD-03-MM-00170	Nanubhai Suklabhai, Navi Nagri, Dori, Kadaiya, Nani Daman	-
141	Prem Sagar	DD-03-MM-00171	Raghunandan Xantaram, Juna Jampore, Moti Daman	9879463533
142	Narayan Prasad	DD-03-MM-00172	Jaysukh Prakash Mitna, Mitnawad, Khariwad, Nani Daman	8490983170

143	Parth	DD-03-MM-00173	Atmaram Laxman Mangela, Devka Mangelwad, Nani Daman	9979344187
144	Ambe Prasad	DD-03-MM-00176	Sadashiv Dhiraj Mangela, Devka Mangelwad, Nani Daman	9904706975
145	Sarswati	DD-03-MM-00177	Arvindbhai Dulabbhai, Batli Sheri, Nani Daman	8980745170
146	Laxmi Prasad	DD-03-MM-00178	Gangaram Mangri Mangela, Devka Madngelwad, Nani Daman	9879463533
147	Sagar Prasad	DD-03-MM-00179	Vasudev Rama Mangela, Mangelwad, Moti Daman	9726972144
148	Nilmani	DD-03-MM-00180	Nareshbhai Ranchhodbhai Tandel, Batli Sheri, Nani Daman	9586609165
149	Jayshree Prasad	DD-03-MM-00181	Dilip Chhaganbhai Varli, 99/2, Warliwad, Jampore, Moti Daman	-
150	Krishna Prasad	DD-03-MM-00183	Rukshmani Dhanji Tandel, Sangiya Sheri, Nani Daman	-
151	Rameshwari Prasad	DD-03-MM-00184	Hanshaben Damodar Tandel, Chhapli Sheri, Nani Daman	9879952324
152	Balagi Prasad	DD-03-MM-00185	Haresh Bagan, Kolimar Sheri, Nani Daman	8980351038
153	Hari Om	DD-03-MM-00186	Prabhvati Morar Sagar, Mangelwad, Moti Daman	-
154	Hari Prasad	DD-03-MM-00187	Krishna Lallu Tandel, Bodajiva Sheri, Nani Daman	9558994797
155	Pravati Prasad	DD-03-MM-00188	Nareshbhai Dhiru Halpaati, Motegam Sheri, Nani Daman	8758771935
156	Jal Devi Prasad	DD-03-MM-00190	Ankit Lalu, Iskat Sheri, Nani Daman	9925356762
157	Parvina	DD-03-MM-00191	Pragnesh Devchand Tandel, Parkota Sheri, Nani Daman	8511488875
158	Krishna Prasad	DD-03-MM-00192	Arvindlal Gojia, Nani Daman	-
159	Jai Ambica Sagar	DD-03-MM-00193	Chandrakant Ranchhod Tandel, Kothapat Sheri, Nani Daman	-
160	Hari Krupa	DD-03-MM-00194	Dharmesh Bhula Tandel, Chhapli Sheri, Nani Daman	7874114155

161	Kashish	DD-03-MM-00195	Argi Harilal, Motegam Sheri, Nani Daman	-
162	Ram Prasad	DD-03-MM-00196	Pankesh Thakur, Kolimar Sheri, Nani Daman	9825539117
163	Om Shiv Shakti Sagar	DD-03-MM-00197	Lalit Vishram Solanki, Dilip Nagar, Nani Daman	9427861261
164	Vishnu Prasad	DD-03-MM-00198	Jamnaben Hirabhai Tandel, Kothapat Sheri, Nani Daman	-
165	Balaji Prasad	DD-03-MM-00200	Arvind Vallabh Tandel, Master Sheri, Nani Daman	9724079983
166	Laxmi Prasad	DD-03-MM-00204	Ramesh J. Halpati, Parkota Sheri, Nani Daman	9825522348
167	Maruti Prasad	DD-03-MM-00205	Rameshbhai Bhulabhai Tandel, Kolimar Sheri, Nani Daman	-
168	Laxmi Prasad	DD-03-MM-00206	Hitendra Naran Tandel, Master Sheri, Nani Daman	9724173335
169	Vishnu Prasad	DD-03-MM-00207	Trusha Arjun, Kothapat Sheri, Nani Daman	9998073789
170	Parmeshwarrai Prasad	DD-03-MM-00208	Nayan Dangi, Sangia Sheri, Nani Daman	9998073789
171	Ganga Prasad	DD-03-MM-00209	Kishore Lala, Chhapli Sheri, Nani Daman	-
172	Labh	DD-03-MM-00210	Nayan Dangi, Sangia Sheri, Nani Daman	-
173	Devshri	DD-03-MM-00212	Vanitaben Dineshbhai Tandel, Fakirjiva Sheri, Nani Daman	-
174	Hari Ganga	DD-03-MM-00213	Prssan Ramjibai Tandel, Master Sheri, Nani Daman	9725325559
175	MatsyaGandha	DD-03-MM-00214	Givan Chhibca Halpati, Machhiwad, Moti Daman	9687209213
176	Dhan Sagar	DD-03-MM-00215	Jasu Gopal Tandel, Fakir Jiva Sheri, Nani Daman	-
177	Dariya Dalat	DD-03-MM-00216	Ramesh Babu Bari, Bariyavad, Moti Daman	-
178	Laxmi Prasad	DD-03-MM-00218	Manoj Rama Tandel, Mata Sheri, Moti Daman	-
179	Hari Prasad	DD-03-MM-00219	Lilavati Cangi, Mata Sheri, Moti Daman	-
180	Dariya Dolat	DD-03-MM-00220	Gokul Padva, Dholar, Moti Daman	-
181	Devi Prasad	DD-03-MM-00221	Arvind Rancor, Iskat Sheri, Moti Daman	-

182	Ram Prasad	DD-03-MM-00225	Pravinbhai Budhiyabhai Mitna, Kar Falia, Khariwad, Nani Daman	8469220316
183	Ram Prasad	DD-03-MM-00228	Fakir Jadav Tandel, Motegam Sheri, Nani Daman	9724166691
184	Manek Prasad	DD-03-MM-00229	Mangal Kalan Halpati, Ghati Sheri, Nani Daman	9712529470
185	Dhan Prasad	DD-03-MM-00230	Shantiben Lalabhai Tandel, Dabha Sheri, Nani Daman	9712529470
186	Vishnu Prasad	DD-03-MM-00231	Gulabben Dahyabhai Tandel, Kadaiya Machhiwad, Nani Daman	9924662979
187	Dhan Prasad	DD-03-MM-00232	Ganesh Harishchandra, Jampore, Moti Daman	-
188	Jay Khodiyar Maa	DD-03-MM-00233	Prakash Mohan Mitna, Zampabar, Nani Daman	9726851766
189	Om Sai	DD-03-MM-00234	Mahendra Ramkrishna Mangela, Halpatiwas Devka, Nani Daman	9921448384
190	Om Namah Shivay	DD-03-MM-00235	Ratilal Lalji Tandel, Parkota Sheri, Nani Daman	9712588046
191	Hari Prasad	DD-03-MM-00236	Bhalchandra Mangal Bari, Dholar Bariawad, Moti Daman	9909571243
192	Dhan Shree	DD-03-MM-00237	Raman Ravia, Bariyawad Jampore, Moti Daman	-
193	Narayani	DD-03-MM-00238	Jagdishbhai Chhania Varli, Varliwad, Pariyari, Moti Daman	-
194	Jal pari	DD-03-MM-00239	Naresh Ramgi, Kothapat Sheri, Nani Daman	-
195	Yahova Salom	DD-03-MM-00240	Savitaben Laxman Varli, Jampore Varli wad, Moti Daman	8238679253
196	Ganga Maiya	DD-03-MM-00241	Kailash Rahidas Mangela, Nava Jampore, Moti Daman	-
197	Preeti Sagar	DD-03-MM-00242	Narmadaben Mangan Tandel, Parkota Sheri, Nani Daman	-
198	Sai Sagar	DD-03-MM-00243	Umesh Nana, Eskat Sheri, Nani Daman	-
199	Dhan Sagar	DD-03-MM-00244	Saroj Dulobo, Doctor Sheri, Moti Daman	9824376969

200	Mahalaxmi prasad	DD-03-MM-00245	Parvin Bula, Kolimar Sheri, Nani Daman	9737880402
201	Ambika Prasad	DD-03-MM-00246	Punamchan Haribhai Tandel, Master Sheri, Nani Daman	-
202	Bansari	DD-03-MM-00247	Rajesh Kalidas Halpati, 11/24, School falia Ambawadi, Moti Daman	-
203	Krishna Sagar	DD-03-MM-00248	Manju Manilal Tandel, Borajiva Sheri, Nani Daman	9974096768
204	Pratha Sagar	DD-03-MM-00249	Lilawatiben Ramjibhai Tandel, Batli Sheri, Nani Daman	
205	Narmada Prasad	DD-03-MM-00250	Yatin Narrottam Tandel, Machhiwad Kadaiya, Nani Daman	9924423338
206	Ashiti	DD-03-MM-00251	Prahalad Ravishankar Mangela, Mangelwad Jampore, Moti Daman	9998956804
207	Kingsai 1	DD-03-MM-00252	Mohan K Tandel & Mukesh Patel, Parkota Sheri, Nani Daman	9879734460
208	Devkinandan	DD-03-MM-00253	Deepak Parshottam Tandel, Andhiya Sheri, Nani Daman	-
209	Krupali Prasad	DD-03-MM-00254	Arvindbhai Govanbhai Machhi, Machhiwad Kadaiya, Nani Daman	9978195788
210	Sagar Krupa	DD-03-MM-00255	Naran Bhagwan Tandel, Dabha Sheri, Nani Daman	9856630332
211	Kamya Prasad	DD-03-MM-00256	Harita Mohan Tandel, Chhapli Sheri, Nani Daman	9998316929
212	Labh Laxmi Prasad	DD-03-MM-00257	Promod Madou, Parkota Sheri, Nani Daman	9724079983
213	Parasmani	DD-03-MM-00258	Naresh Ramgi Tandel, Kothapat Sheri, Nani Daman	9879193321
214	Santoshi Prasad	DD-03-MM-00259	Prakash Narsinh Tandel, Master Sheri, Nani Daman	-
215	Sagar Prasad	DD-03-MM-00260	Haresh Damu Mangela, Jampore, Moti Daman	9913284543
216	Rajeshwari	DD-03-MM-00261	Parvin Bula, Kolimar Sheri, Nani Daman	9737880400
217	Kashi Prasad	DD-03-MM-00262	Manilal Gopar, Borajiva Sheri, Nani Daman	9727939160

218	Dhan Prasad	DD-03-MM-00263	Laxmiben Mohanbhai Tandel, Master Sheri, Nani Daman	958665341
219	Dhan prasad	DD-03-MM-00264	Kamlesh Daji Tandel, Iskat Sheri, Moti Daman	9727444553
220	Bhavna Prasad	DD-03-MM-00265	Ravi Gulab Mangela, Devka Mangelwad, Nani Daman	9727444553
221	Shri Khodiarma	DD-03-MM-00266	Ishwar Ucor, Vachli Sheri, Moti Daman	-
222	Dhan Laxmi	DD-03-MM-00268	Suraj Quessou, Iskat Sheri, Moti Daman	-
223	Jai Jalaram	DD-03-MM-00269	Chandu Manachlala Tandel, Master Sheri, Nani Daman	-
224	Jal Devi	DD-03-MM-00270	Lilvatiben Virubhai Halpati, Badhliwadi, Magarwada, Moti Daman	-
225	Sainath Karin	DD-03-MM-00271	Hitesh Govind Mistry, 903/Satyanaramandir, Nani Daman	-
226	Triveni	DD-03-MM-00272	Pramod Ramu, Varliwad, Jampore, M.D.	9714014568
227	Laxmi Prasad	DD-03-MM-00274	Gulab Shankar Halpari, 54/4 Dhobi Talav, Moti Daman	-
228	Sagar Moti	DD-03-MM-00275	Deepak Kishan Raut, Mangelwad, Moti Daman	9723593140
229	Satya Prakash	DD-03-MM-00276	Kamlesh Oriya Dhodiya, Barudiaya Sheri, Nani Daman	9824560874
230	Bhuvneshwari	DD-03-MM-00277	Jignesh N. Patel, School Falia, Nani Vankad, N.D.	9714240001
231	Devi Ganga	DD-03-MM-00278	Hanshaben Ganesh Tandel, Master Sheri, Nani Daman	8758258830
232	Narayan Prasad	DD-03-MM-00280	Jagdish Chhniya Varli, Varliwad Pariyari, Moti Daman	-
233	MatsyaGandha	DD-03-MM-00282	Ratilal Naran Magela, Devka Mangelwad, Nani Daman	9825569385
234	Jay Sopani Maa	DD-03-MM-00284	Vesta Shankar Bari, Bariawad Dholar, Moti Daman	9727519606

235	Jay Ambe	DD-03-MM-00286	Vassant Narsin Tandel, Master Sheri, Nani Daman	-
236	Jalaram Prasad	DD-03-MM-00287	Anupbhai Makanbhai Halpati, Mahyavanshi Falia Pariyari, Moti Daman	9925724511
237	Barakhah	DD-03-MM-00288	Rajesh Nagin Mitna, Varliwad, Moti Daman	9726144312
238	Jalpari	DD-03-MM-00289	Parulben Dinesh Mangela, 38, Mangelwad, Jampore, Moti Daman	-
239	Laxmi Sagar	DD-03-MM-00290	Rahul Narsaim, Wadi Falia, Nani Daman	9974414544
240	Abhishek	DD-03-MM-00291	Manish Balchandra Mangela, Devka Mangelwad, Nani Daman	-
241	Kingsai 2	DD-03-MM-00292	Mohan Tandel & Others, Parkota Sheri, Nani Daman	9879734460
242	Samundar Sagar	DD-03-MM-00293	Nileshbhai Naginbhai Mitna, Warliwad, Jampore, Moti Daman	9727579290
243	Jayshree Prasad	DD-03-MM-00294	Fakir Nana Tandel, Sarvoday Society, Nani Daman	9725804883
244	Harikrishna	DD-03-MM-00295	Mohan Tandel & Others, Parkota Sheri, Nani Daman	9978353644
245	Panchwati	DD-03-MM-00296	Thakur Ramchandra Mangela, Devka Mangelwad, Nani Daman	9586294906
246	Mahalaxmi Prasad	DD-03-MM-00297	Kiran Vesta Machhi, Khatriwad, Nani Daman	9998687604
247	Vaishnavidevi	DD-03-MM-00298	Vinodkumar Ratilal Tandel, Royal Park-1, Ice Factory Road, Nani Daman	9687633233
248	Sagar Putra	DD-03-MM-00299	Jaising Pravin Baria, Bariyawad, Dholar, Moti Daman	9712133791
249	Krupali	DD-03-MM-00300	Arvind Cangi, Fakirjiva Sheri, Nani Daman	9512845191
250	Laxmi sagar	DD-03-MM-00301	Narshin Naran Tandel, Master Sheri, Nani Daman	9978142126
251	Laxmi Prasad	DD-03-MM-00302	Rahul Pintesh Halpati, Ambawadi, Moti Daman	8141947332
252	Shushila Prasad	DD-03-MM-00303	Naran Bhagu, Mangelwad, Devka, Nani Daman	9879232627
253	Madhvinandan	DD-03-MM-00304	Rekha Ravi, Mangelwad Devka, Nani Daman	9558114479

254	PrincesS	DD-03-MM-00305	Jugalkishre Ramabhai Tandel, Kusum Niwas Tin batti, N.D.	9537694376
255	Laxmi Prasad	DD-03-MM-00306	Vanita Girdhar, Borajiva Sheri, Nani Daman	9727939160
256	Tirth Raj	DD-03-MM-00307	Damu Babu, Devka Mangelwad, N.D.	9879171988
257	J.J.S.A.	DD-03-MM-00308	Jayshree Chauhan, Fort Area, Moti Daman	9913805540
258	Rameshwari	DD-03-MM-00310	Balvantbhai DurLabhbhai Tandel, Kadaiya Machiwad, Nani Daman	8140222232
259	Dhan Sagar	DD-03-MM-00311	Jassu Visnum, Motegam Sheri, Nani Daman	9558756465
260	Ghari Sagar	DD-03-MM-00312	Mohan Ucar, Machhiwad, Iskat Sheri, Moti Daman	9723668344
261	Ganga Gori	DD-03-MM-00313	Parbu Cangi, Bariawad, Moti Daman	9687905189
262	Vaisno Devi	DD-03-MM-00314	Mina Jivan, Chinia Sheri, Nani Daman	9537365004
263	Saloni prasad	DD-03-MM-00315	Sumitra Vishram Mangela, Magelwad, Nani Daman	9727444553
264	Daria Dolat	DD-03-MM-00316	Savita Laxman Tandel, Motegam Sheri, Nani Daman	9998685212
265	Durga shakti	DD-03-MM-00317	Paliben Nanu Patel, School Falia, Moti Vankad, Nani Daman	8238974745
266	Rudra	DD-03-MM-00318	Nikunj Patel & Others, Dhakliwadi, Nani Daman	9978100014
267	Jayshree Prasad	DD-03-MM-00319	Ramilaben Gokulbhai, Bariawad, Moti Daman	9638969217
268	Triveni	DD-03-MM-00320	Kashyap Jitendra Maher, Mangelwad, Moti Daman	9714766555
269	Devi Prasad	DD-03-MM-00321	Bony Quessou, Fakirjiva Sheri, Nani Daman	9824124333
270	Laxmi Sagar 2	DD-03-MM-00322	Rahul Narsaim, Wadi Falia, Nani Daman	9974414544
271	Mangeshwari	DD-03-MM-00324	Sahdev Kalidas Mangela, Nava Jampore, Mangelwad, Moti Daman	9586617225
272	Maniratna	DD-03-MM-00325	Bhanu Daji, Dilip Nagar, Nani Daman	9898000005
273	Pavan Putra	DD-03-MM-00326	Shitalbhai Natubhai Patel, Patel Falia, Magarwada, Moti Daman	8000499908

274	Daya Sagar	DD-03-MM-00327	Kalavatiben Naginbhai Patel, School Falia, Moti Vakad	9537300001
275	Shree Laxmi Sagar	DD-03-MM-00328	Dhiraj Budia & Others, Borajiva Sheri, Nani Daman	8980944421
276	Rajalakshmi Sagar	DD-03-MM-00329	Jayshree Pavin, Kolimar Sheri, Nani Daman	9824101543
277	Daria Dolat	DD-03-MM-00330	RUkhilben Ishwar Tandel, Machhiwad, Iskat Sheri, Moti Daman	9879479188
278	Laxmi Prasad	DD-03-MM-00331	Rekha Naran, Nava Jampore, Mangelwad, Moti Daman	9913688765
279	Jay Khodiyar Maa	DD-03-MM-00332	Govind Busi Tandel, Master Sheri, Nani Daman	8980745170
280	Divyam	DD-03-MM-00333	Bony Quessou, Fakirjiva Sheri, Nani Daman	9824124333
281	Nareshwar	DD-03-MM-00334	Hansaben Ucar, 10/226, Chahapli Sheri, Nani Daman	-
282	Kaviya Sagar	DD-03-MM-00335	Mohan Kalan & Others, Parkota Sheri, Nani Daman	9978353644
283	Jay Shree Krishna	DD-03-MM-00336	Smt. Kanta Madhu, Chhapli Sheri, Nani Daman	9998687604
284	Gaytri	DD-03-MM-00337	Anil Calan, Batli Sheri, Nani Daman	9638788995
285	Hari Har	DD-03-MM-00338	Aribai Calan and dipak aribai dabha sheri nani daman	9824154320
286	Ishwar Krupa	DD-03-MM-00339	Bhartiben Manganbhai Tandel, Luhar Falia, Moti Daman	9586290510
287	Laxmi Prasad	DD-03-MM-00340	Bhupesh Laxman, Borajiva Sheri, Nani Daman	9725029396
288	Laxmi Prasad	DD-03-MM-00341	Ratilal Ramhibhai Tandel,Chiniya Sheri, Nani Daman	9727964176
289	Om Prasad	DD-03-MM-00342	Dineshbhai Krishnabhai Tandel, Chinia Sheri, Nani Daman	9724681462
290	Dhan Laxmi	DD-03-MM-00343	Manishaben Keshavbhai Patel, Ambawadi, Moti Daman	9879340331

291	Augtsya	DD-03-MM-00344	Mahesh Mahadev Mangela, Khadi Falia, Jampore, Moti Daman	7046137202
292	Santoshi Maa	DD-03-MM-00345	Ramkishan Ramesh Mangela, Mangelwad, Jampore, Moti Daman	9925724463
293	Ridhdhi Sagar	DD-03-MM-00346	Dakshesh Ishwar Tandel, Kolimar Sheri, Nani Daman	9825786969
294	Jal devi	DD-03-MM-00347	Ambu Hira Tandel, Master Sheri, Nani Daman	9924703539
295	Parvati Prasad	DD-03-MM-00348	Nitesh Ramesh Halpati, Kadaiya Machhiwad, Nani Daman	9924650019
296	Ambika	DD-03-MM-00349	Parvin Bula, Kolimar Sheri, Nani Daman	9837880402
297	Rudheshwari	DD-03-MM-00350	Kokila Jayanti Patel, H. No. 305/1, School Falia, Varkund, Nani Daman	989800005
298	Ambika Prasad	DD-03-MM-00352	Dinesh Thakur Halpati, Marwad, Nani Daman	9904744114
299	Emmanuel	DD-03-MM-00353	Mania Ravia, Bariawad, Moti Daman	9925510452
300	Christina	DD-03-MM-00355	Ramesh Goene, Pariyari, Moti Daman	9879269480
301	Harsidhdhi	DD-03-MM-00356	Piyush Thakor Patel, Khariwad, Nani Daman	9904283859
302	Harbhole	DD-03-MM-00357	Nidhi jugal kishore tandel tinbatti nani daman	-
303	Drashti Prasad	DD-03-MM-00358	Chandan Deiarama, 318, Boria Talav, Moti Daman	9925318717
304	Yamna Prasad	DD-03-MM-00359	Chetan Keshav Patel, Patlara, Moti Daman	9099806101
305	Parmeshwari Prasad	DD-03-MM-00360	Pankaj Dhiru Tandel, Barudia Sheri, Nani Daman	7600916968
306	Devi Prasad	DD-03-MM-00361	Naresh Vallabhbhai Tandel, H. No. 9/316, Motegam Sheri, Nani Daman	9898123116
307	Mahalaxmi Maa	DD-03-MM-00362	Prema Gopal Tandel, Batli Sheri, Nani Daman	9998414741
308	Laxmi Sagar	DD-03-MM-00363	kalpesh Aribai, Dabha Sheri, Nani Daman	7874354446
309	Kamnath	DD-03-MM-00364	Savita Lallu, Dhakliniwadi, Nani Daman	-
310	RajPalace	DD-03-MM-00366	Rajesh Manilal Patel, Khariwad, Nani Daman	9998048307

311	K.K. Sai Sagar	DD-03-MM-00367	Parsis Babu, K. K. Marg, Nani Daman	9228252288
312	Laxmi Prasad	DD-03-MM-00369	Kumcha Madhu, Machhiwad, Moti Daman	8511491188
313	Vaushnaviswar	DD-03-MM-00370	Hari Bagan, Parkota Sheri, Nani Daman	9913238135
314	Sai Sagar	DD-03-MM-00371	Nilesh Hares, Kolimar Sheri, Nani Daman	9998510283
315	Shiyan	DD-03-MM-00372	Indravadan Mohan Patel, Prakash Falia Marwad, Nani Daman	7096493083
316	Ganga Devi	DD-03-MM-00373	Kamlesh Bhikhu Halpati, Bhamti, Moti Daman	9726824405
317	Parmeshwari Prasad	DD-03-MM-00374	Pareshkumar Natubhai Patel, Patel Falia, Marwad, Nani Daman	9924284579
318	Poojan Sai	DD-03-MM-00375	Sameer Natu Dhodi, Zari, Moti Daman	9979000076
319	Sheetal	DD-03-MM-00376	Ritesh Ramesh Contractor, Kathiria, Nani Daman	9898131678
320	Mahisagar	DD-03-MM-00377	Anjali Suraj, Kadaiya Machhiwad, Nani Daman	9924300070
321	Kamleshwari	DD-03-MM-00378	Bony Quessou, Fakirjiva Sheri, Nani Daman	8238004950
322	Pinakin	DD-03-MM-00379	Nikunj Patel & Others, Dhakliwadi, Nani Daman	9978100014
323	Jaybhole	DD-03-MM-00380	Rajesh Manilal Patel, Khariwad, Nani Daman	9998048307
324	Jay Somnath	DD-03-MM-00381	Nilesh Hares, Kolimar Sheri, Nani Daman	9998510283
325	Pawan Sagar	DD-03-MM-00382	Piyush Thakor Patel & Others, Khariwad, Nani Daman	9904283859
326	Kankeshwari	DD-03-MM-00383	Tejash Fakirbhai Tandel, Motegam Sheri, Nani Daman	8469900088
327	Bhavya Sagar	DD-03-MM-00384	Shilubhai Jhedabhai Patel, Khariwad, Nani Daman	9825532449
328	Maniratna -1	DD-03-MM-00385	Bhadresh Ramgi, Dilip Nagar, Nani Daman	989800005
329	Samudra Narayan	DD-03-MM-00386	Jiteshkumar Pravin Patel, Dhaklini Wadi, Japabar, N.D.	9974440707
330	Krunali Sagar	DD-03-MM-00387	Vidya Bagoan, Khariwad, Nani Daman	9913000045

331	Om Jay Mamadev	DD-03-MM-00388	Hira Chiba HUF, Ambawadi, Moti Daman	9714656372
332	Mumai Mata	DD-03-MM-00389	Juagal Kishor Rama Tandel, Sarvodaya Society, Nani Daman	9650191180
333	Jaldevi	DD-03-MM-00391	Kevin Jeram HUF, Laxmi Nivas, Nani Daman	9727345888
334	Devashree	DD-03-MM-00392	Hemaxi Cangi, Kolimar Sheri, Nani Daman	9824101543
335	Tridev	DD-03-MM-00393	Jayshree Pavin, Kolimar Sheri, Nani Daman	9824101543
336	Shiv Sagar	DD-03-MM-00394	Hareshbhai Keshav Patel, Thanapardi, Moti Daman	9825280182
337	Devi Prasad	DD-03-MM-00395	Vickykumar Haribhai Tandel & Other, Bodajiva Sheri, Nani Daman	9825500029
338	Matsyagandha	DD-03-MM-00396	Ravi Mahexa, Dilip Nagar, Nani Daman	9924300070
339	Koteshwari	DD-03-MM-00397	Ruchit Nareshbhai Patel, Dhaklini Wadi, Japabar, N.D.	8758857529
340	Jay Kamnath	DD-03-MM-00398	Pankaj Fakir Tandel, Dilip Nagar, Nani Daman	9898317100
341	K.K. Sai Sagar	DD-03-MM-00399	Hitesh Kanti Patel, Kadiya, Nani Daman	9979171025
342	Brighton	DD-03-MM-00400	Bhartiben Bhikhubhai Patel, Ambawadi, Moti Daman	9979100075
343	Udadhi	DD-03-MM-00401	Hitesh Ramesh Contractor, Kathiri, Nani Daman	9979100075
344	Har Har Mahadev	DD-03-MM-00402	Anjana Ritesh & Other, Kathiria, Nani Daman	9898131678
345	Seastone	DD-03-MM-00403	Sanatkumar Rameshbhai Patel, Dilip Nagar, Nani Daman	9979983543
346	Krupali-1	DD-03-MM-00404	Arvind Cangi, Fakirjiva Sheri, Nani Daman	9512845191
347	Vishnu sagar	DD-03-MM-00405	Hira chiba HUF ambawadi moti daman	9714656372
348	Vaishnaviswar 2	DD-03-MM-00406	Haribhai bagan parkota sheri nani daman	9898188997
349	Laxmi Sagar	DD-03-MM-00407	Akshaykumar Champakbhai Patel, 494, Lodha falia, Moti Daman	9824335833
350	Bhumi Sagar	DD-03-MM-00408	Parvati Bagan, Borudia Sheri, Nani Daman	9879291077

351	Vishnu Sagar	DD-03-MM-00409	Haribhai Bagan, Parkota Sheri, Nani Daman	9898188907
352	EI rohi	DD-03-MM-00410	Dipika Balkishan Prajapati, Khariwad, Nani Daman	9974419118
353	Maa Bhagwati	DD-03-MM-00411	Sunil Jashwant, 7/210, Magelwad, Moti Daman	-
354	Jay Jalaram Bapa	DD-03-MM-00412	Chitrang Vishnubhai Tandel, 9/376, Motegam Sheri, Nani Daman	-
355	Maha Bali	DD-03-MM-00413	Smit Gulab Patel, Dhakliniwadi, Nani Daman	9726655697
356	Mateshwari	DD-03-MM-00414	Mahesh Bachu Od, Khariwad, Nani Daman	9825974540
357	Yagna Sagar	DD-03-MM-00415	Rahul Narsaim, Wadi Falia, Nani Daman	9974414544
358	Mangal Murti	DD-03-MM-00416	Kalidas Hari Patel & Hanshraj Jeram Patel, Marwad, Nani Daman & Kadaiya Nani Daman	9898843999
359	Hanuman Prasad	DD-03-MM-00417	Krishna Dulpat Tandel, Borajiva Sheri, Nani Daman	7874114117
360	Arnav Prasad	DD-03-MM-00418	Kalpesh Aribai, Borajiva Sheri, Nani Daman	9898362221
361	Dhan Prasad	DD-03-MM-00419	Dashrath Biea, Bariyawad, Moti Daman	9913883548
362	Samundra Narayan	DD-03-MM-00420	Paresh Govind Patel,Prakash Falia, Dalwada Nani Daman	9737896866
363	Christmas	DD-03-MM-00421	Ketan Nagin Mitna, Varliwad, Jampore, Moti Daman	8000444418
364	Karam Prasad	DD-03-MM-00422	Jayesh Babar Halpati, Andhiya Sheri, Nani Daman	9099880962
365	Umiya Sagar	DD-03-MM-00423	Manjulaben Yogeshbhai Bhandari, H. No. 10/108, Luhar Falia, Moti Daman	8866619747
366	Mahima	DD-03-MM-00425	Kamlaben Ishwarbhai Bari, H. No. 71/1, Bariyawad Dholar, Moti Daman	7874196334
367	Jay Sopani Maa	DD-03-MM-00426	Divya Bankim Bari,H. No. 62/1, Bariyawad Dholar, Moti Daman	9727471439

368	Dwarka Sagar	DD-03-MM-00427	Manek Hira, H. No. 10/229, Chhapli Sheri, Nani Daman	9998684311
369	Anee Seli	DD-03-MM-00428	Santoshkumar Vanubhai Patel, H. No. 98/1, Bariyawad, Moti Daman	9099849835
370	Jalaram Prasad	DD-03-MM-00431	Ramesh Ranchhod Naika, H. No. 6/10, Iskat Street, Machiwad, Moti Daman	8141790705
371	Shiv Kripa	DD-03-MM-00432	Jamnadas Ranchhodbhai Mitna, H. No. 25, Meli Falia, Varukund, Daman	9825664335
372	Jay Dwarkadhish	DD-03-MM-00433	Kalpesh Aribai, H. No. 12/240, Dabha Sheri, Nani Daman	7874354446
373	Maa Sopani	DD-03-MM-00434	Rameshbhai Ganlabhai Sarthi, H. No. 86/2, Bariyawad, Dholar, Moti Daman	8320728899
374	Jay Shri Ram	DD-03-MM-00435	Ashvinbhai Uakd Bari, H. No. 75, Sorthiwad, Moti Daman	9512407250
375	Sopani Maa	DD-03-MM-00436	Tinkal Dharmesh Bari, H. No. 64/4, Dholar, Bariyawad, Moti Daman	8849631679
376	Dhan Laxmi	DD-03-MM-00437	Vallabhabhai Madhavbhai Machhi, H. No. 14/41, Sarvodaya Society, Tinbatti, Nani Daman	8758944123
377	Shri Ganesh Navshakti	DD-03-MM-00438	Hiten Chhibu Bari, H. No. 75/1, Bariyawad, Moti Daman	9978585137
378	Jay Mogal Maa	DD-03-MM-00439	H. No. 126, Khariwad, Moti Daman	9998878345
379	Radhe Krishna	DD-03-MM-00440	Tejal Jashwant, H. No. 6/81, Mandir Sheri, Machhiwad, Moti Daman	9925318717
380	Yogeshwariya m	DD-03-MM-00441	Rahul VitHalbhai Mangela, H. No. 169, Nava Jampore, Moti Daman	7984412474