GOVERNMENT OF KERALA

Abstract

Fisheries & Ports Department – Vizhinjam International Seaport Project - Construction of underground railway line connecting Vizhinjam International Sea Port to Balaramapuram Railway Station - Detailed Project Report (DPR) prepared by Konkan Railway Corporation Limited (KRCL)- Approved-Administrative Sanction for the project-Accorded-Orders Issued.

FISHERIES & PORTS (E) DEPARTMENT

G.O.(Ms)No.4/2025/F&P Dated,Thiruvananthapuram, 20-03-2025

Read: 1 G.O(Ms)No.35/2015/F&PD Dated 13-07-2015

2 Supplementary Concession Agreement dated 28-11-2024

3 G.O(Rt)No.95/2018/F&PD dated 08-02-2018

4 G.O(Rt)125/2019/F&PD dated 15-02-2019 and G.O(Rt)531/ 2021/F&PD dated 13-10-2021

5 Letter No.T.143/V/Vizhinjam Port/NGR dated 16/03/2022 from the Dy. Chief Operations Manager / Planning, Southern Railways addressed to the Managing Director & CEO, Vizhinjam International Seaport Ltd

6 Letter No.VISL/2016-17/EE & El-2/18 dated 04-04-2022 from the Managing Director, VISL

7 G.O(Rt)No.440/2022/F&PD dated 19-07-2022

8 G.O(Rt)No.1008/2023/F&PD dated 17-12-2023

9 G.O(Rt)No.345/2023/F&PD dated 02-05-2023

10 Minutes of the 10th Project Implementation Committee meeting chaired by the Chief Secretary on 15-05-2024

11 Minutes of the meeting convened by Hon'ble Chief Minister on 28-11-2024

12 Letter No.VISL/2021/2020-E(I)/1041 dated 01-03-2025 from the MD, VISL.

ORDER

As per the Government Order read as 1st paper above, Government

approved the bid submitted by M/s Adani Ports and Special Economic Zone Ltd for the development of Vizhinjam International Deep water Multipurpose Seaport Project and a Concession Agreement was executed between the Government of Kerala and the Concessionaire, Adani Vizhinjam Port Private Limited on 17th August, 2015 for the Project.

2. As per the Concession Agreement between the Government of Kerala and the Concessionaire Adani Vizhinjam Port Private Limited, the responsibility for establishing railway connectivity lies with the State Government. The railway line connecting the Port to the national rail network was originally to be completed by May, 2022. As per the Supplementary Concession Agreement executed with the Concessionaire read as 2nd paper above the timeline has been extended to December, 2028.

3. Various studies on rail connectivity have been conducted since 2011. Central Government agencies such as RITES, RVNL and KRCL conducted studies in 2011, 2013 and 2016, respectively to examine and compare the various alignments and their feasibility. As per the Government Order read as 3rd paper above, sanction was accorded to MD, Vizhinjam International Seaport Ltd (VISL) to execute a Memorandum of Understanding (MoU) with Konkan Railway Corporation Limited (KRCL) for providing rail connectivity to the International Multipurpose Seaport at Vizhinjam under Engineering, Procurement & Construction (EPC) mode.

4. KRCL had examined the study reports of RITES and RVNL alignments and also considered four alternate alignments to connect the Vizhinjam Port to the Southern Railways network. Thereafter, KRCL recommended an underground railway line from Vizhinjam Port to Balaramapuram Station, requiring minimal land acquisition and causing less environmental impact. In 2019, KRCL prepared a detailed project report (DPR) and submitted it to the railway authorities.

5. As per the DPR, approximately 70% of the tunnel will pass beneath the Vizhinjam-Balaramapuram Road. Only about 2.5 to 3 km of the tunnel will pass partially beneath private lands at a depth of 30 to 35 meters. Land acquisition is required only at the tunnel exit points. The project also includes constructing a yard and a new station near Balaramapuram. The required 4.697 hectares of land in Balaramapuram, Pallichal, and Athiyannoor villages is in the final stages of acquisition. Additionally, 0.829 hectares of land in Vizhinjam village is being acquired. The

construction of the tunnel will follow safe and proven scientifically established tunneling techniques. To obtain environmental clearance for the project, studies on the impact and risk assessment were conducted by experts from the Central Institute of Mining & Fuel Research (CIMFR), the Ground Water Department, the Centre for Management Development (CMD) and the College of Engineering Trivandrum (CET). Environmental Clearance for railway connectivity through the tunnel has been obtained from the Ministry of Environment, Government of India.

6. As per the letter read as 6th paper above, the Managing Director, VISL reported that the Southern Railway conveyed that the competent authority has approved the DPR for the proposed rail connectivity to Vizhinjam International Seaport under Non-Government Railway (NGR) Model.

7. As per the Government Order read as 7th paper above, the Government approved the consultancy charges payable to M/s. KRCL @ 10.5% of the project cost and the DPR preparation charges on actuals or the advance amount already paid to them by VISL, whichever was less. M.D,VISL was directed to take further action on the amendment of Memorandum of Understanding with Konkan Railway Corporation Ltd., for rail connectivity of International Multipurpose Seaport.

8. As per the Government Order read as 8th paper above, Government approved the amendment to the Memorandum of Understanding (MoU) between VISL and Konkan Railway Corporation Ltd and the Managing Director of Vizhinjam International Seaport Limited was authorized to sign the amendment.

9. As per the Government Order read as 9th paper above, Government approved the NGR Model Agreement for the proposed rail connectivity to Vizhinjam International Seaport to be executed between Southern Railways and the Government of Kerala. The MD, VISL was authorised to sign the agreement on behalf of Government of Kerala/VISL. The NGR Agreement with Southern Railways was signed on 20-10-2023.

10. As per the Government Order read as 4th paper above a Technical Committee under the chairmanship of Secretary, Ports was constituted to evaluate the DPR prepared by the KRCL and make recommendations thereon to the Project Implementation Committee (PIC) in Government. The Technical Committee examined the DPR and recommended that

10.772 km railway route, including 9.00 km underground tunnel to Balaramapuram Railway Station is the most suitable option. The 10th Project Implementation Committee meeting, chaired by the Chief Secretary held on 15-05-2024 decided to approve the Detailed Project Report (DPR) for the last mile rail connectivity for Vizhinjam Port from the Balaramapuram Railway Station with a revised estimated cost of Rs. 1202.63 crores, as presented and directed that VISL may take up the matter with the Government of Kerala for obtaining administrative sanction for the project. The PlC also recommended that VISL can initiate steps to secure the funding under appropriate Government of India schemes or other financial institutions for financing the project.

11. According to the project report prepared by KRCL, Rs.117.424 Cr is required for land acquisition, the amount to be paid to KRCL at a rate of 10.5% and the amount of tax, making the total project estimate Rs.980.94 Crores. Based on the Wholesale Price Index rate of May, 2023, this amount has increased to Rs. 1202.63 Crores and the revised cost escalation as on April, 2024 is Rs.1482.92 Crores.

12. The Hon'ble Chief Minister had chaired a meeting on 28.11.2024 and directed to proceed with the tunnel alignment and instructed to take necessary steps for obtaining the State Government's approval for the DPR prepared by KRCL and approved by Southern Railway.

13. As per the letter read as 12 th paper above the MD, VISL has informed that the funds for the project may be made available from the Scheme for Special Assistance to States for Capital Investment (SASCI), PM Gati Sakthi, Sagarmala, Rail Sagar, etc. MD, VISL has submitted a work completion schedule to aid the review of the progress of the project and to ensure that the railway line becomes operational before December, 2028.

14. Having examined the matter in detail, Government are pleased to approve the Detailed Project Report (DPR) prepared by KRCL appended to this Order for the construction of the underground railway line connecting the Vizhinjam International Seaport to the Balaramapuram Railway Station and accord administrative sanction for an amount of ₹1482.92 Crores (Rupees One Thousand Four Hundred and Eighty Two Crores and Ninety Two Lakhs only) for the implementation of the project.

(By order of the Governor)
Dr A KOWSIGAN I A S
SPECIAL SECRETARY

To:
The Managing Director, Vizhinjam International Seaport Ltd., Thiruvananthapuram
The Chief Executive Officer, Adani Vizhinjam Ports Private Ltd.
The General Manager, Southern Railway/ HQ, Chennai.
The Divisional Railway Manager, Southern Railways, Thiruvananthapuram Division
The Director (Way & Works), Konkan Rail Corporation Limited
The Deputy Chief Engineer,(KRCL/TVC), M/s.Konkan Rail Corporation Limited, Thiruvananthapuram
The Principal Accountant General (Audit), Kerala, Thiruvananthapuram.
The Accountant General (A&E), Kerala, Thiruvananthapuram.
General Administration (SC) Department (*vide* Decision No. 2786 dated 18-03-2025)
Finance Department (File No. No.2379154/PU-B3/26/2023-FIN dated 03-09-2024)
Law Department (File no. CONV-1/10/2022-LAW dated 25-05-2022)
The Information Officer, Web & New Media, Information and Public Relations Department (for uploading in the Government website.)
SF/OC

Forwarded /By order

Signed by
P Y Usha
Section Officer
Date: 20-03-2025 14:28:49

Copy to: P.S. to Hon'ble Chief Minister
P.S. to Hon'ble Minister (Ports, Co-operation & Devaswom)

DETAILED PROJECT REPORT FOR THE RAIL CONNECTIVITY TO VIZHINJAM INTERNATIONAL SEAPORT FROM BALARAMAPURAM STATION OF SOUTHERN RAILWAY IN KERALA

EXECUTIVE SUMMARY

1) Vizhinjam is a small fishing harbor, approximately three kilometres to the south of Kovalam in Thiruvananthapuram District of Kerala and around 10 Nautical Miles from the international East-West Shipping Route. The harbor is bestowed with a natural draft of approximately 20 meters and minimal littoral drift. The harbor is in the proximity of existing road and rail networks. Government of Kerala (GOK) is planning to develop Vizhinjam Port into an International Container Hub.

2) Vizhinjam International Seaport Limited (VISL) is a special purpose Government Vehicle (fully owned by Government of Kerala) that would act as an implementing agency for the development of a **Green Field Port– Vizhinjam International Deep-water Multi-purpose Seaport** at Vizhinjam.

3) The Port is designed primarily for container transshipment besides multi-purpose and break bulk cargo and is being currently developed in Landlord Model with a Public Private Partnership component on a Design, Build, Finance, Operate and Transfer ("DBFOT") basis.

4) A Concession Agreement for Development and Operation of Vizhinjam International Deep-water Multi-purpose Seaport was signed on August 17th 2015 by VISL with M/s. Adani Vizhinjam Port Private Limited (ADANI PORTS) with a Concession Period of 40 years including 4 years of construction of berths capable of

handling mother ships of 18000 TEU capacity and an overall capability of handling traffic of 1250000 TEU p.a.

5) The construction of port is scheduled to be completed by 4.12.2019. As per the Concession Agreement, VISL shall provide or cause to be provided a railway line connecting the Port to the nearest railway station on the regional railway network within 6 years of the date of signing the Concession Agreement.

6) Konkan Railway Corporation Limited (KRCL) entered into an MOU with VISL on 20.02.2018 to provide rail connectivity to the Vizhinjam International Seaport from Balaramapuram (Halt Station) and Nemam Stations of the Thiruvananthapuram-Nagercoil Section of Southern Railway vide Engineering Procurement and Construction (EPC) mode. The approximate value of works assessed in 2016 is Rs.533.67 crores.

7) In the past, VISL had assigned the task of preparation of DPR to RITES and then again, the same work was assigned to Rail Vikas Nigam Limited (RVNL).

8) As per DPR of RITES (DPR I), the rail connectivity was to takeoff from Neyyattinkara (NYY), while RVNL had suggested take off from Nemam (NEM) in DPR II and Balaramapuram Halt Station (BRAM) in DPR III of December 2016.

9) The DPRs prepared earlier were reviewed and discussed with Zonal Railway before field survey was taken up for the alignment suggested in TOR of the present study. Accordingly, the consultants have proposed four options of proposed connectivity to Vizhinjam port. First three options involve take off from Nemam station while the 4thoption is from Balaramapuram station. Further, these options were discussed in the meeting held on 29th Aug 2018 with Port Authority at Vizhinjam. VISL have finally agreed and recommended the 4thoption taking into account the close proximity of Balaramapuram station from the port, minimum land acquisition, less Rehabilitation & Resettlement (R&R), as well as efficient operation.

10) The proposed Rail connectivity has been planned to take off from Balaramapuram station at Km 233.151 (SR CN: 233126.44). The existing halt station is proposed to be converted into three line crossing station in upcoming doubling project. The alignment takes off from BRAM station and runs parallel to existing Southern Railway main line for about 1.20 kms. Thereafter alignment takes a left turn and passes through green field for 360m and further through a long Tunnel of

9.000 km before reaching to top point of Vizhinjam Port yard. As per Geological study report, the tunnel will be mined tunnel.

11) Detailed study for the DPR is conducted by the appointed consultant with following suggestions–

- Single stack containers on new BG single line
- 25 T 2008 loading standard for design of bridges
- Tunnels to avoid difficult gradients and to trim down distance &reduce environmental issues
- Clearances for future provision of 25 KV A.C. Electric Traction
- Provision of check rails for curves sharper than 5 degrees
- Minimum land acquisition and disturbance to ecosystem
- Provision of Multiple Aspect Color Light Signal (MACLS) with Standard II (R) Electronic Interlocking (EI) and Absolute Block System of working.
- Track Structures
- Ruling Gradient
- Tunnel Profile
- Selection of Power for trains
- Clear Standing Room (CSR)
- Various lengths of trains

12) Traffic Study

An independent traffic assessment has been carried out by M/s. VISL and the rail traffic projected for the proposed rail connectivity is initially 3 rakes per day and projected to 8 rakes per day in future.

13) System Parameters

The broad parameters of study have been decided as per TOR and latest Railway Board Guidelines.

Sr. No.	Description	Proposed Details
1	Standard of Construction	Group B
2	Gauge	1676 mm (BG)
3	Traction	Electrified 25 kV AC Traction
4	Signalling & Telecommunication	a) Absolute block system with multiple aspect color light signals b) Motor operated points in Railway station and hand operated points in VISL yard.

Sr. No.	Description	Proposed Details
5	Loading Standard	25 T 2008 loading
6	Speed Potential	90kmph (As Decided by Railway)
7	Minimum Radius of Curvature	For Plains minimum radius of 620 meters All curves to be compensated.
8	Ruling Gradient	Ruling gradient not steeper than 1 in 100 for plain and semi Ghat section(compensated)
9	Gradient in yards	Generally, not steeper than 1 in 1200 or consistent with prevailing gradient in existing yards. If any constraint due to site conditions then 1 in 400 to be adopted with suitable safety devices.
10	Width of Formation	For Single line - i) Bank: 7.85 m on straight ii) Cutting: 7.85 m on straight Width of bank & cutting may be increased suitably on curves based on extra clearance required on curves. RDSO guidelines / latest correction to Schedule of Standard Dimensions to be followed.
11	Side Slopes	H:V i) Hard rock: ¼ : 1 ii) Soft rock: ½ : 1 iii) Murum: 1 : 1 iv) Ordinary soil: 2 : 1
12	Track Structures	i) Rails:- 60kg First class for main line & 52Kg Class II for loop line ii) Sleepers:- MBC sleepers 1660 Nos. per km in main line & 1540 Nos. per km in loop lines iii) Ballast cushion:- 350mm for main line, bridges and 250 mm for loops iv) Welding of Rail: - Rails to be welded to convert into CWR/LWR/SWR as required. v) Points and Crossings:- 60kg on MBC sleepers with 1:12 curved switch in main line and 1:8½ curved switches in loop line
13	Length of Loops	CSR - 717 m
14	Track Centers (Minimum)	6.20m in Yard

Track Structure was designed to cater for:

- Gauge: Broad gauge – 1676 mm
- Speed potential –90 kmph (max.)
- Loading standards – 25T-2008 loading standards
- Design rail temperature Range– (-) 10°C to 70°C

14) Salient Features of Proposed Railway System / Connectivity to the Port:

Sr. No.	Parameters	Details
1	**Length of line**	a) RouteLength –10.707 Km b) Total Track Length –17.274 Km
2	**Gauge**	Broad gauge Singleline(1676mm)
3	**Serving and Take off station**	Balaramapuram (BRAM) – SR Km 233.400 (SR CN 233795)
4	**Section**	Thiruvananthapuram- Nagercoil Section of Southern Railway
5	**Ruling gradient**	1in 100
6	**Curves**	
a	Number of curves	21
b	Sharpest curve	8 degrees (Port yard take off)
c	Length of track on curves	7976 m
7	**Bridges**	
a	Road Over Bridges (ROB)	2 Nos.
b	Road Under Bridges (RUB)	3Nos.
c	Minor waterway bridges	13Nos.
d	Foot over Bridges	1(Balaramapuram station)
8	**Yard Modifications planned**	Regrading, i.e. raising/lowering of existing main line will be for a length of 2607m and maximum raising is 2.360m at Km 234/680 & maximum lowering is 0.420m at Km 233/040. Regrading will be done by providing suitable diversion taking all necessary precautions from safety considerations.
9	**Tunnels**	
	Total No of Tunnels	1 (Construction by Conventional method i.e. Drilling & Blasting)
	Total Length	9.430 Km (9000 m +430 m Adit)
10	**Land Requirement**	6.431 Ha (excluding Tunnel section)
11	**Traction**	25 kV AC

Sr. No.	Parameters	Details
12	**Signaling & interlocking**	i. Absolute block system with multiple aspect color light signals and Standard II (R) Electronic Interlocking (EI). ii. Motor operated points in BRAM station premises and hand operated points in VISL yard.
13	**NearestAirport**	Thiruvananthapuram
14	**Climate: Vizhinjam**	Temperature: Max 38°C & Min 24°C. Rainfall: 3000 mm (Monsoon: June – September)
15	**Areaof administration**	Village- Balaramapuram, Pallichal, & Vizhinjam Thiruvananthapuram District KeralaState(Capital-Thiruvananthapuram)

15) Project Cost -

The estimated cost for construction of this project is **Rs.980.935 Crores**. This consists of cost of construction of civil works including station, quarters, Bridges, Tunnels, P/way, OHE, Signalling, etc.,and takes into account cost of Land acquisition. This cost does not include carriage & wagon maintenance facilities within port limit, cost of Rolling Stocks/ Railway Engines, if any.

ABSTRACT

Sr. No.	Item	Unit	Rate in Rs.	Qty.	Amount (Rs. in Crores)
I	**Engineering Work**				
A	**Formation**				
i	Earthwork	Cum	777.16	282040.08	20.085
ii	Tunnel	Km	529006.03	9450.00	458.08
iii	Protective Works (Retaining wall)	Meter	52986.06	940.00	4.564
iv	Drains (Side/Yard/Catch water)	Meter	13312.24	1200.0	1.463
v	Approach Road, Maintenance of Existing Road & Dumping yard Protection work	Meter	6714.04	12000.0	7.383
	Sub total (1)				**491.575**
2	**Bridges**				
i	Minor Bridges	Meter	229161.17	173.85	3.650
ii	ROB incl. Ramps	Meter	324691.96	860.60	25.606
iii	RUB incl. Ramps	Meter	538824.84	40.51	2.00
iv	Balancing Culvert	Meter	130999.98	30.00	0.360
	Sub total (2)				**31.616**
3	**Permanent Way**				
i	P Way Supply	Km	19317892.30	17.27	30.571
ii	Ballast	Km	6590084.64	8.27	4.995
iii	Ballastless Track	Km	31334496.90	9.00	25.841
iv	Track Linking & Lifting	Km	2902142.44	17.27	4.593
	Sub total (3)				**66.00**
4	**Station & Building**				
i	Station Building	Sqm	23648.50	345.00	0.748
ii	Crew Rest room	Sqm	23648.49	150.00	0.325

ii	Residential Quarters	Sqm	28693.78	1324.04	3.481
iii	Platform	Meter	34506.40	528.00	1.669
iv	FOB	Meter	478619.68	22.00	0.965
v	Footpath	Sqm	1683.69	1800.00	0.278
	Sub total (4)				**7.466**
5	**Structures (Buildings)**				
i	Dismantling of Structures	Sqm	2503.43	2781.00	0.637
ii	New Structures	Sqm	21820.32	2781.00	5.561
iii	Yard remodeling	Ls		2.50km	6.231
	Sub total (5)				**12.429**
6	**Allied Work**	Ls			**24.183**
	Sub total (6)				
	Total Civil Cost				**633.278**
II	**Signalling & Telecommunication**	Meter			21.196
III	**Electrical Estimate**	Meter			22.967
IV	**Information & Technology**	Km			0.050
V	**Operating & Commercial cost**	Km			0.080
	Total Engineering Cost				**677.571**
	GST@12%				**81.308**
	Total Work Cost				**758.879**
	KRCL charges as per MOU @ 10.5%				**71.145**
	GST @12%				**8.537**
	Total Cost				**838.561**
VI	Recurring/Maintenance chargesof BRAM Station	**LS**			**24.950**
VII	LAND	Ha	182590427.62	6.43	117.424
	Grand Total WITH LAND				**980.935**

16) Project Duration

The time frame for construction work is **42 months** including monsoon, but excluding period and time required for land acquisition and pre-execution activities.

17) Maintenance and Operational Charges of Railway Assets

After examination of various aspects for taking connectivity from Balaramapuram halt station to Vizhinjam Port Siding, it was finally decided to convert this Balaramapuram halt station into crossing station by providing two loop lines of 750 CSR at this station (as per para 4.4 of Rly. Bd ltr. No. 99/TC(FM)/26/PT-II Dtd.30.01.2012). Accordingly, provision has been made in the cost estimate of an amount of Rs. 24.95 Cr which has to be deposited prior to the commissioning of siding as reccurring cost towards maintenance & staff for a period of 10 years.

18) Revised Cost Estimate Summary

The estimated project cost, which stood at ₹980.94 crore as per the 2018 KRCL assessment, has increased to ₹1482.92 crore as of April 2024. This escalation is primarily attributable to the rise in the Wholesale Price Index (WPI) during this period, along with other contributing factors. Specifically, the cost of land acquisition has increased from ₹117.42 crore in 2018 to ₹198 crore as per current valuations. Additionally, there has been a revision in GST rates from 12% in 2018 to the present rate of 18%. Furthermore, the updated estimate incorporates two additional viaduct structures: one located at the intersection between the Outer Ring Road and the railway alignment at Balaramapuram, costing ₹29.18 crore, and another at Vizhinjam Beach, costing ₹66.10 crore, aimed at ensuring the uninterrupted movement of fishermen. The summary of the revised estimate is given below:

RAIL CONNECTIVITY TO VIZHINJAM INTERNATIONAL SEAPORT FROM BALARAMAPURAM RAILWAY STATION OVER SOUTHERN RAILWAY				
ABSTRACT ESTIMATE				
S.No.	**Item Particulars**	**Amount (In Crs) (As on 2018)**	**Amount As on May-2023 (As per WPI Indices, escalated from 2018 to 2023-22.62%) with BRAM yard**	**Amount As on April-2024 (As from Oct. 2018 to April 2024-25.40%)**
1	Civil Engineering Works	633.28	776.53	794.13
2	Signaling & Telecommunication works	21.20	26.00	43.61
3	Electrical & OHE Works	22.97	28.17	28.80
4	Information Technology	0.05	0.06	0.06
5	Operating & Commercial Cost	0.08	0.10	0.10
6	Cost of Viaduct (excl. GST) (@BRAM side)	-	-	29.18
7	Cost of Viaduct (excl. GST) (@ Port side)	-	-	66.10
	Total Engineering Cost (In Crs)	677.58	830.85	961.99
	GST @ 12%	81.31	99.70	-
	GST @ 18%	-	-	173.16
	Total Work Cost (In Crs)-A	758.89	930.55	1135.15
	KRCL Charges as per MoU @ 10.5% on A	79.68	97.71	119.19
	Grand Total (In Crs)	838.57	1028.26	1254.34
	Recurring & maintenance Charges at BRAM yard	24.95	30.59	30.59
	Land acquisition Cost (In Crs)	117.42	143.98	198.00
	Overall Project Cost (In Crs)	**980.94**	**1202.83**	**1482.92**