



सत्यमेव जयते

GOVERNMENT OF GUJARAT

# Establishment of Mechanized Grain Handling and Storage Unit at Port

## Agro and Food Processing

Government of Gujarat



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## Port Industry overview

India has an extensive coastline of 7,517 km with around 12 major ports (administered by the Central Government under Ministry of Shipping) and over 200 non-major ports (administered by the States and UTs). All the Indian ports together handled about 976 MMT of traffic in FY14 of which Major Ports together have handled 556MMT.

Gujarat has 42 ports located along its coastline, 41 non-major ports and one major port i.e. Kandla. Out of 41 non-major ports, 17 non-major ports handle cargo. With 309.9 MMT, Gujarat accounted for 74.1% of traffic for non-major ports of India and 32% of the total Indian ports traffic in FY14.

## Port Mechanization

The infrastructure sector, particularly the Maritime Sector, is expected to grow significantly with the increase in international and domestic trade volumes. Indian ports have already embarked on massive port mechanization and modernization programs in order to become more efficient and remain at par with international benchmarks. Mechanization refers to efficient handling of cargo through the use of mechanized equipment such as ship unloaders/loaders, conveyor belts, stackers, reclaimers and wagon tipplers as well as usage of galvanized silos for storage.

## Mechanized handling of food grains

This project envisions setting up of a mechanized grain handling system and storage silos, which can cope with the problems of loading/unloading of food grains on ports, post harvest storage and handling of surplus. This integrated system will also help in efficiently handling the grains by international standards and assist in amplifying the export potential.

### Grain handling system value chain



### Benefits

Till now, majority of the cargo was being handled through conventional equipment, which adversely affect efficiency parameters such as average ship turnaround time, berth occupancy and output, and resulted in cargo contamination, pollution and fire hazards. The mechanized handling system can help in improving efficiency at various stages of the cargo handling value chain. Additionally, the silos can help in minimizing the wastage of food grains by protecting against damage from rain, flood, birds, rodents and pests, and thus ensure availability of additional quantities of grains for domestic and export markets.

## A mechanized grain handling and storage system generally includes following sections:

### Bulk grain receiving

- ▶ This section includes equipment for bulk grain receiving, such as bulk hoppers with bulk conveyors, elevators, drum/plate magnets/dog chutes with magnets, etc. The unloaders may be of various types such as mechanical, pneumatic or screw. Screw uses a vertical auger to lift grain from the hold and is suitable for high capacity unloading of grain and derivatives.

### Grain cleaning and handling system

- ▶ The cleaning system includes vibratory screens for grain cleaning, pneumatic de-stoners for removal of stalks stones/pebbles, dust removal pneumatic systems with cyclones and bag filters. The handling system is composed of silo loading elevators and conveyors etc.

### Mechanized silos

- ▶ Mechanized silos are vertical galvanized iron/steel structures with conical shape roof and top loading and bottom retrieval (unloading) systems. They are equipped with temperature and moisture sensors for monitoring temperature and moisture in different storage pockets, and air blowers for control of temperature and moisture. The air handling system is also used for fumigation of grains to preserve them for long-term. These are available in multiple sizes and hence are suitable for medium as well as large storage needs.

### Grain retrieval and silo unloading system

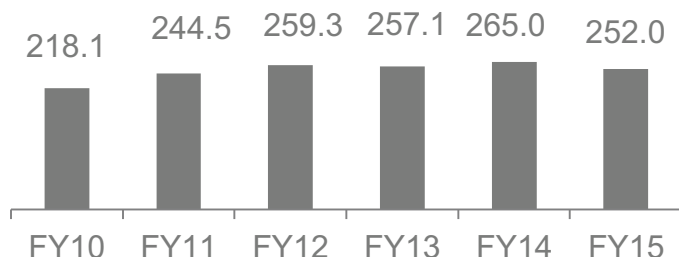
- ▶ Silo unloading system includes sweep auger, bottom hoppers and conveyors and elevators, optionally continuous weighing system and sampling system, etc.

### Bulk loading system for transporting cargo to vessels and rail racks

- ▶ Bulk loading system includes elevators and conveyors for loading into bulk trucks, railway wagons, ship or barge loading. This system is combination of mechanized as well as pneumatic handling system depending upon the distance and quantity to be handled.

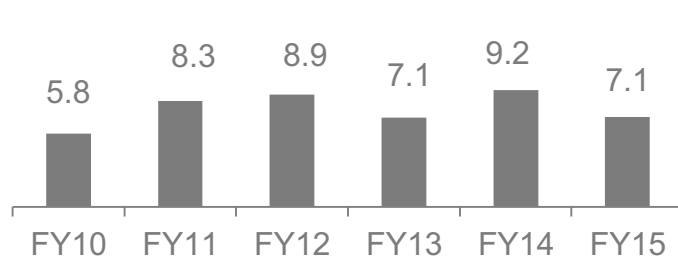
## Food grain production in India and Gujarat

Total food grain production in India  
(Million Tonnes)



Source: APEDA

Total food grain production in Gujarat  
(Million Tonnes)

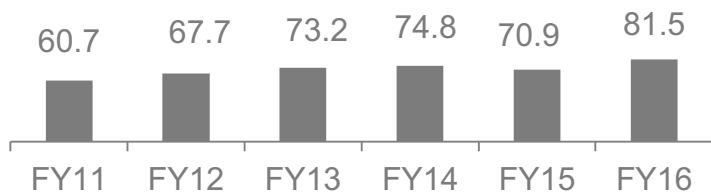


Source: APEDA

- ▶ Due to increased food grain production in India and Gujarat, storing the surplus production will need appropriate infrastructure to prevent post harvest and storage loss, occurring presently at the time of exports.

## Food storage capacity in India

Food grain storage capacity in India  
(Million Tonnes)

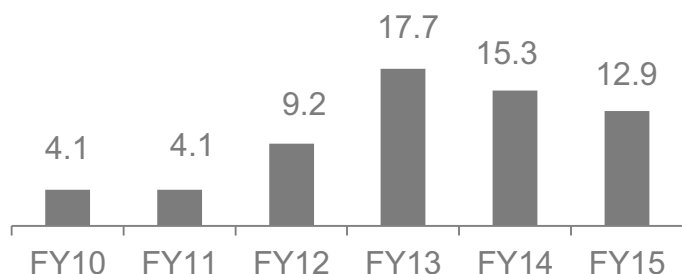


Source: FCI

- ▶ The Indian government has made a budgetary allocation of INR520 million for FY17 for the construction of godowns.

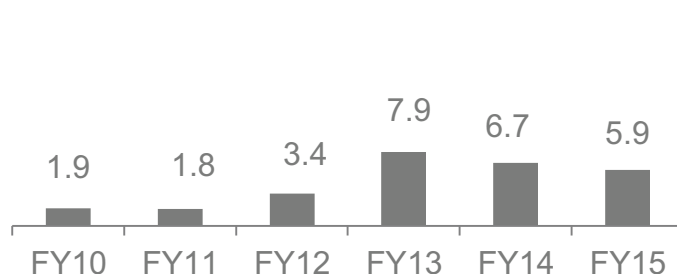
## Food grain exports through sea ports in India and Gujarat

Total food grain export through sea ports in India ('000 Tonnes)



Source: APEDA

Total food grain export through sea ports in Gujarat ('000 Tonnes)



Source: APEDA

- ▶ Food grains exports by India, especially from Gujarat are expected to witness robust growth. This is expected to increase cargo traffic at various grain-handling ports.
- ▶ This presents an attractive business potential for installation of mechanized cargo handling and storage system.

## Continued investments and favourable government policies are expected to drive further growth in this industry

### Initiatives taken by Government of India (GoI)

#### Increasing private participation

- ▶ Up to 100% FDI is permitted for port development under the automatic route.
- ▶ Central Government is providing support to PPPs in terms of financing, concessional land allotment and other incentives.

#### Increasing investments

- ▶ Under 'The Maritime Agenda 2010–2020', the GoI plans to focus on increasing port capacity as well as mechanization of ports.
- ▶ It also plans to invest INR70,000 crore in the major ports in the next five years under the 'Sagarmala' initiative.

#### Promoting exports

- ▶ Ministry of Commerce has been extending financial support to the State Governments for Infrastructural Projects for Export promotion under ASIDE (Assistance to States for Infrastructure development for Exports) scheme.

#### Tax and other exemptions

- ▶ 100% income tax exemption from income tax is extended to companies investing in port infrastructure. Further, a 10-year tax holiday is given to enterprises engaged in the business of developing, maintaining and operating ports, inland waterways and inland ports.
- ▶ Bidding documents such as RFQ, RFP and Concession Agreement have been standardised.. Security clearance procedures have been streamlined.

### Initiatives taken by Government of Gujarat (GoG)

#### Separate port policy

- ▶ Gujarat was the first state to announce a separate Port Policy, which integrates the development of ports with Industrial Development, Power generation and Infrastructure Development.

#### Push toward privatization

- ▶ It was also the first state to privatize the construction of ports in the country. To encourage investment in the state, Gujarat also gives autonomy and funds to industrial estates to implement maintenance and modernization measures.

#### Tax and other incentives

- ▶ It is also encouraging organizations to set up units by giving them tax holidays and subsidies like exemption from stamp duty and registration fees.

# Gujarat - Competitive Advantage

## Location advantage of Gujarat



- ▶ Gujarat has strategic location providing access to major international and domestic markets
- ▶ It acts as a gateway to northern and central India; connecting them via road, rail and air - thereby providing immense trading opportunities
- ▶ Ports of Gujarat (including Kandla) handled 41% of national maritime trade in FY14

## New Policy Initiatives in Port Sector in Gujarat



- ▶ **Enhancement of port capacity:** Gujarat's non-major ports capacity is expected to reach 864MMTPA by FY20, which will be 52% of the total capacity enhancement at all non-major ports of India.
- ▶ **Development of port cities and port based SEZs:** GoG and Gujarat Maritime Board (GMB) have planned to develop port cities and SEZs at Mundra and Pipavav.
- ▶ **Establishment of maritime cluster and university** to promote positive synergies between participating entities (both port and non-port based), enhance competitiveness and grow the local maritime economy.
- ▶ **Development of shipbuilding parks:** Gujarat contributes 89% of the total shipbuilding orders in India (in Deadweight tonnage). 10 shipbuilding yards are already operational and 9 have been approved with a proposed investment of ~INR 21 billion.

## Site Location

*Large size Mechanized Grain handling systems are part of agri-infrastructure, that can be located at bulk cargo handling ports such as Kandla (Kutch district), and Rozi/Bedi (Jamnagar district).*

### Location 1

#### Kandla port (Kutch district)



- ▶ Kandla port is an all-weather, major port handling agricultural cargo and other bulk liquid cargo and is managed by the GoI.
  - ▶ Latitude: 23° 01' N
  - ▶ Longitude: 70° 13' E
  - ▶ Port area: 250 hectares
- ▶ Kandla Port Trust continued to be No. 1 among Indian Major Ports during 2015-16. It is one of the highest earning ports and is regarded as India's hub for exporting grains.
- ▶ The Port handled 34.9 MMT of Dry Cargo in 2015-16.

### Location 2

#### Rozi/Bedi port (Jamnagar district)



- ▶ Rozi is an anchorage port. GMB has constructed a jetty of 400 meters, which has been leased as private jetty for handling of cargo at port of Bedi.
  - ▶ Latitude: 22° 34' 15" N
  - ▶ Longitude: 70° 02' 50" E
  - ▶ Port area: 400 mt
- ▶ The port primarily imports fertilizers and exports soyabean meal/ wheat/ rice.



## Kandla : Logistics & Connectivity



### Rail

- ▶ The Port is connected by rail to Mumbai and Delhi via Ahmedabad and has meter-gauge connectivity to Palanpur in Gujarat. There are further plans for construction of Rail Over Bridge at NH 8A near Nakti Bridge.



### Road

- ▶ The Port has two lane and four lane approaches to NH-8A. Four laning of various sections of NH-8A have also been implemented.



### Air

- ▶ The nearest airport is the Gandhidham airport (Kandla airport), which is 14 km away from the city centre of Kandla Port.



### Existing infrastructure

- ▶ Kandla Port has several facilities for dry cargo including 12 dry cargo berths and 30 open warehouses.

## Utilities



### Water

- ▶ Water will be received from high service reservoir near Bhachau and Narmada Canal through 18" pipeline of Gujarat Water supply and Sewerage Board.



### Power

- ▶ The port receives bulk power supply from Paschim Gujarat Vij Company Ltd. (PGVCL) through the seven 11 KV sub stations. Besides this, the port has two diesel generating sets to meet with emergency needs.

## Rozi/Bedi : Logistics & Connectivity



### Rail

- ▶ The nearest broad gauge railway station is Jamnagar, which is around 7 kms away from Rozi.
- ▶ The Windmill Goods station is around 12 kms from Rozi port.



### Road

- ▶ The port is connected to National Highway from Rajkot. State Highway is about 12 km from the port.



### Air

- ▶ Jamnagar Airport or the Govardhanpur Airport is the nearest domestic airport (~11 km), and Ahmedabad is the closest international airport (~330 km).



### Existing infrastructure

- ▶ GMB has constructed a jetty of 400 meters in the area, out of which the JM Baxi 100 mtr jetty has a connecting bridge and back-up area 100 x 138 mtrs.

## Utilities



### Water

- ▶ Gujarat Water Supply & Sewerage Board (GWSSB) is responsible for ensuring adequate supply of water in the state.
- ▶ The Narmada pipeline supplies water to the Jamnagar district.



### Power

- ▶ Paschim Gujarat Vij Company Ltd. is responsible for power supply in Jamnagar, which has 62 power sub-stations (1 – 220KV, 4 – 132KV and 54 – 66KV).

## Estimated Manpower Requirement

	Operations	Support staff*
Kandla port	20-30 people	8 people
Rozi port	10-15 people	4 people

## Key Players/ Machinery Suppliers

### Port development companies

- ▶ Adani Ports and SEZ Limited
- ▶ Essar Ports Limited
- ▶ APM Terminals
- ▶ Hazira LNG & Port

### Machinery suppliers

- ▶ Fowler Westrup
- ▶ MacGregor
- ▶ Guttridge
- ▶ Schenck Process

## Potential Collaboration Opportunities

- ▶ Other ports in Gujarat such as Mandvi, Navlakhi etc.
- ▶ Machinery suppliers (foreign as well as in Indian)

## Key considerations

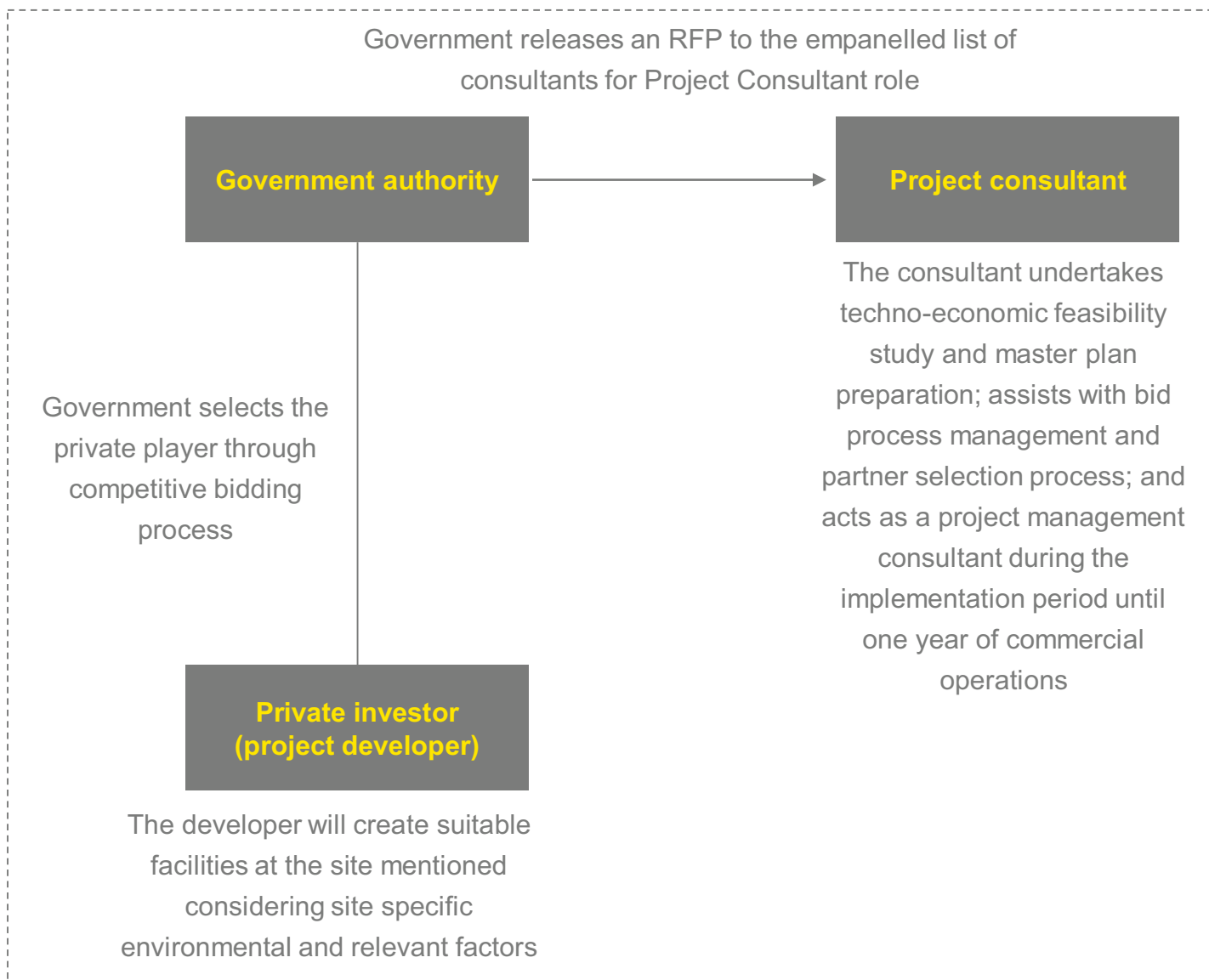
- ▶ Latest technology equipment to be used for mechanization
- ▶ High costs of modern machines/equipment
- ▶ Requirement of skilled labour

\*Support staff includes peons, clerks, guards etc.

Manpower estimates for Rozi port derived basis the assumption that level of mechanization would be considerably less than Kandla port

## Project Structure & Implementation Model

The project is to be completed and funded through a PPP model on BOT, BOLT, BOO, BOOT or other similar basis.



## Estimated Project Cost

Capacity	Kandla Port	Rozi Port (jetty)
Handling capacity	34.9 MMT (Dry Cargo handled in 2015-16)	3 MMT per year (total port capacity)
On-site storage capacity	27.25 MT (Storage Facilities in Dry Cargo Area)	30,000 tons

- ▶ **Project cost:** The estimated project cost is INR150 crore for Kandla Port (120 for mechanization, 30 for storage) and INR50 crore for Rozi port (40 for mechanization and 10 for storage). The primary expenses would be in building the silos as well as purchase of equipment for mechanization. The actual costs may vary depending on the degree of mechanization and the storage unit capacity.\*
- ▶ **Means of finance:** With focus on use of PPPs, majority of the funds are expected to be contributed by the private players.

S. No.	Cost parameters	Cost (INR crore)	
		Kandla Port	Rozi Port
1	Land and land development	4.5	1.5
2	Building and civil works	22.5	7.5
3	Machine and equipment	90	30
4	Misc. fixed assets	6	2
5	Preliminary & pre-operative expenses	6	2
6	Provision for contingencies	6	2
	<b>Total Fixed Assets</b>	<b>135</b>	<b>40</b>
7	Working capital requirements	15	5
	<b>Total cost</b>	<b>150</b>	<b>50</b>
	<b>Means of Finance</b>		
1	Central/State government (10%-15%)	15-22.5	5-7.5
2	Industry partner (85%-90%)	127.5-135	45

\*Cost estimates for Kandla are based on other port mechanization projects announced by the Government such as \*Mechanisation of berth CJ2 for Export of Food grains at Kandla (INR 155 cr.), Mechanised Food grain Handling Facility at Cochin Port (INR 120 cr.) etc.; The difference in cost of the two ports based on the assumption that Rozi port handles much less cargo than the Kandla port.

## National level clearances

- Environmental Impact Assessment Studies/Environmental Management Plan and other Environmental related studies as may be required for clearance of fishery harbour and fish landing centre projects from environmental angle by the authorities concerned both in State/UT and Central Governments.
- Coastal Regulation Zone (CRZ) clearance and Environmental Clearance (EC) from Ministry of Environment and Forest.
- Approval from the Marine Products Export Development Authority.

## State level clearances

- Approvals from Gujarat Maritime Board (GMB) for the proposed development of fishery harbour.
- Approval for land from relevant authorities such as GMB, State Revenue Department etc.
- Permissions from relevant authorities for water and electricity supply.

## Incentives from GoI

- As per government policy, 100% FDI is allowed in port development projects.



- As way of incentive, 100% income tax exemption from income tax is extended to companies investing in port infrastructure.



- Exemption of service tax on construction, erection, commissioning or installation of original works pertaining to post-harvest storage infrastructure for agricultural produce including cold storages for such purposes, as well as on mechanized food grain handling system, machinery or equipment for units processing agricultural produce.



- Customs duty on imports has been fully/ partially exempted on the goods required for installation of mechanized handling systems in 'mandis' and warehouses for food grains.

## Incentives from GoG

- GoG has started its own viability gap funding scheme to bridge the viability gap in infrastructure projects including ports.



- Tax holidays and subsidies like exemption from stamp duty and registration fees.



### Agro Business Policy 2016-21

- Back Ended Interest subsidy @7.5% on the Term Loan with maximum amount of INR 400 lakh for a period of 5 years for setting up Infrastructure Project in Agro & Food Processing Sector such as CA cold storages, Food irradiation Processing Plants, Silos, Pack houses, Food Parks, Reefer Vans etc.
- Assistance will be provided to Agro and Food Processing units/infrastructure projects at the rate of 50% of fee paid, subject to a maximum INR 10,000 per employee on obtaining industry recognized skill certifications from recognized institutions (both Government and Private Institutions). The assistance under this incentive will be subject to an overall ceiling of INR 0.5 lakh per year per unit maximum for a period of three years. Available to MSME units only.

Ministry of Shipping, Government of India

<http://shipping.gov.in/#>

Ports & Transportation Department, Government of Gujarat

[www.pnt.gujarat.gov.in](http://www.pnt.gujarat.gov.in)

Agriculture and Co-operation Department, Government of Gujarat

<https://agri.gujarat.gov.in/>

Ministry of Food Processing Industries

[www.mofpi.nic.in](http://www.mofpi.nic.in)

Gujarat Industrial Development Corporation

[www.gidc.gov.in](http://www.gidc.gov.in)

Industrial Extension Bureau

[www.indextb.com](http://www.indextb.com)

*This project profile is based on preliminary study to facilitate prospective entrepreneurs to assess a prima facie scope. It is, however, advisable to get a detailed feasibility study prepared before taking a final investment decision.*

For further details:

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