PD 0013-OMN

December 8, 2016

PROJECT DOCUMENT

OF

THE ASIAN INFRASTRUCTURE INVESTMENT BANK

Sultanate of Oman

Duqm Port Commercial Terminal and

Operational Zone Development Project

CURRENCY EQUIVALENTS

(as of 25 October 2016)

Currency Unit	–	Omani Riyal (OMR)
OMR1.00	=	US$2.60
US$1.00	=	OMR0.38

ABBREVIATIONS

AIIB	–	Asian Infrastructure Investment Bank
DEIA	–	Detailed Environmental Impact Assessment
EIA	–	Environmental Impact Assessment
EIRR	–	Economic internal rate of return
EMP	–	Environment Management Plan
ESP	–	Environmental and Social Policy
ESS	–	Environmental and Social Standard
FEP	–	Final Environmental Permit
FIRR	–	Financial internal rate of return
FTA	–	Free Trade Agreement
GAFTA	–	Greater Arab Free Trade Area
GCC	–	Gulf Cooperation Council
GDP	–	Gross Domestic Product
IP2	–	Infrastructure Package 2
MOTC	–	Ministry of Transport and Communications
MECA	–	Ministry for Environment and Climatic Affairs
PDC	–	Port of Duqm Company
PEIA	–	Preliminary Environmental Impact Assessment
PEP	–	Preliminary Environmental Permit
PIRC	–	project implementation review committee
PIU	–	Project Implementation Unit
PMT	–	project management team
PDC	–	Project steering committee
SEZ	–	Special Economic Zone
SEZAD	–	Special Economic Zone Authority of Duqm
SOLS	–	Sultanate of Oman Logistics Strategy
TEU	–	Twenty-Foot Equivalent Unit

NOTE

In this report, "$" refers to US dollars unless otherwise stated.

CONTENTS OF THE PROJECT DOCUMENT

1. PROJECT SUMMARY SHEET

Sultanate of Oman
Duqm Port Commercial Terminal and
Operational Zone Development Project

Project No.	0000013
Guarantor Borrower Implementation Agency	Sultanate of Oman Special Economic Zone Authority of Duqm Special Economic Zone Authority of Duqm
Sector/Subsector	Transport/Port
Project Objectives/Brief Project Description	The objective of the Project is to help Duqm Port capture its full economic potential through improved transport efficiency, strengthened logistics services, facilitated mineral exports, and reduced supply chain delivery time and costs for the wide spectrum of industries in the new Duqm Special Economic Zone and its broader port hinterland. The project investment will mainly include the civil works for the construction of port related infrastructure including port access roads, cargo storage, terminal buildings, and operational zone's facilities buildings.
Project Implementation Period (Start Date and End Date)	01January 2017 – 31 December 2020
Expected Loan Closing Date	30 June 2021
Project cost and Financing Plan	Project Cost: $353.33 million Financing: AIIB = $265.00 million (75%) SEZAD= $88.33 million (25%)
AIIB Loan (Size and Terms)	$265 million 25-year term, including a grace period of 5 years, at the AIIB's standard interest rate for sovereign-backed loans
Co-financing	None
Environmental and Social Category	B
Project Risk (Low/Medium/High)	Medium
Conditions for Effectiveness and Disbursement	None
Key Covenants	1. The Borrower shall establish, no later than three months after the Effective Date: (a) a Project Implementation Review Committee (PIRC), headed by the PIU Project Manager, and which shall comprise of officials from PIU, Project

	management and construction supervision consultants, and the contractor, for the purpose of (i) carrying out monthly reviews of the implementation progress; and (ii) forwarding the minutes of such reviews to the Bank. (b) a Project Steering Committee (PSC), headed by the Chief Executive Officer of SEZAD, and which shall comprise of senior officers of SEZAD, the PIU, the PDC, and the construction supervision consultant for the purpose of (i) carrying out review meetings every six months aimed at ensuring smooth implementation, providing policy guidance, and resolving inter-agencies issues; and (ii) forwarding the minutes of such reviews to the Bank. 2. The Borrower shall: (a) carry out each activity under the Project in accordance with the EMP or the DEIA as the case may be; and (b) ensure that no Project activity covered by the EMP or DEIA, as the case may be, is initiated unless (i) all environmental approvals required under the Omani Laws and the no-objection of the Bank have been obtained in respect of said activity; (ii) the process of consultation and disclosure of the each of the DEIAs and EMPs have been complied with; and (iii) all actions required under said plan or practices prior to the carrying out of said activity have been implemented in accordance with said plan's or practices' provisions. 3.The Borrower shall furnish to the Bank: (a) no later than six (6) months after the Effective Date, a five-year Business Plan for Duqm Port operation, including, for the commercial terminal and operation zone; and (b) no later than December 31, 2020, a ten-year optimal business plan for Duqm Port operation.
Policy Assurance	The VP Policy and Strategy confirms an overall assurance that the Bank is in compliance with the policies applicable to the Project.

President	Liqun Jin
Vice-President	D.J. Pandian
Director General, Operations	Supee Teravaninthorn

Manager, Operations	Ke Fang
Project Team Leader	Shakeel Khan, Principal Investment Operations Specialist
Project Team Members	Ian Nightingale, Procurement Advisor Kishor Uprety, Senior Counsel Chongwu Sun, Senior Environment Specialist Somnath Basu, Senior Social Development Specialist Haiyan Wang, Senior Finance Officer Soon Sik Lee, Senior Operations Investment Specialist Sylvester Hsu, Senior Operations Investment Specialist Anzheng Wei, Financial Analyst

2. STRATEGIC CONTEXT

A. Country Context

1. The Sultanate of Oman (Oman) borders Saudi Arabia and the United Arab Emirates in the west; the Republic of Yemen in the south; the Strait of Hormuz in the north and the Arabian Sea in the east. The capital of the country, Muscat, is located in the north of the country. In 2015, Oman had a population of 4.4 million annex(56% Omani, 44% expatriate) and a GDP of $70 billion. With its per capita GDP of about $16,000, Oman is considered a high income country. However, the country is mainly dependent on oil exports as one third of the GDP and 80% of the public finances are derived from petroleum related products. In 2015, Oman produced about 981,000 barrels of crude oil per day. Due to the recent drop in world oil prices, Oman had a budget deficit of OMR 4.6 billion (about $12 billion) in 2015 despite the significant level of oil production.

2. Oil and gas account for almost 60% of Oman's exports. Imports are largely comprised of mechanical and transport equipment and base metals. Although Oman is blessed with significant mineral reserves that could generate enormous export revenue, mineral exports accounted for only 4% of the total exports in 2015. In order to reduce its dependence on oil, Oman plans to diversify its economy from exportation of crude oil to other mineral exports, manufacturing, logistic service arrangement, warehousing, fisheries, tourism as well as value added industries in the oil and gas sector such as refinery, petroleum storage, and petrochemical plants. In 2015, Oman's Ministry of Transport and Communications (MOTC) produced the Sultanate of Oman Logistics Strategy (SOLS) as part of the national economic diversification strategy. The strategy identified that logistics could significantly enable the economy to diversify away from its dependence on oil and gas. SOLS aims to increase logistics contribution to Oman's GDP from 5% in 2015 to 12% by 2040. With three deep water ports and a favorable position on the Indian Ocean Rim outside of the Arabian Gulf, Oman is strategically positioned to export its natural resources, products and services to the Middle-east, northern Africa, and South Asia. Oman realizes its enormous potential through strengthening its logistics services and transforming the country to a global strategic logistics hub. In line with this, the Government of Oman (the Government) has planned to increase the production and export of construction materials and minerals such as dolomite, gypsum, and marble and prioritize the concurrent development of a mineral connection railway line and the commercial terminal at Duqm Port so as to capture full benefits from such diversification. The Government is also committed to leverage Oman's strategic location to boost its role as a regional logistics hub through investments in large infrastructure projects such as the national railway network, inland and coastal logistics centers, and free trade zones.

3. Oman is a member of the Gulf Cooperation Council (GCC)[1] as well as the Greater Arab Free Trade Area (GAFTA)[2]. As a member of the GCC, Oman enjoys several benefits such as free movement of Omanis between fellow member countries without visas, import of a majority of the

[1] GCC is a political and economic alliance of six Middle Eastern countries— Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates. The GCC was established in Riyadh, Saudi Arabia, in May 1981.

[2] GAFTA was declared within the Social and Economic Council of the Arab League as an executive program to activate the Trade Facilitation and Development Agreement that has been in force since January 1st, 1998. The GAFTA includes in its membership 17 Arab countries. There are: Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Tunis, Qatar, Palestine, Saudi Arabia, Sudan, Syria, United Arab Emirates, and Yemen.

goods produced within the GCC countries without duty, and allowance to own real estate in other GCC countries. Oman has also entered into a Free Trade Agreement (FTA) with the United States of America under which all tariffs on consumer and industrial products had been waived since 1 January 2009. An FTA with the European Union is also expected soon. These FTAs would effectively help to promote an attractive investment climate, and expand trade between the participating countries.

B. Sectoral and Institutional Context

4. The potential hinterland of Duqm Port extends to neighboring Gulf countries, especially the Kingdom of Saudi Arabia and its oil fields located near Oman's border. Duqm Special Economic Zone (SEZ) is an economic hub composed of several zones which include a sea port, an industrial area, a new town, a fishing harbor, a tourist zone, a logistics center, and an education and training zone, all of which are supported by a multimodal transport system that connects it with nearby regions (e.g., the Arabian Gulf countries, Middle East, East Africa, and South and Southeast Asia). With a land area of 2,000 square kilometers (sq.km) and a 70 km of coastline along the Arabian Sea, Duqm SEZ is among the largest Economic Zones in the Middle East and North Africa region. Duqm SEZ has long been envisioned as the place that will balance regional development by energizing the Al Wusta governorate to diversify the sources of national income.

5. In 2011, pursuant to a Royal Decree 119/2011, the Government of Oman (the Government) established a Special Economic Zone Authority of Duqm (SEZAD) to manage, regulate, and develop all economic activities in Duqm SEZ. Royal Decree 79 of 2013 further granted SEZAD with financial and administrative autonomy status to manage, regulate and develop all economic activities in the Duqm Free Zone (Annex 7). SEZAD enjoys a special treatment above the other zones in the Sultanate in that SEZAD is the only one affiliated to its Council of Ministers. The chairman of SEZAD, holding the rank of a Minister, is able to collaborate with all the ministries in the Cabinet. On behalf of the Government, SEZAD was given the authority to plan, design, and implement long-term strategies for infrastructural development and attract foreign investments to promote a wide spectrum of economic activities. It also oversees the urban expansion of the modern Duqm city while ensuring that the environment is well protected, promoting Duqm as an ideal location to visit, live, work, and invest in the Middle East. In view of the proximity of Duqm Port to Saudi Arabia's oil fields such as at Shaybah located near Oman's border, the time and cost for the transportation of cargo will be reduced by over 50%.

6. SEZAD is also the focal point for potential investors willing to do business in Duqm SEZ. Through its one-stop shop concept, it facilitates, registers, licenses, and provides environmental approvals using the best international practices. In addition, goods imported into or exported from the Duqm SEZ will be free of custom duties. Regulations such as those addressing Duqm SEZ companies' registration procedures, permits requirement, use of the lands arrangement, and tax exemptions have all been issued. SEZAD aims to ensure that the Duqm SEZ tax regimes, land lease rates, and utility tariffs will be provided at competitive rates. Recently in May 2016, SEZAD signed an agreement with Oman Wanfang [3] to build a Sino-Oman industrial park with an

[3] Oman Wangfang is a subsidiary of China-Arab Wanfang Investment Management Co, established with government backing in 2015 by companies in the northwestern Chinese region of Ningxia.

investment of about $10.7 billion, which is projected to generate about 22 million tons of cargo per year handling for import and export through the Duqm Port.

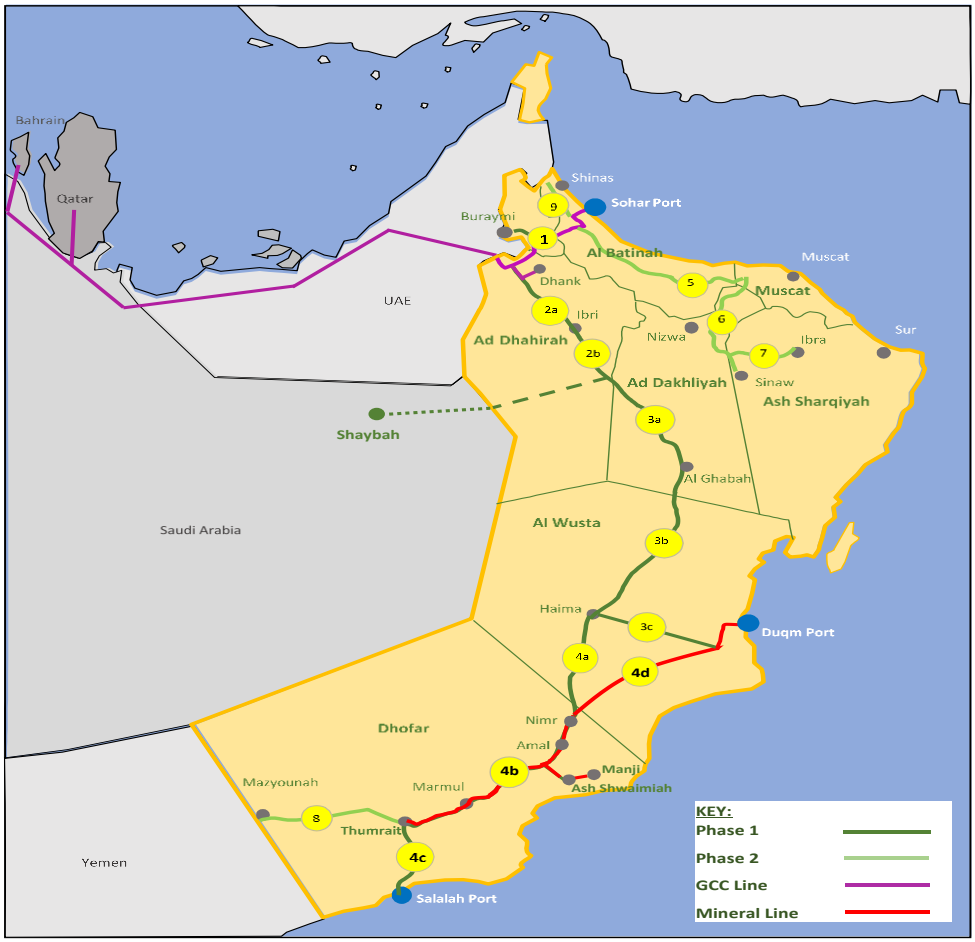
3. THE PROJECT

A. Rationale

7. Among many reasons to invest on the Duqm Port are: (i) its strategic position for the Government to develop a free trade zone there; (ii) its ability to enable the economic diversification of the government; and (iii) its necessary and complementary role with the concurrent mineral lines development and their connections to Duqm Port

8. **Duqm Port as a strategic port and free trade zone for Oman:** Duqm Port is one of the most important strategic development of the SEZ, which is seen as a catalyst for the development of the Al Wusta region. The $1.5 billion ship repair yard with state of the art infrastructure has already been developed at Duqm Port and is being operated since 2011. The success enjoyed by the shipyard proves the viability of Duqm Port as an international port. Figure 1 shows the strategic location of Oman and its Duqm Port in Arabian Gulf together with the layout of GCC railway network.

Figure 1. Strategic location of Oman



9. **Duqm Port as a critical facility for logistics sector needed to support the economic diversification of Oman:** The logistics sector is one of the main non-oil economic sectors that has contributed 4.9% to Oman's GDP in 2015 and has a strong tendency to grow further. An operationalized Duqm Port will enable the Duqm SEZ to be fully plugged into the global logistics chain. For this purpose, the next priority for SEZAD is to urgently operationalize the commercial terminal/quays under the Project to achieve the potential economic benefits with strengthened logistics services and mineral exports.

10. Duqm Port and its surroundings are rich in minerals attracting both local and foreign investment. The port is set to be a major port serving Duqm SEZ, its associated industries as well as the growing mineral industry sector exploiting the rich mineral ore reserves in and near the Al Wusta region. Duqm Port is tasked to handle bulk dry cargoes with the aim to establishing it as a center for minerals export. Annex 8 provides the role of Duqm Port as a major facility for minerals export besides serving the SEZ industries and liquid bulk cargo.

11. **Complementary role of Duqm Port and the concurrent railway development:** To handle dry bulk cargo, SEZAD and Oman Railway will work together to enable mineral exports through seamless transportation of products from the hinterland. In this connection, the development of a railway system in general, and mineral lines connections to Oman ports in particular is currently the Government's top priority, aiming to effect the efficient flow of mining cargo particularly to Duqm Port, from where materials will be stockpiled, processed and exported to markets worldwide. For this reason, the Government has requested AIIB's financial support for the concurrent development of Duqm Port through SEZAD, and railway connections through Oman Global Logistics Group and Oman Rail.

12. The commercial quays in the Duqm Port, spanning a total 2.2 km in length, have already been constructed. The Project will provide the existing quays with access roads, utilities, container handling, cargo stacking yard, multi-purpose terminal, and administration buildings, which are essential for the effective operation of Duqm Port. As a result of the increased operational capability of Duqm Port, it will be able to handle bulk mineral cargo, break bulk industrial cargo, and containerized cargo more efficiently. In addition, mechanizing exports of gypsum, dolomite, and limestone, through Duqm Port will help increase the production volumes and export revenues above current levels for existing mining companies located in the Al Wusta and Dhofar Provinces. Oman's bulk mineral export is expected to increase six folds from current 10 million tons to 60 million tons[4] after the implementation of the Project and connecting the railway line. Oman's gypsum export has risen from 0.3 million tons in 2010 to 5.84 million tons in 2015, and expect to increase to 12 million tons by 2019/20 to become the world's third largest gypsum exporter. Industrial freight and project cargo entering through Duqm Port will be hundreds of kilometers closer to Oman's oil and gas fields than other regional ports thus reducing supply chain delivery time and costs for the petroleum industry.

13. Additionally, a Port of Duqm Company (PDC) comprising a 50:50 joint venture between the Omani Government and the Consortium Antwerp Port (the second largest container port in Europe) has been established to co-invest, operate, manage, and market Duqm Port. The PDC brings with it the skill and experience of operating the international port of Antwerp to Duqm.

[4] In Feb of 2016, the Duqm Port successfully loaded Duqm's first shipment of dolomite for export to India.

Upon completion of the Project, the operation ready Commercial Terminal and Operational Zone will be handed over to the PDC to manage and operate. PDC has declared its capability to handle an annual volume of 10 million tonnes of dry bulk cargo and 2.3 million TEU[5] of containers at the Commercial Terminal and Operational Zone in line with the Port's immediate development plan. This capacity will be expanded as traffic volume grows in time. The PDC aims to make the Middle East, Indian Subcontinent, and African East coast as its export cargo hinterland. In this connection, SEZAD will furnish to AIIB a five-year Business Plan for Duqm Port operation, including, for the commercial terminal and operation zone within six months after the Loan Effective Date; and a ten-year optimal business plan for Duqm Port operation by end-2020.

14. Duqm Port is tasked by the MOTC to operate in a complementary fashion with other ports in Oman. While Port Sultan Qaboos will be a city port for tourism, Port of Sohar for a combination of containers, general cargo and petrochemicals, and Port of Salalah for container transshipment, Duqm Port will be a general port with major facilities for the mineral and petrochemical sectors.

15. Given the above, the Project is clearly aligned with AIIB's mission, i.e., to promote and strengthen economic growth of Asia through investment in infrastructure.

B. Objective

16. The objective of the Project is to help Duqm Port capture its full economic potential through improved transport efficiency, strengthened logistics services, facilitated mineral exports, and reduced supply chain delivery time and costs for the wide spectrum of industries in the new Duqm SEZ and its broaden international hinterland.

C. Project Description and Components

17. The Project comprises construction of the required infrastructure for the commercial terminal including port access roads, cargo storage, terminal buildings, and Operational Zone's facilities buildings. The detailed design for the Project has been completed by a joint venture of international and national consulting firms, which will also be the construction supervision consultant. The tendering process of works has been completed. A team of international and national professionals has been mobilized for project management. As such, the Project demonstrates as a classic case of implementation-ready investment and is expected to show quick disbursement progress from the start of the project implementation.

18. The following is the summary of planned activities under the Project:

(i) **Construction of Port Related Infrastructure.** It includes the following four main works:

a) Road and paving works, including the construction of 3 km of 2-lane dual carriageway internal roads connecting all the terminal buildings and parking areas; container and cargo stacking yard, parking areas, and a helipad.

b) Other infrastructure works, including construction of potable water network to serve the commercial berth buildings and ships; a fire fighting network; storm water and

[5] TEU stands for Twenty-Foot Equivalent Unit which can be used to measure a ship's cargo carrying capacity. The dimensions of one TEU are equal to that of a standard 20-Foot shipping container (20 feet long, 8 feet tall).

sewerage network; installation of electrical, telecommunications, and street and yard lighting cables; and construction of fencing and gates.

c) Construction of terminal building and operational zone, comprising of administration building, training and amenities centers, emergency and firefighting center, electrical service buildings, multipurpose terminal; container terminal, dry bulk terminal, workshop and maintenance building, gate house, and electrical service building.

d) Installation of a crane beam supported on piles, and its tracks.

Details of the above component are at Annex 2.

(ii) **Construction Supervision.** It includes (a) carrying out of construction oversight and supervision to ensure compliance of works with contractual specifications, environmental safeguards requirement and budget; and (b) strengthening of the capacity of SEZAD's staff in contract management through on-the-job trainings. This activity is to be carried out by well experienced international consulting firm together with the related SEZAD team.

(iii) **Project Management**. Provision of technical advisory services and logistical support for the management of the Project, and for the strengthening of SEZAD's procurement procedures. SEZAD will carry out this task with the assistance of international and national individual experts.

D. Cost and Financing

19. The total project cost is estimated at $353.33 million as detailed in Table 1.

Table 1: Project Cost and Financing ($ million)

Item	Cost[a]	Financing			
		AIIB		SEZAD	
		Amount	Share	Amount	Share
A. Base Cost					
1.Civil Works	**287.93**	**244.74**	**85%**	**43.19**	**15%**
1.1 Road and paving works	96.50	81.60	85%	14.40	15%
1.2 Other infrastructure works (buildings, utilities, draining, lighting, and communications)	106.43	90.89	85%	16.04	15%
1.3 Terminal buildings and operational zone	63.00	53.55	85%	9.45	15%
1.4 Crane beam and track works	22.00	18.70	85%	3.30	15%
2. Supervision Consultants	4.70	0	0	4.70	100%
3. Project Management	2.50	0	0	2.50	100%
Total Base Cost	**295.13**	**244.74**	**83%**	**50.39**	**17%**
B. Contingencies[b]	37.94	0	0	37.94	100%
C. Financing charges during construction[c]	20.26	20.26	100%	0	0
Total	**353.33**	**265.00**	**75%**	**88.33**	**25%**

a In 2016 prices.

b Including estimates on physical and price contingencies.

c Including estimates on interest during construction, commitment charge, and front-end fee based on approved Bank policies. The financing charges to be capitalized in the loan.

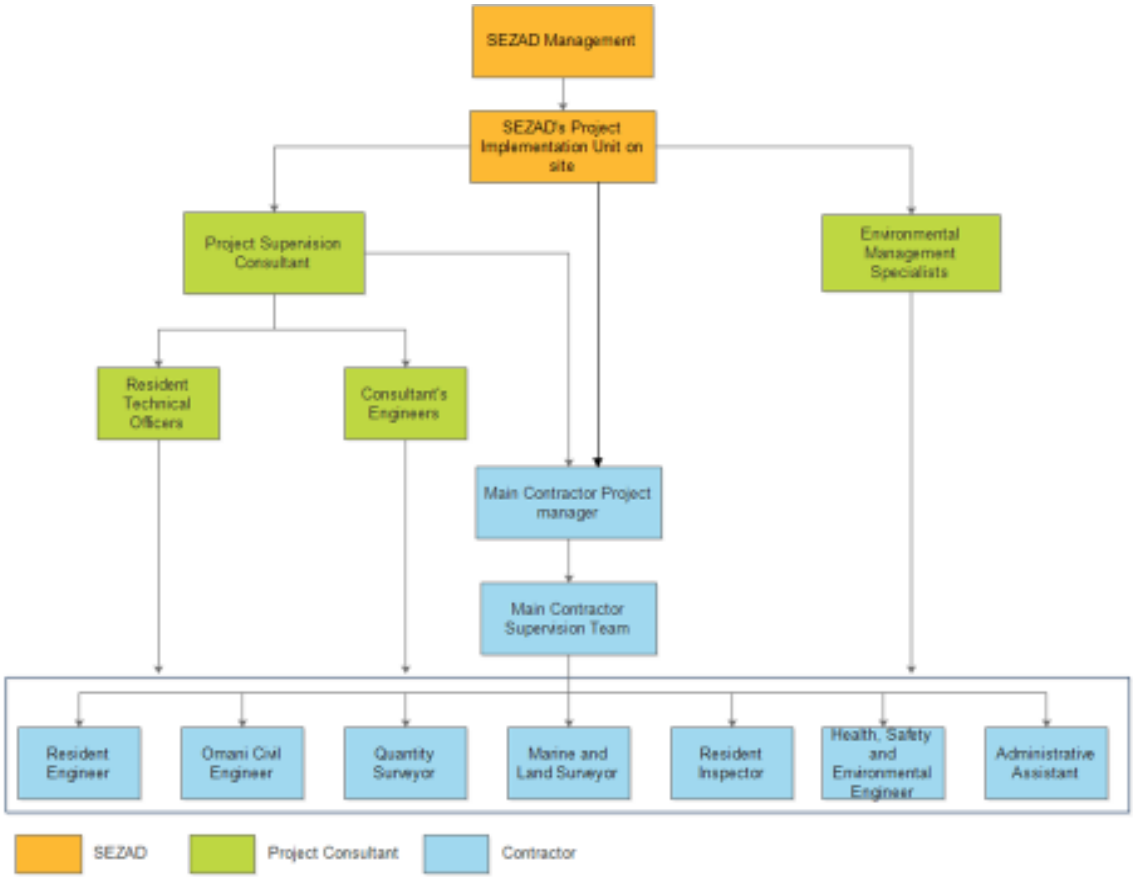
Source: AIIB and SEZAD estimates

20. SEZAD has requested a loan of $265 million from AIIB to help finance the Project. SEZAD will provide the counterpart funding of $88.33 million to cover full cost of construction supervision consultancy, project management, project contingencies, and part of the costs for civil works. The loan will have a 25-year term, including a grace period of 5 years, at the Bank's standard interest rate for sovereign-backed loans with the same weighted average maturity.

E. Implementation Arrangements

21. SEZAD will implement the Project. SEZAD has established a Project Implementation Unit (PIU) to ensure smooth implementation of day-to-day Project matters. For the PIU, SEZAD has constituted a project management team (PMT) including its staff and the recruited international and national experts in all the required disciplines including project management, technical, financial, procurement, and contract management. For construction supervision and capacity development in procurement, contract management, and port operations, SEZAD will be assisted by construction supervision consultant. A joint-venture of international and national firms has already been recruited and mobilized for supervising the constructing of works, which are expected to commence in the beginning of 2017. As such, no start-up delays are envisaged. Figure 2 illustrates composition of the PMT.

Figure 2. Project Management Team



22. For internal coordination, two committees will be set up within 3 months after the loan effectiveness:

(i) A project implementation review committee (PIRC), headed by the PIU Project Manager, will comprise of officials from PIU, project management and construction supervision consultants, and the contractor. The PIRC will carry out monthly reviews of the project implementation progress and forward the minutes of such reviews to AIIB.

(ii) A project steering committee (PSC), headed by the Chief Executive Officer of SEZAD, will comprise of senior officers of SEZAD, the PIU, the PDC, and construction supervision consultant. The PSC will carry out review meetings every six months, or earlier if needed, aimed at ensuring smooth and timely implementation, providing policy guidance on ongoing and new government initiatives, and resolving inter-agencies issues. SEZAD will forward the minutes of such meetings to AIIB.

23. SEZAD, through its PIU, will prepare a consolidated quarterly progress report on the basis of indicators agreed with AIIB. Each report will be furnished to AIIB not later than one week after the end of each quarter of the project implementation.

24. SEZAD will maintain separate accounts for the Project and have such accounts audited annually. The audited Financial Statements for each such period will be furnished to AIIB not later

than six months after the end of such period. To that end, SEZAD will continue to engage independent auditors, whose terms of reference, qualifications and experience are acceptable to AIIB.

25. The Project is estimated to be implemented over a period of 4 years from January 2017 to December 2020 and the loan will close on 30 June 2021. Table 2 provides the summary of project implementation arrangements with key indicators.

Table 2: Summary of Implementation Arrangements

Aspects	**Arrangements**
Implementation period	1 January 2017 – 31 December 2020
Loan closing date	30 June 2021
Project Implementation Agency	Special Economic Zone Authority of Duqm (SEZAD)
Procurement: Works	All works to be financed by AIIB will be procured in accordance with its procurement policy and directives
Environmental Management	All works under the Project will comply with requirements of the DEIA and EMP that are in line with AIIB's Environmental and Social Policy (ESP)
Disbursement	The loan proceeds will be disbursed in accordance with AIIB's disbursement letter agreed upon between SEZAD and AIIB, and the Loan Disbursement Manual

4. PROJECT ASSESMENT

A. Technical

26. The Duqm Port configuration is based on the feasibility study, design, and master planning of Duqm Port performed by an international consulting firm in 2012. The port design advocated the full development of Duqm Port to be performed in two phases. First phase is the commercial quay of 2,225-meter length and 350-meter width. Second phase is to allow the port expansion when demand exceeds the capacity of commercial quay, which is planned to have 10,000-meter quay length. Currently an intermediate phase is being undertaken for the construction of a large petrochemical terminal at the other end of the port from the commercial quay. Located in between the commercial quay and the petrochemical terminal will be the Government Quay for berthing of the Government's vessels and visiting naval ships. This facility also enhances the security of the port.

27. The design of the commercial quay is simple in approach thus allowing fast and lower cost construction. It is regular in shape hence allowing maximum efficiency in use of space and cargo handling. Land reclaimed for the commercial quay makes use of the existing breakwater as a

foundation thus reducing costs. Vessels approaching the commercial quay make use of the existing channel already dredged for the Duqm Drydock establishment thus requiring minimal dredging. This also reduced impact on the environment by having less dredging materials to be disposed.

28. Although simple, the commercial quay is designed for maximum flexibility to meet changes in cargo demands. Three distinct terminals will be segregated from each other by internal fences in between. Should the demand for any one terminal exceeds its current allocated space, the fence could be moved to allow more space for that terminal. The three terminals are the multipurpose terminals for handling of general cargo, container terminal, and the Dry Bulk Terminal to serve the growing export of Oman's mineral ores in its quest for economic diversification away from the country's dependency on oil export. The three terminals will be served by a transportation spine comprising a 2-lane dual carriage way common user road, future railway line, and dry bulk conveyors. This transportation spine runs along the entire length of the commercial quay.

29. The current design is considered to be the most efficient and suitable for the expected type and volume of traffic, and with maximum flexibility to expand. It is also a state of the art technology which is proven to be operationally safe and low risk.

B. Economic and Financial Analysis

30. The Government initiated a market study in 2011/12 to assess cargo traffic demand on the Duqm Port. The study identified a few segments of the cargo market that would generate demands on the port. These are the export of industrial minerals, the import of raw materials and export of products from the Duqm SEZ, the import of crude and the export of petrochemicals, as well as container traffic (and particularly transshipment container traffic). The above study projected a total of 4.3 million TEUs for Duqm port by 2040.

31. Duqm and its surroundings are rich in minerals attracting both local and foreign mining companies to operate at the Duqm SEZ. The Duqm Port is set to be a major port serving the Duqm SEZ, its associated industries as well as the growing mineral industry sector exploiting the rich mineral ore reserves in and near the Al Wusta region. The volume of industrial mineral export through the Duqm Port is expected to be about 6 million tons at the initial stage of operations rising to 20 million tons or more within 20 years.

32. The industries located in Duqm SEZ would import raw materials and export their products through the port. The majority of these would be by shipping containers. In May 2016, SEZAD signed an agreement with Oman Wanfang to build a Sino-Oman industrial park with $10.7 billion investment at the Duqm SEZ. At its full operation the Sino-Oman industrial park will generate about 22 million tons per year volume of cargo handling through Duqm Port. The volume will translate into a gross volume of 1.68 million TEUs a year by 2031. As a result of a larger industrial park generating more demand for the port, it will become less reliant on transshipment traffic. This volume of traffic would be sufficient for Duqm Port to attract more shipping lines to call at the port which would increase the connectivity of the port. As connectivity is a highly valued attribute for any port, this would also attract more container transshipment business, especially those that would otherwise avoid Salalah due to AP Moeller Terminal being the operator of the Salalah Container Terminal and also a direct competitor to shipping lines. It is conceivable that the

Commercial Quay would also handle transshipment containers but these would be limited by its capacity. The combined volume of local and transshipment containers to be handled at Duqm Port is therefore estimated to reach the Commercial Quay Container Terminal maximum capacity of 2.3 million TEUs by 2036 as opposed to previously estimated 4 million TEUs. The change is in that the space previously allocated for the container terminal has been reduced and given to the mineral dry bulk terminal.

33. A 230,000 barrels per day (bpd) refinery is currently taking shape in the Duqm SEZ. A liquid bulk shipping terminal will be constructed at the other end of the Duqm Port opposite the Commercial Quay. This liquid bulk terminal will have its own handling capability apart from the Commercial Quay. The cargo terminals on the Commercial Quay will however benefit the refinery, the associated petrochemical cluster and the liquid bulk shipping terminal by facilitating the importation of project materials, spares, and raw materials.

34. An economic assessment model had been created to assess the economic viability of the Duqm Port. The evaluation considers the medium scenario. Cargo volume forecasts were based on the market study of 2011/12, data and information from SEZAD, and supplemented by the AIIB's staff estimates. The tariff used conforms to the Duqm Port tariff. The evaluation spans from 2016 to 2040 for a period of 25 years.

35. Based on traffic demand data provided by SEZAD and use of applicable port changes and standards of other ports as assumptions, the overall Financial Internal Rate of Return (FIRR) of the project is 15.8%. The Economic IRR (EIRR) of the project is calculated at 25.5%. These IRR assessments are conservative as these have been carried out without considering other benefits by the liquid bulk cargo, refinery, and other port related activities which would further enhance the Project's viability. In addition, the IRRs were put through sensitivity analysis assuming a few adverse scenarios of construction delay by 1 year, or benefit or revenue reduction by 15%, capital investment cost increase by 15%, or worse with the combination of benefit/revenue reduction while capital cost increase. The sensitivity analysis shows that the Project is robust against the worst case scenarios. Table 3 shows that EIRR may go down from 25.5% of the base case scenario to 18.5% in the worst case situation of capital cost increase by 15% while economic benefit decrease by 15% concurrently; while Table 4 shows the FIRR to reduce from a solid 15.8% in the base case scenario to 8.6% in the worst case scenario when revenue decrease by 15% concurrently with capital cost increase by 15%. This worst case FIRR is still within the range of 8 to 18% expected by port investors in the global port industry. Further details are in Annex 3.

Table 3: Sensitivity of the Economic Internal Rate of Return

Item	Change	EIRR	ENPV
Base Case		25.5%	502,910
Economic Benefit	-15%	20.4%	277,225
Operating Cost	+15%	23.2%	393,926
CAPEX	+15%	23.3%	461,645
CAPEX / Economic Benefit	+15% /-15%	18.5%	235,960
Delay	1 Year	22.5%	407,014

EIRR = Economic Internal Rate of Return; ENPV = Economic Net Present Value

Table 4. Financial Results of Sensitivity Analysis

Item	Change	FIRR	FNPV
Base Case		15.8%	113,636
Projected Revenue	-15%	9.9%	-52,965
Operating Cost	+15%	12.2%	5,345
CAPEX	+15%	14.2%	72,371
CAPEX / Projected Revenue	+15% /- 15%	8.6%	-94,230
Construction Delays	one year	14.2%	66,421

FIRR = Financial internal rate of return, FNPV = Financial Net Present Value

C. Fiduciary and Governance

a) Financial Management

36. At present SEZAD is managing the financing of all its projects internally. SEZAD has strong country-level public financial management arrangements, particularly regarding budget. All capital expenditures are subject to approval of the Supreme Council of Planning of the Government.

37. SEZAD's Finance Department, who oversees funds flow, is staffed with experienced financial specialists. All employees are full time with formal job descriptions for each position. An internal audit function is available within SEZAD. External audit is conducted by two independent auditors; first by the State Audit Institution of Oman followed an independent international auditing firm.

38. Financial statements are currently prepared for SEZAD on monthly, quarterly and annual basis. Existing reporting system can be linked with the financial information of physical project progress with the help of financial management specialist. Financial management system is computerized and it produces the necessary financial reports of the ongoing development works. The staff is adequately trained to maintain the system and the management organization and processing system safeguard the confidentiality, integrity, and availability of the data. Annex 6 provides the summary of financial management assessment.

b) Procurement

39. A tender for the construction of works for the Project has already been conducted by SEZAD on an advanced contracting basis using SEZAD's procurement procedures. Following completion of the tender evaluation, a letter of notification of award of contract has been issued to the successful tenderer - a Turkish joint venture. A reputable international consultancy firm was appointed by SEZAD to assist in the tender process.

40. AIIB's procurement team visited SEZAD at its offices in Muscat and reviewed a) the legal and regulatory framework under which the procurement was conducted; b) the tender process followed by SEZAD; and c) the relevant tender documentation. The review found that the tender had followed an international open competitive tender process for which there were no country

eligibility restrictions. The invitation to tender had been published in both national and international papers and on SEZAD's website. The tender documents issued were based on the Oman Tender Board's 'Standard Documents for Building and Civil Engineering Works July 1999 edition. The form of agreement used in the Standard Document is aligned to a pre-1999 version of FIDIC's Conditions of Contract for Construction.

41. A total of eight tenderers, comprising international and local firms, submitted tenders. The tender was conducted on a two envelope single stage basis comprising a first stage technical evaluation followed by financial evaluation of those tenderers that were found to be technically responsive. The overall evaluation was conducted on a combined technical and financial merit points basis. The financial offers remained sealed until the technical evaluation had been completed. Once the financial envelopes had been opened, the tender prices of five of the tenderers that were determined to be technically responsive were then published on SEZAD's website. The tender price of the two highest ranked offers were found to be significantly in excess of the base cost for the project and were therefore considered financially non responsive and rejected.

42. The firm that submitted the third ranked offer was also rejected on the grounds that there was evidence of substantive poor performance by the firm on an ongoing MOTC financed contract. The firm had been invited by SEZAD to discuss the concerns regarding their performance before deciding to reject the tender. The fourth ranked tenderer was subsequently awarded the contract. Notification of the contract award has been published on the SEZAD website. To date no complaints have been submitted from any of the participating tenderers.

43. The regulatory framework and tender process was reviewed using benchmarks provided in the OECD's Methodology for Assessing Procurement Systems (MAPS) and was found overall to be generally consistent with AIIB's Core Procurement Principles and Procurement Standards and therefore, satisfactory to the AIIB.

44. During project implementation the following will apply:

a) any complaints received by tenderers, or requests for debriefings, related to the contract award will be handled in accordance with the requirements of the Bank's Interim Directive: Procurement Instructions to Recipients.
b) relevant provisions of AIIB's Policy on Prohibited Practices will be included in the particular conditions of the contract of the successful tenderer, including the right to audit or inspect a firm's documents, if the Bank is required to conduct an investigation under this policy.
c) The Bank will monitor contractual performance.

45. As part of the project inception mission, AIIB will hold a workshop on effective project implementation, procurement policy, and contract management.

D. Environmental and Social

46. The Project has been placed in Category B under the provisions of AIIB's Environmental and Social Policy (ESP). The potential risks and impacts, which will occur primarily during the construction period, are limited and localized, and concentrated within the existing port area, at commercial quays that are already built. A preliminary Environmental Impact Assessment (PEIA)

has been prepared to meet the requirements of the national legislation of Oman and a Preliminary Environmental Permit has been issued by the Ministry of Environment and Climate Affairs (MECA). The PEIA addresses the provisions of AIIB's ESS 1–Environmental and Social Assessment and Management, which is applicable to the Project. SEZAD disclosed the PEIA on its website on 6 November 2016[6]. The Project does not require any land acquisition since the construction will take place at the already constructed berths.

47. The PEIA includes a legal framework review; environmental, social and ecological baseline studies; assessment of potential impacts during construction and operation; mitigation and monitoring measures; and a general environmental management plan (EMP) that covers environmental and social aspects. The EMP in the PEIA provides for the use of established mitigation measures to reduce and eliminate the potential impacts; these measures would be implemented by the existing environmental and social management, monitoring and reporting system at SEZAD. Consistent with Omani procedures, a detailed EIA (DEIA) and EMP are under preparation by a certified consultant engaged by the contractor. These documents would support the Project implementation and provide the basis for the Final Environmental Permit (FEP) to be issued by MECA. Prior to commencement of construction of works, SEZAD will: (i) obtain all environmental approvals of the DEIA and EMP required under the Omani Laws, and the no-objection of AIIB; (ii) comply with the process of consultation and disclosure of each of the DEIA and EMP; and (iii) implement all the action in accordance with requirements of the DEIA and EMP.

E. Risks and Mitigation Measures

48. **Credit Risk Consideration for Oman**. Currently Oman's sovereign credit risk rating is BBB- with a stable outlook. Despite the fact that the country's sovereign credit risk rating has experienced 3 downgrades for a period less than two years, it is expected that Oman can broadly maintain its fiscal and external stock positions, because the authorities have taken robust policy actions, such as government expenditure reduction, increasing the role of private sector, and tax reform, etc. Given the investment grade rating by $&P and the likelihood of further deterioration is small, overall credit risk level for the two proposed sovereign loans to Oman is expected to be small.

49. **AIIB's Exposure to Oman**. With the approval of the proposed sovereign loans for the Project ($265 million) and also for another proposed Railway System Preparation Project ($36 million), the total exposure to Oman is expected to be $301 million. No limit is breached.

50. **Operational Risks**: AIIB does not have operational experience in Oman, and the SEZAD has not administered projects funded by multilateral financing institutions. Although SEZAD's project implementation capacity has been found adequate with the experienced project management team already aboard, AIIB will consistently review and closely monitor the project progress and ensure urgent measure to resolve any issue. AIIB will also organize project implementation training workshop at the project inception stage covering best practices in project implementation, efficient contract management, and boosting disbursements.

[6] http://www.duqm.gov.om/sezad/environment/reports

51. The Project is in line with AIIB strategy in infrastructure financing. Based on consultations during the project preparation, no major risks have been identified. The overall project risk is rated "Moderate", as detailed in Annex 5.

Annex 1: Result Framework and Monitoring

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
Impact Full economic potential of Duqm Port achieved	Annual gross revenues with the Project increased to: • OMR 38 million ($98.8 million) by Year 2021 • OMR111 million ($288.6 million) by Year 2025 • OMR 137 million ($356.2 million) by Year 2030 and onward (Baseline: OMR 0.7 million ($1.82 million, 2016)	Annual Performance Report of Duqm Port prepared by PDC	**Assumptions** 1. PDC is committed to maximize terminal capacities 2. The rail system is implemented and operated by 2021 **Risk** Delay in completion of mineral connection line by Oman Rail
Outcome Duqm Port Commercial Terminal and Operational Zone Development operationalized	Total dry bulk mineral annual exports increased from 5.5 million tons in 2016 to: • 6.6 million tons by 2021, and • 19.7 million tons by 2031 **Cargo consignment dwell time in port** Target dwell time to be reached and sustained on and after the year 2025 as follows: 93% of annual cargo throughput — Dwell Time in port <5 days 6% of annual cargo throughput — ≤9 days 1% of annual cargo throughput — >10 days Baseline 2016 cargo = nil	PDC will calculate and report on these indicators as part of its annual report to SEZAD.	**Assumptions** The PDC is committed to 1. maximize terminal capacities 2. strive to reduce cost and 3. continuously improve port productivity and responsiveness **Risk** SEZAD's limited port oversight experience
Outputs 1. Port related infrastructure completed at the terminals on the Commercial Quay	**By Dec 2020**, the construction of following infrastructure completed: **a) Road and paving works**: • 3 km of 2-lane dual carriageway internal roads connecting all the terminal buildings and parking areas; • construction of container and cargo stacking yard, • parking areas, and	SEZAD website and Annual Performance Report of Duqm Port, prepared by PDC Minutes of the monthly Project Implementation Review Meeting	**Assumptions** PIU functions efficiently due to presence of highly experienced international and national staff PIU and SEZAD regularly hold PIRC and Steering Committee meetings and timely

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
2. Project implementation managed as per loan covenants	• a helipad. **b) Other infrastructure works** • potable water network to serve the commercial berth buildings and ships, • a firefighting network, storm water and sewerage network, • installation of electrical, telecommunications, and • street and yard lighting cables, and construction of fencing and gates. **c) Terminal building and Operational Zone** • administration building, • training and amenities centers, • emergency and firefighting center, • electrical service buildings; • multipurpose terminal; • container terminal; • dry bulk terminal, • workshop and maintenance building, gate house, and • electrical service building **d) Crane beam and track works** • installation of a crane beam supported on piles, and its tracks. Project Implementation Review Committee (PIRC) meeting held monthly by PIU and minutes of the meeting regularly forwarded to SEZAD and AIIB Project Steering Committee meeting held at least once every 6 months and proceedings reported to AIIB Environmental Management Plan implementation and reviewed at every monthly PIRC meeting SEZAD procurement team trained in contract management by project construction supervision consultants within one month after the loan effectiveness Training workshop organized during the AIIB inception mission for PIU and SEZAD on the best project implementation practice, procurement, financial management, and disbursement.	Quarterly EMP implementation reports	resolve project implementation issues. **Risk** Poor efficiency of contractor in executing civil works contract

Activities with Key Milestones	Inputs
1. Construction Works at the terminals on the Commercial Quay 1.1. Civil works contractor mobilized and construction commenced by 15 March 2017 1.2. Construction supervision consultant submits monthly progress report to PIU, SEZAD, and AIIB 1.3. Environmental Management Reports with detailed implementation status submitted by construction supervision consultant to PIU, SEZAD, and AIIB after every quarter from the commencement of civil works contract 1.4. Civil works contract completed by Dec 2020. **2. Project implementation** 2.1. AIIB to organize workshop on effective project implementation, the Bank's procurement policy and contract management, and good practices for fast disbursement at the inception mission of the Project 2.2. PIU to regularly organize monthly PIRC meeting and share the minutes of the meeting with SEZAD and AIIB 2.3. Project implementation review mission fielded at least twice a year jointly by AIIB and SEZAD	AIIB loan: $265.00 million SEZAD: $88.33 million Total: $353.33 million

PDC= Port of Duqm Company; Project Implementation Review Committee= PIRC); PIU= Project Implementation Unit;
Source: AIIB and SEZAD

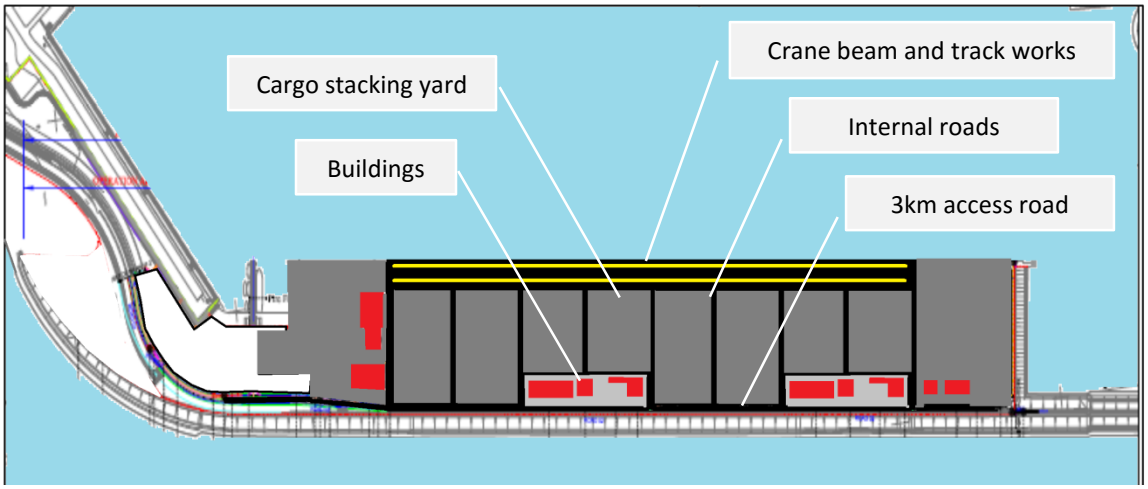
Annex 2: Detailed Project Description

1. The proposed Duqm Port Commercial Terminal and Operational Zone Development Project is envisioned to include only one major civil works contract titles "***Construction of port related infrastructure, including access road, terminal building, and Operational Zone facilities [Contract Package IP2].***

2. The Contract Package IP2 is for the construction of port related infrastructure (or superstructures in port development terminology) on the already completed hard quay structure. This Component is to provide the existing commercial quay with:

A. Road and paving works,
B. Other infrastructure works, including utilities and installation of electrical, telecommunications, and street and yard lighting cables; and construction of fencing and gates.
C. Construction of terminal building and operational zone,
D. Installation of a crane beam supported on piles, and its tracks.

3. The following schematic diagram shows the main works of the Contract:



4. Description and purpose of the main works under the Contract IP2 are as follows:

	Work Description	Purpose
A	**Road and paving works** A1 Construction of 3 km of 2-lane dual carriageway road with internal roads connecting all the buildings and parking areas	• The 3km road will be the common access way of the 3 terminals (multi-purpose, container, and dry bulk terminals) • Internal roads will be used by terminal's own heavy vehicles trucking the cargo from the ship to the cargo storage areas and vice versa.

	Work Description	Purpose
	A2. Construction of container and cargo stacking yard	• Cargo and Container stacking yards will be raised to quay height, stiffened and a layer of pavement on top. • The purpose would be to create a fit for purpose platform for the placement of heavy cargo and multi layers stack containers.
	A3. Construction of parking areas, and a helipad	• Parking areas will be for o parking of 3rd party goods vehicles brining cargo/container into the terminal to wait while checks are performed for terminal acceptance o parking of empty 3rd party vehicles to await loading of cargo/containers by the terminal o parking of staff and visitor vehicles • The helipad is for dispatch/retrieve of ship pilot to/from the ship at sea during heavy weather on arrival/departure port
B	**Other infrastructure works** B1. Construction of potable water network to serve the commercial berth buildings and ships	• Water network for people, building and equipment consumptions • Potable water will be available for sale to ships on application
	B2. Construction of a fire fighting network	• The port will have its own firefighting capabilities
	B3. Construction of a storm water network	• To channel rain waters into the sea to avoid flooding of cargos in the terminal
	B4. Construction of a sewerage network	• To serve the buildings
	B5. Installation of electrical, telecommunications, and street and yard lighting cables	• To enable ICT system to be installed for the working of the terminals • to enable the terminals to work day and night
	B6. Construction of fencing and gates	• To comply with the International Ship Port Security (ISPS) Code
C	**Construction of terminal buildings and operational zone** C1. Terminal buildings and operational zone i. 1 Administration Building (one) ii. 1 Training and Amenities Centre iii. 1 Emergency and Firefighting Center iv. 2 Electrical Service Buildings	• The Operational Zone houses the Port Operator Administration and is where the port customers interact with the port operator such as for the submission of documents and payment.

	Work Description	Purpose
		• It is also where the visitors to the port will be met. • This zone also houses the Port Terminal Fire Fighting respond center
	C2. Buildings for the Multi-Purpose Terminal (MPT) i. 1 Workshop Building ii. 1 Maintenance Building iii. 1 Gatehouse iv. 1 Electrical Service Building	• The MPT will not have any administrative function • All buildings in the MPT are service buildings to support the working of the MPT.
	C3. Buildings for the Container Terminal (CT) i. 1 Administration Building ii. 2 Gatehouses iii. 1 Electrical Service Building	• The buildings will also house the terminal control center. • There will one gate for vehicle entry and one for vehicle egress.
	C4. Buildings for the Dry Bulk Terminal (DBT) i. 1 Workshop & Maintenance Building ii. 1 Gatehouse iii. 1 Electrical Service Building	• The DBT will not have any administrative function • All buildings in the DBT are service buildings to support the working of the DBT.
D	**Installation of a crane beam supported on piles, and its tracks**	• The crane track is for container quay cranes to traverse along the length of the CT. Additional ground support to be provided to heavy cranes.

Annex 3: Economic and Financial Analysis

A. Introduction

1. The Asian Infrastructure Investment Bank (AIIB) had been requested to provide finance for development of Duqm Port. The specific development required is the construction of access roads, utilities, buildings and installation of container quay crane rails to an existing but empty quay structure referred to as the Commercial Quay. The package of work to which financing is sought is referred to as Infrastructure Package 2 (IP2). Upon completion of IP2, the Commercial Quay will be outfitted with cargo handling equipment after which proper cargo handling port operations would commence. The commencement of port operations in Duqm would facilitate and enable the development of the Duqm Special Economic Zone (SEZ), economic developments in Al Wusta, and in Oman as a whole. The Duqm Port would be a catalyst for the growth of Omani industrial minerals export. The port, in parallel with the development of mineral railway line, is a vital piece in the overall strategy of Oman diversification of its economy away from petroleum export dependence.

B. Evaluation of Port Traffic Demand

2. The Government of the Sultanate of Oman (GOS) initiated a market study in 2011/12 to assess cargo traffic demand on Duqm Port. This study was performed by a consortium of international consultants comprising the Consortium of Antwerp Port, Drewry Maritime Services, Tata Strategic Management Group and the Chemical Market Associates Inc. The study identified four key segments of the cargo market that would generate demands on the port. These are: (i) the export of industrial mineral; (ii) the import of raw materials and export of products from the Duqm SEZ; (iii) import of raw materials and export of manufactured goods from the Duqm SEZ industries; (iii) the import of crude and the export of petrochemicals; and (iv) import of equipment for the development and operation of the oil and gas facilities in the interior of Oman and (later) to Saudi Arabia.

3. **Mineral Ores:** Oman is rich with varieties of mineral resources and metallic minerals; and possesses all of the key industrial minerals in commercial quantities. Its mining industry is an important sector in the country's economic diversification program away from oil and natural gas. Oman's bulk mineral export is targeted to increase from current 10 million tons to 60 million tons by 2030. Gypsum exports from Oman have grown from 0.3 million tons in 2010 to 5.84 million tons in 2015. Oman is set to export 12 million tons to become the 3rd largest gypsum producer in the world by 2019/2020. The capacity to export industrial minerals is expected to increase through the combined facilities of the ports of Salalah, Sohar and principally of Duqm.

4. Duqm Port development and the complementary SEZ are intended to transform Duqm into a commercial transport and logistics hub. Industrial mineral deposits will be mined, processed and exported out through Duqm Port.

5. The Oman mining directorate July 2013 report shows that vast quantities of carbonate-based minerals have been discovered in the governates of Dhank in the Dhahirah region and Sur in South Sharqiyah, and near the city of Duqm in Al Wusta. Limestone is found in abundance in

the Al Wusta region, specifically in Al Safiya and Al Hydaybah, located 15 km from Duqm Port. Limestone of Al Safiya is suitable for use as key ingredient in the manufacture of cement. Covering the top of the Safiya escarpment, the deposits appear in a swathe extending a staggering 20 km long, 400 m to 2 km wide and around 20 m thick. Limestone deposits at Al Hydaybah are ideal for lime production or as an ingredient in steel manufacturing. The top 20–35 m are made up of high quality limestone with a calcium carbonate content of over 97 per cent and magnesium oxide of around 0.7 per cent. Raysut Cement Co (RCC), Oman's largest cement producer, recently signed an agreement with Special Economic Zone Authority of Duqm (SEZAD) to construct a cement handling and distribution terminal at the port.

6. In June 2013, Canadian-based mining and metals firm Medallion announced it will finance a $50m rare earths extraction plant at the Duqm SEZ. The facility will produce an estimated 10,000 tons per annum of rare earth oxides.

7. In April 2014, the Port of Duqm Company (PDC) announced that it was negotiating with four mineral processing and refining companies to establish facilities in Duqm's industrial zone mining cluster. Three foreign firms from the Middle East and Europe, and one Omani firm were reportedly investigating the feasibility of projects in Duqm.

8. Duqm Port is tasked to handle bulk dry cargoes with the aim to establish Duqm as a center for minerals export. To fulfil this task, Duqm Port will work with the Oman Railway to enable mineral exports through seamless transportation of products from the inner hinterland to the port for export. In this connection, the development of railway system in general and mineral lines connections to Oman ports in particular is currently the Government's top priority aiming to effect the efficient flow of mining cargo particularly to Duqm Port, from where materials will be stockpiled, processed and exported to markets worldwide. The volume of industrial mineral export through the Duqm Port is expected to be about 6 million tons at the initial stage of operations rising to 20 million tons or more within 10 years.

9. **Raw Materials and Duqm SEZ Products:** The industries in Duqm SEZ would import raw materials and export their products through the port. The majority of these would be by shipping containers.

10. In May 2016, SEZAD signed an agreement with Oman Wanfang to build a Sino-Oman industrial park at the Duqm SEZ on an area of 1,172 hectares and with an investment of about $10.7 billion. Oman Wanfang is a subsidiary of China-Arab Wanfang Investment Management Co, established with government backing in 2015 by companies in the northwestern Chinese region of Ningxia. The Sino-Oman industrial park when fully operational is projected to generate about 22 million tons per year volume of cargo handling for import and export through Duqm Port. This will translate into some 1.4 million TEU of containers. However, as a proportion of containers will arrive empty and depart empty due to the dynamic nature of industrial manufacturing, the gross volume of containers to cater 22 million tons of cargo should be about 1.68 million TEUs. This volume is expected to be reached by the year 2031. This high volume of local containers would attract a multitude of shipping lines to call at Duqm Port, thereby increasing the connectivity of the port. Connectivity is a highly valued attribute by the transshipment container sector. The resulting increase in connectivity at Duqm Port has the indirect effect of attracting the

transshipment container sector especially from those shipping lines that avoid Salalah due to being AP Moeller Terminal (APMT) [operator of the Salalah Container Terminal] direct competitor, to handle their transshipment containers at Duqm Port.

11. The designed maximum capacity of the container terminal on the Commercial Quay is 2.3 million TEUs. It is not inconceivable that Duqm Port could attract a further 0.5 million TEUS of transshipment container which together with the base load of 1.68 million TEUs of local containers to reach this maximum capacity. The combined volume of local and transshipment containers expected to be handled at the Duqm Port Commercial Quay Container Terminal is estimated to reach its maximum capacity of 2.3 million TEUs by 2036, or 20 years from now. Should the demand for more container capacity be required, this is addressed in the Duqm Port Master Plan in Phase 2 port expansion, which is outside of this project.

12. **Petrochemicals:** A 230,000 barrels per day (bpd) refinery is currently taking shape in the Duqm SEZ. A liquid bulk shipping terminal will be constructed at the other end of the Duqm port opposite the Commercial Quay. This terminal will have its own handling capability apart from the Commercial Quay. The cargo terminals on the Commercial Quay will however benefit the refinery, the associated petrochemical cluster and the liquid bulk shipping terminal by facilitating the importation of project materials, spares, and raw materials.

13. **Forecast Traffic volume at Duqm Port:** The project will facilitate enhanced regional trade as the port will provide sufficient capacity to support import volume demand by the Duqm SEZ and capacity to support export volume of minerals from the mineral rich hinterland to neighbouring countries and the rest of the world. The import and export volume generated by the port is projected in Table 1.

Table 1: Projected Throughput at Duqm Port

Year	Dry Bulk ('000 Tons)	Containers ('000 TEU)	Break Bulk ('000 Tons)
2020	6,249	390	1,110
2021	6,661	567	1,522
2022	7,770	826	1,977
2023	9,199	921	2,435
2024	10,119	1,016	2,600
2025	11,131	1,111	2,600
2026	12,244	1,206	2,600
2027	13,469	1,300	2,600
2028	14,816	1,395	2,600
2029	16,297	1,490	2,600
2030	17,927	1,585	2,600
2031	19,720	1,680	2,600
2032	19,720	1,783	2,600
2033	19,720	1,887	2,600
2034	19,720	1,990	2,600
2035	19,720	2,093	2,600

Year	Dry Bulk	Containers	Break Bulk
2036	('000 Tons)	('000 TEU)	('000 Tons)
2037	19,720	2,300	2,600
2038	19,720	2,300	2,600
2039	19,720	2,300	2,600
2040	19,720	2,300	2,600
CAGR	6.2%	9.8%	4.6%

C. Economic Analysis

14. **Economic Benefits.** The development of the port is a necessary component of the Duqm SEZ. It is assumed that without the development of the port, imports and exports for SEZ will have to be served by the Salalah port, which is about 685 km from Duqm. This extra transport distance will add to substantial time and cost, and hence reduce the export competitiveness of the Oman products. Comparing the scenario of with and without Duqm Port investment, the major benefits of the port can be grouped as follows:

(i) Enhancement of regional trade – the port will facilitate imports and exports for the Duqm SEZ and region. The volume of cargo handled at the port and the associated revenues earned will contribute to the non-incremental benefits that will not be attainable in the with-out scenario. The enhancement of regional trade will increase the frequency of vessel calls and downstream ancillary activities (e.g. ship bunkering, pilotage and chandling) and its associated revenues earned will contribute to the induced benefits that result from the existence of the port facility.
(ii) Job creation – an estimated 1500 direct jobs through different port -related companies, and 3000 indirect jobs through services and industries are projected to be created with the development of the port. A weighted average multiplier of dollar earned of 0.08 per worker has been assumed. The increase of 4,500 jobs from the without scenario and its associated revenues contribute to the incremental benefits.
(iii) Facilitation of export of minerals and its associated revenues will contribute to the non-incremental traffic which would not be attainable in the without scenario;
(iv) Reduce transportation costs and time for import and exports serving the Duqm SEZ.
Note: (iii) and (iv) were not in the economic analysis due to the difficulties in modelling these benefits.

15. **Project Cost**: The project costs comprise the following:

(i) Capital costs incurred during the construction period of the port. The base year is assumed as 2016, which means all costs are based on 2016 prices
(ii) Annual operation and maintenance costs of the port during the life of the Project (analysis period)
(iii) Similar port projects financed by private investors adopt a discount rate, proxy from the weighted average costs of capital, between 8 and 12%. A 12% discount rate is assumed for this model.

(iv) The total investment cost is assumed to be spread out as follows

a. Year -1 – 45% of total Capital Costs
b. Year -2 – 35% of total Capital Costs
c. Year -3 – 20% of total Capital Costs

16. **Economic cost of project component**: Costs and benefits are expressed in constant 2016 prices. Capital costs exclude taxes, interest, and financial charges and duties during construction.

17. **Economic Evaluation Results:** An economic assessment model had been created to assess the economic viability of Duqm Port. The evaluation considers a long-term scenario. Cargo volume forecasts were based on the market study, data and information from SEZAD and supplemented by the port consultant research. The evaluation spans from 2016 to 2040 for a period of 25 years.

18. The key definition and assumptions made in the development of the EIRR model are as follows:

a. Induced benefits refer to the revenue earned by the port from ancillary activities like additional shipping services (bunkering, pilotage, chandling, etc.) and has been assumed to be a 20% multiplier of revenue from port handling charges – a reasonable benchmark against similar developments
b. Incremental benefits refer to the revenue earned from the port handling charges, which would have not been earned in the with-out port scenario, and is calculated based on the projected cargo, and benchmarked tariffs.
c. Non-incremental benefits refer to the revenue earned from the introduction of new jobs created as a result of the port development. The 1500 direct and 3000 indirect jobs have been stipulated to be created incrementally from 50% in year of operation to 100% within 5 years of operation, with a benchmarked direct-effect employment weighted-average multiplier of 0.08 utilized, and a $100,000 economic value per employee estimated based on Oman's labour productivity benchmark.
d. Operations and Maintenance costs is estimated conservatively and assumed to be at 65% of total revenue costs.

19. The EIRR derived is 25.5% as illustrated in Table 2.

Table 2: Detailed Economic Internal Rate of Returns ($'000)

Year	Economic Benefit				Capital Costs	Operation and Maintenance	Total	Net Benefit
	Revenue from Induced Benefits	Non-Incremental Revenue	Incremental Revenue	Total				
2017	-	-	-	-	150390	-	150,390	(150,390)
2018	-	-	-	-	116970	-	116,970	(116,970)
2019	-	-	-	-	66840	-	66,840	(66,840)
2020	14,916	19,853	74,582	109,352	0	55,750.24	55,750	53,601
2021	20,499	19,853	102,497	142,850	0	66,623	66,623	76,227
2022	28,648	23,824	143,240	195,711	0	93,106	93,106	102,605
2023	32,540	27,794	162,700	223,035	0	105,755	105,755	117,279
2024	35,743	31,765	178,714	246,221	0	116,164	116,164	130,057
2025	38,720	35,735	193,599	268,054	0	125,839	125,839	142,215
2026	42,575	39,706	212,874	295,155	0	138,368	138,368	156,787
2027	45,704	39,706	228,521	313,932	0	148,539	148,539	165,393
2028	48,887	39,706	244,436	333,029	0	158,884	158,884	174,146
2029	52,129	39,706	260,646	352,481	0	169,420	169,420	183,061
2030	55,436	39,706	277,179	372,321	0	180,166	180,166	192,154
2031	59,990	39,706	299,950	399,646	0	194,968	194,968	204,679
2032	62,871	39,706	314,356	416,934	0	204,332	204,332	212,602
2033	65,752	39,706	328,762	434,221	0	213,696	213,696	220,525
2034	68,634	39,706	343,169	451,508	0	223,060	223,060	228,449
2035	71,515	39,706	357,575	468,795	0	232,423	232,423	236,372
2036	75,884	39,706	379,420	495,010	0	246,623	246,623	248,387
2037	78,823	39,706	394,114	512,643	0	256,174	256,174	256,469
2038	78,823	39,706	394,114	512,643	0	256,174	256,174	256,469
2039	78,823	39,706	394,114	512,643	0	256,174	256,174	256,469
2040	78,823	39,706	394,114	512,643	0	256,174	256,174	256,469
						Discount Rate		12%
						EIRR		25.5%
						ENPV		$502,910

EIRR = Economic Internal Rate of Return; ENPV = Economic Net Present Value

20. Sensitivity analysis has also been carried out to determine the robustness of the project economic performance as responding to

a. Reduction in economic benefit by 15%;
b. Increase in operation and maintenance cost by 15%;
c. Increase in CAPEX cost by 15%;
d. Increase in CAPEX cost by 15% and reduction in economic Benefit by 15%; and
e. Delay in project by 1 Year.

21. The results are summarized in Table 3.

Table 3: Sensitivity of the Economic Internal Rate of Return

Item	Change	EIRR	ENPV
Base Case		25.5%	502,910
Economic Benefit	-15%	20.4%	277,225
Operating Cost	+15%	23.2%	393,926
CAPEX	+15%	23.3%	461,645
CAPEX / Economic Benefit	15% /-15%	18.5%	235,960
Delay	1 Year	22.5%	407,014

D. Financial Analysis

22. Financial analysis has also been carried out. Based on the traffic forecast shown in Table 1 above, revenues from port operation are estimated using the port tariff charged for different commodities shown in Table 4 below:

Table 4. Duqm Port Key Tariff

	Duqm Port
Dry bulk	OMR0.8 per ton flat rate
Container	OMR50 per TEU flat rate
General cargo	Between OMR2 to 3 per ton. Vehicles are charged differently.

23. Based on data provided by SEZAD and use of applicable standards of other ports as assumptions, the overall Financial Internal Rate of Return (FIRR) is calculated at 15.8% for the Project (Table 5). This is within the range of 8 to 18% expected by port investors in the global port industry. This FIRR assessment is conservative as it is performed without considering other benefits by the dry dock, liquid bulk cargo, refinery and port related activities which would further enhance project's viability. The IRR also excludes transportation of pipes, pumps, and other equipment required to develop Oman's (and later Saudi Arabia's) oil and gas field development near their common border. Similar port projects financed by private investors adopt weighted average costs of capital (WACC) between 8 and 12%, a 12% discount rate is assumed for this model. The revenue stream mainly comes from the port revenue derived from the handling of dry bulk, container and break bulk cargo at the port.

Table 5. Detailed Financial Internal Rate of Return ($'000)

Year	Total Revenues	Capital Investment	Operation Costs	Net Revenue
2017	-	150,390	-	(150,390)
2018	-	116,970	-	(116,970)
2019	-	66,840	-	(66,840)
2020	74,582	-	48,478	26,104
2021	102,497	-	66,623	35,874
2022	143,240	-	93,106	50,134
2023	162,700	-	105,755	56,945
2024	178,714	-	116,164	62,550
2025	193,599	-	125,839	67,760
2026	212,874	-	138,368	74,506
2027	228,521	-	148,539	79,982
2028	244,436	-	158,884	85,553
2029	260,646	-	169,420	91,226
2030	277,179	-	180,166	97,013
2031	299,950	-	194,968	104,983
2032	314,356	-	204,332	110,025
2033	328,762	-	213,696	115,067
2034	343,169	-	223,060	120,109
2035	357,575	-	232,423	125,151
2036	379,420	-	246,623	132,797
2037	394,114	-	256,174	137,940
2038	394,114	-	256,174	137,940
2039	394,114	-	256,174	137,940
2040	394,114	-	256,174	137,940
			WACC	12%
			FIRR	15.8%
			FNPV	113,636

FIRR= Financial Internal Rate of Return, FNPV= Financial Net Present Value
WACC = Weighted Average Cost of Capital

24. **Sensitivity Analysis.** Similarly, a separate analysis was carried out to examine the sensitivity of the FIRR and FNPV to adverse changes in key variables as follows:

a. a 15% decrease in projected revenue;
b. a 15% increase in operation costs;
c. a 15% increase in CAPEX;
d. a 15% decrease in projected revenue and a 15% increase in CAPEX; and
e. a one-year delay in construction.

25. In all cases, the rates compare favorably with the estimated WACC value of 12% substantiating the financial viability of the project (Table 6).

Table 6. Financial Results of Sensitivity Analysis

Item	Change	FIRR	FNPV
Base Case		15.8%	113,636
Projected Revenue	-15%	9.9%	-52,965
Operating Cost	+15%	12.2%	5,345
CAPEX	+15%	14.2%	72,371
CAPEX / Projected Revenue	+15%/- 15%	8.6%	-94,230
Construction Delays	one year	14.2%	66,421

FIRR = Financial internal rate of return, FNPV = Financial Net Present Value

Annex 4: Sovereign Credit Fact Sheet

A. Recent Economic Development

1. Oman is a high income country with heavy dependence on oil and gas. Oil production accounts for around 50% of GDP, and over 70% of government receipts and export earnings. Omani growth has been adversely affected by the recent decline in oil price, with the economy contracting by 13.8 per cent in 2015, before a slight rebound of 2.7 per cent in 2016.

2. The authorities have taken measures to reduce the attending fiscal deficit, including cutting spending on wages and benefits and reducing subsidies. However, it remains in deficit, and public debt will rise in next few years. During the period 2010 to September 2014 benchmark oil prices (Brent) were over USD100/barrel and Omani average annual current account surplus was over 5 percent of GDP. The oil price at the beginning of December 2015 ($44.3/barrel) was down 61% compared to the high in 2014. As a result, Omani current account will deteriorate significantly. The exchange rate peg to the U.S. dollar continues to serve Oman well and inflation is projected to remain low.

B. Economic Indicators

Selected Macroeconomic Economic indicators (2014-2018)

Economic Indicators	2014	2015	2016*	2017*	2018*
National income and prices (change %)					
Economic growth (GDP-annual%)	2.7	-13.8	2.7	3.4	4.3
CPI inflation	1.0	0.1	1.1	1.9	2.3
Total government operations (% of GDP)					
Total government revenue	45.3	33.8	35.0	36.0	36.5
Total government expenditure	48.8	51.1	50.5	48.3	47.5
External debt (% of GDP)	14.0	19.0	17.0	16.0	--
Public debt (%of GDP)	4.9	9.2	29.3	35.3	38.0
Money and credit					
Broad money (US$ billion)	34.1	39.1	40.1	40.7	38.6
Gross reserves (billions $)	16.3	17.5	16.0	15.1	15.2
Current account balance (% of GDP)	5.2	-15.5	-16.3	-11.4	-8.8
Exchange rate (OMR/$, end period)	0.39	0.39	0.39	0.39	0.39

Note: * denotes projected figures. Figures in the table are based on data confirmed by State General Reserve Fund of Oman.

Source: Focus Economic, Consensus Forecast, Oman, October 2016; National Centre for statistics and Information, statistical Yearbook 2016, Oman July 2016; World Bank, World Development Indicators databank; Euler Hermes Economic Research, Country report Oman, 2015.

C. Economic Outlook and Risks.

3. Looking ahead, Omani medium-term growth is projected to pick up. The modest recovery of oil price will provide some support for growth to recover. Omani current account deficit is likely to persist, albeit with a smaller deficit, through the medium-term. Nevertheless, the key risk in relation to the external sector is a more protracted period of low oil prices, which will make it harder for Oman to close the current account deficit. Another risk is a further decline in demand for Omani exports in the country's main trading partners. For debt outlook, IMF pointed out that the sustained impact of fiscal measures mentioned before, combined with the planned increase in corporate income tax from 2017 and the introduction of VAT in 2018, will narrow the fiscal deficit over the medium-term and thus public debt.[7]

[7] International Monetary Fund (IMF), 2016. Press Release No. 16/205– Press Release: IMF Staff Completes 2016 Article IV Mission to Oman, May 9, 2016.

Annex 5: Risk Assessment and Mitigation Measures

Risk	Risk Assessment*	Risk-Mitigation Measures
Inherent Risk		
1. Entity-specific Risks	M	SEZAD is new to AIIB's Procurement Policy and Directives, and Loan Disbursement Manual and procedures. At the commencement of the project implementation, AIIB will arrange a comprehensive training of PIU/SEZAD on AIIB's procurement and disbursement procedures, financial management, and best implementation practices Involvement of international procurement/contract management specialist in the PIU will also strengthen SEZAD capacity in contract management.
2. Operations Risks	M	Upon completion of the Project, the operation ready Commercial Terminal and Operational Zone will be handed over to the Port of Duqm Company (PDC) to manage and operate. SEZAD's oversight capability in port operations needs strengthening. With the help of port development consultant under the construction supervision team, SEZAD shall develop an in-house capability to oversee and ensure that the direction of the port is always in line with its goals. The consultant shall also assist SEZAD in establishing a set of key performance indicators for the port operator PDC.
Overall Inherent Risk	**M**	
Control Risk		
1. Implementing Entity	M	Project implementation support and capacity improvement are provided as a project component through project management and construction supervision consultants. In addition, AIIB's consistent monitoring of implementation progress and regular fielding of review missions will ensure timely mitigation of any implementation delay and strict compliance of environmental safeguards. SEZAD will also disclose project progress and compliance of safeguards on its website at least twice a year each after 6 months from loan effective date. Since the same AIIB Team is also engaged in the implementation of *Oman Railway System Preparation Project*, which is to be implemented by OGLG and Oman Rail, AIIB will regularly hold monthly video/tele-conferences with OGLG, Oman Rail, and SEZAD to closely monitor the progress of both projects and take urgent steps to avoid any delay. These measures are in addition to regular review missions, which will be fielded at least twice per year.
2. Funds Flow	M	Timely availability of counterpart funds will be ensured by implementing the proposed funds flow arrangements

Risk	Risk Assessment*	Risk-Mitigation Measures
3. Staffing	M	Project management team shall assist SEZAD to design and implement the training program especially for AIIB financial reporting requirements and their integration into overall national financial reporting requirements.
4. Accounting Policies and Procedures	M	Accounting Policy shall be drafted taking into account the national accounting standards and the requirements of AIIB.
5. Internal Audit	N	Capacity of internal auditor shall be improved by the financial management specialist
6. External Audit	M	Audit of the project accounts shall be done in accordance with the International Standards on Auditing, by the Auditor acceptable to AIIB.
7. Reporting and Monitoring	M	SEZAD and PIU shall regularly report in accordance with AIIB requirements on inherent adequate control mechanisms
Overall Control Risk	**M**	

* H – High, S – Substantial, M – Moderate, N – Negligible or Low.
AIIB = Asian Infrastructure Investment Bank; OGLG = Oman Global Logistics Group; PIU = Project Implementation Unit; SEZAD = Special Economic Zone Authority of Duqm
Source: AIIB

Annex 6: Financial Management Assessment

1. Key findings of the financial management assessment undertaken for the Special Economic Zone Authority of Duqm (SEZAD) during the project preparation are as follows:

Summary of the Financial Management Assessment

Particulars	Conclusions
A. Funds Flow Arrangements	To date, no international financing project has been implemented by SEZAD, with most projects being self-financed. However, internal funds flow arrangements are reliable and secure. SEZAD has enough capability to smoothly work under the Project. However, to ensure the alignment of overall financial management practice with the project requirements, a training has been designed through AIIB during inception mission, and on-the job training by the project management consultants during the project implementation.
B. Staffing	SEZAD's Finance Department, which oversees funds flow, is staffed with experienced financial specialists who are experts in managing the internal finance. All employees are full time with formal job descriptions for each position.
C. Accounting Policies and Procedures	The chart of accounts based on the state standard format has been in use by the Financial Department for many years. Segregation of duties has been noted including budgeting system, payments, policies and procedures, cash and bank, safeguard over assets, other offices and implementing entities. A separate financial management manual is planned to be established for the Project in accordance with AIIB requirements.
D. Internal and External Audits	An Internal Audit function is available. For the external Audit, there are two layers, first it is carried out by the State Audit Institution of Oman which is followed by an independent international auditing firm.
G. Reporting and Monitoring	Financial statements are currently prepared on monthly, quarterly and annual basis. Existing reporting system can be linked with the financial information of physical project progress with the help of financial management specialist of the consultants.
H. Information Systems	Financial management system is computerized and it produces the necessary financial reports of the ongoing development works. The staff is adequately trained to maintain the system, and the management organization and processing system safeguard the confidentiality, integrity, and availability of the data

Source: AIIB Project Team

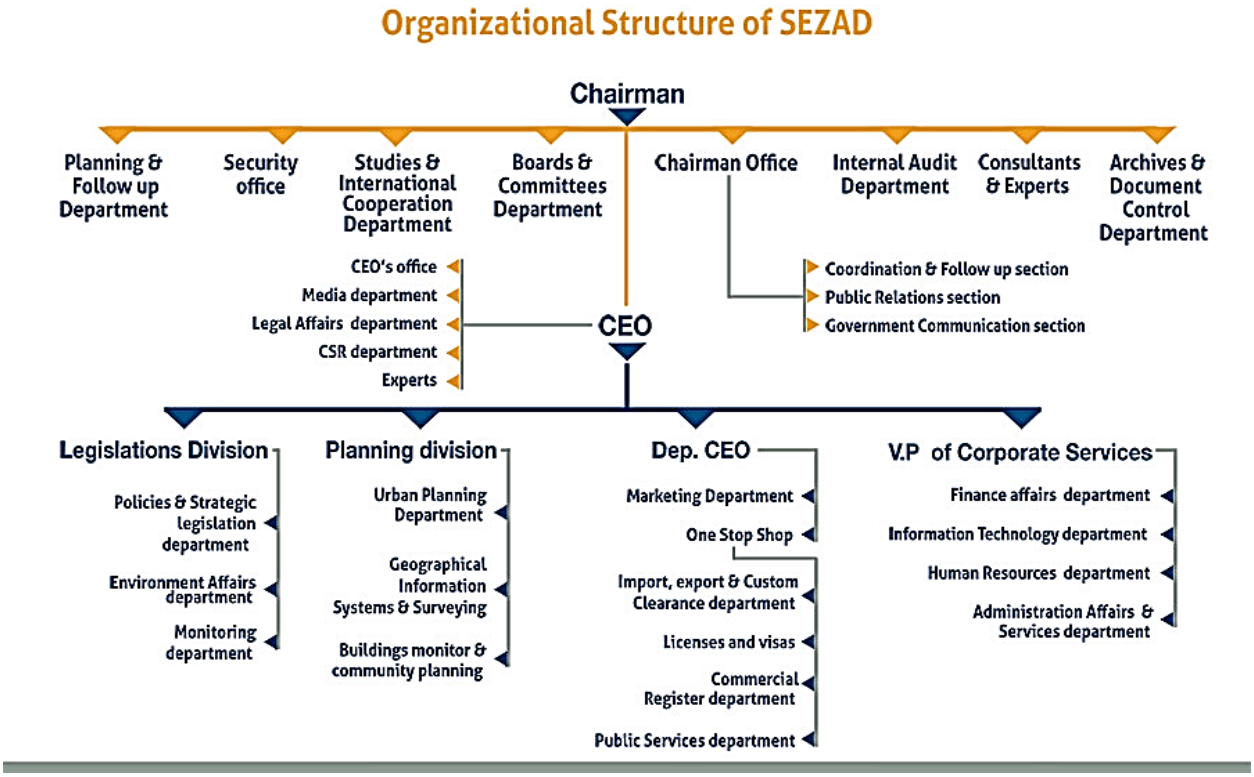
2. Actions required to be taken by the SEZAD are as follows:

(i) SEZAD's financial staff must undergo trainings on AIIB financial management procedures to understand them and strengthen their internal audit capacity;
(ii) A separate financial management manual for the project should be urgently established in accordance with the Government and AIIB requirements; and
(iii) SEZAD should maintain separate accounts for the Projects and have such accounts audited annually, in accordance with appropriate auditing standards consistently applied by independent auditors whose qualifications, experience, and terms of reference are acceptable to AIIB.

Annex 7: Special Economic Zone Authority of Duqm - Mandate and Structure

2. The Special Economic Zone Authority of Duqm (SEZAD) was established in 2011 pursuant to a Royal Decree 119/2011 to manage, regulate, and develop all economic activities in Duqm Special Economic Zone (SEZ). Royal Decree 79 of 2013 further granted SEZAD with financial and administrative autonomy status to manage, regulate and develop all economic activities in the Duqm Free Zone. SEZAD is a financially and administratively independent government entity.

3. The Organizational structure of the SEZAD is shown below.



4. For Duqm Port, SEZAD is responsible for developing all the hard infrastructures including the commercial terminal and operational zone. Port of Duqm Company (PDC) comprising a 50:50 joint venture between the Omani Government and the Consortium Antwerp Port (the second largest container port in Europe) has been established by Royal Decree 28/2015 (8th July 2015) to co-invest, operate, manage, and market Duqm Port. SEZAD has a concession agreement with the PDC or a period of 28 Year. The PDC brings with it the skill and experience of operating the international port of Antwerp to Duqm. Upon completion of the Project, the operation ready Commercial Terminal and Operational Zone will be handed over to the PDC to manage and operate. PDC has declared its capability to handle an annual volume of 10 million tonnes of dry bulk cargo and 2.3 million TEU[8] of containers at the Commercial Terminal and Operational Zone in line with the Port's immediate development plan. This capacity will be expanded as traffic volume grows in time. The PDC aims to make the Middle East, Indian Subcontinent, and African East coast as its export cargo hinterland.

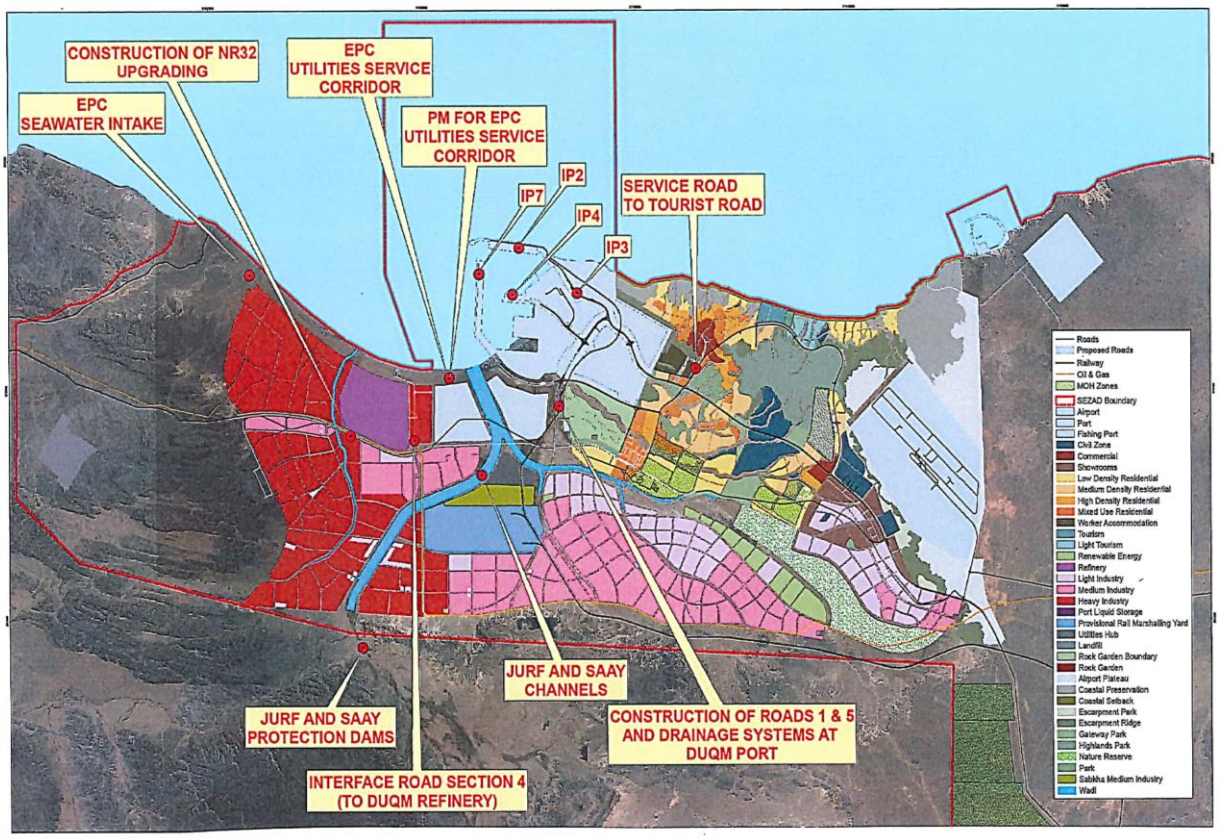
5. The development and operation of the port is divided into three phases:

[8] TEU stands for Twenty-Foot Equivalent Unit which can be used to measure a ship's cargo carrying capacity. The dimensions of one TEU are equal to that of a standard 20-Foot shipping container (20 feet long, 8 feet tall).

(a) Pre-development phase
(b) Development phase
(c) Operational phase

6. The cross over between the Pre-Development Phase and Development Phase is the berthing of a 6000 TEU container ship at the Port of Duqm. The cross over between the Development Phase and Operation Phase is when the PDC achieves breakeven point, estimated by2025. Upon achieving the Operation Phase, the PDC shall make contribution to a Capital Asset and Maintenance Fund from its profit as well as a share of the profit to SEZAD. Upon reaching the full amount when contribution to the Capital Asset and Maintenance Fund is reached, the net profit shall be shared by the PDC and the SEZAD. The quantum of profit share between the PDC and SEZAD is contained in the Concession Agreement.

7. The SEZAD Master Plan and the Project Area is in the figure below:



SEZAD MASTER PLAN AND THE PROJECT AREA (IP2)

Annex 8: Role of Duqm Port

I. Omani Ports

1. Oman Ministry of Transport and Communications (MOTC) has tasked each Omani port to operate in a complementary fashion without duplication. Port Sultan Qaboos will be a city port for tourism. Sohar's role is a combination of containers, general cargo, and petrochemicals. Salalah is engaged in the containers transshipment. Duqm will be a general port with major facility for the mineral and petrochemical sectors.

II. Duqm Port's Cargo Base

2. Duqm Port will have three captive cargo bases:

	Types of cargo	Mainly transported by
a.	minerals export by mining companies exploiting the mineral rich Al Wusta and Shuwaymiyah regions	In dry bulk form by bulk ships
b.	raw materials imported and exported for and by the industries in the Duqm Industrial Zones	Containers on dedicated container or general cargo ships
c.	petrochemical from the planned 230,000 bpd refinery in Duqm	In liquid bulk form by ship tankers

III. Oman's Mineral Exports

3. Oman is rich with varieties of mineral resources and possesses many key industrial minerals in commercial quantities. Its mining industry is an important sector in the country's diversification program. Mineral products such as dolomite, gypsum, and limestone are the largest components of the country's non-oil exports. Oman's bulk mineral export is targeted to increase from current 10 million tons to 60 million tons. Gypsum exports from Oman have grown from 0.3 million tonnes in 2010 to 5.84 million tonnes in 2015. Oman is set to export 10 million tonnes of gypsum to become the world's fourth largest gypsum producer in 2018, and to hit 12 million tonnes by 2019/2020 to become the third largest gypsum producer in the world. At the national level, the capacity to export industrial minerals is expected to increase substantially through enhanced facilities of Duqm Port.

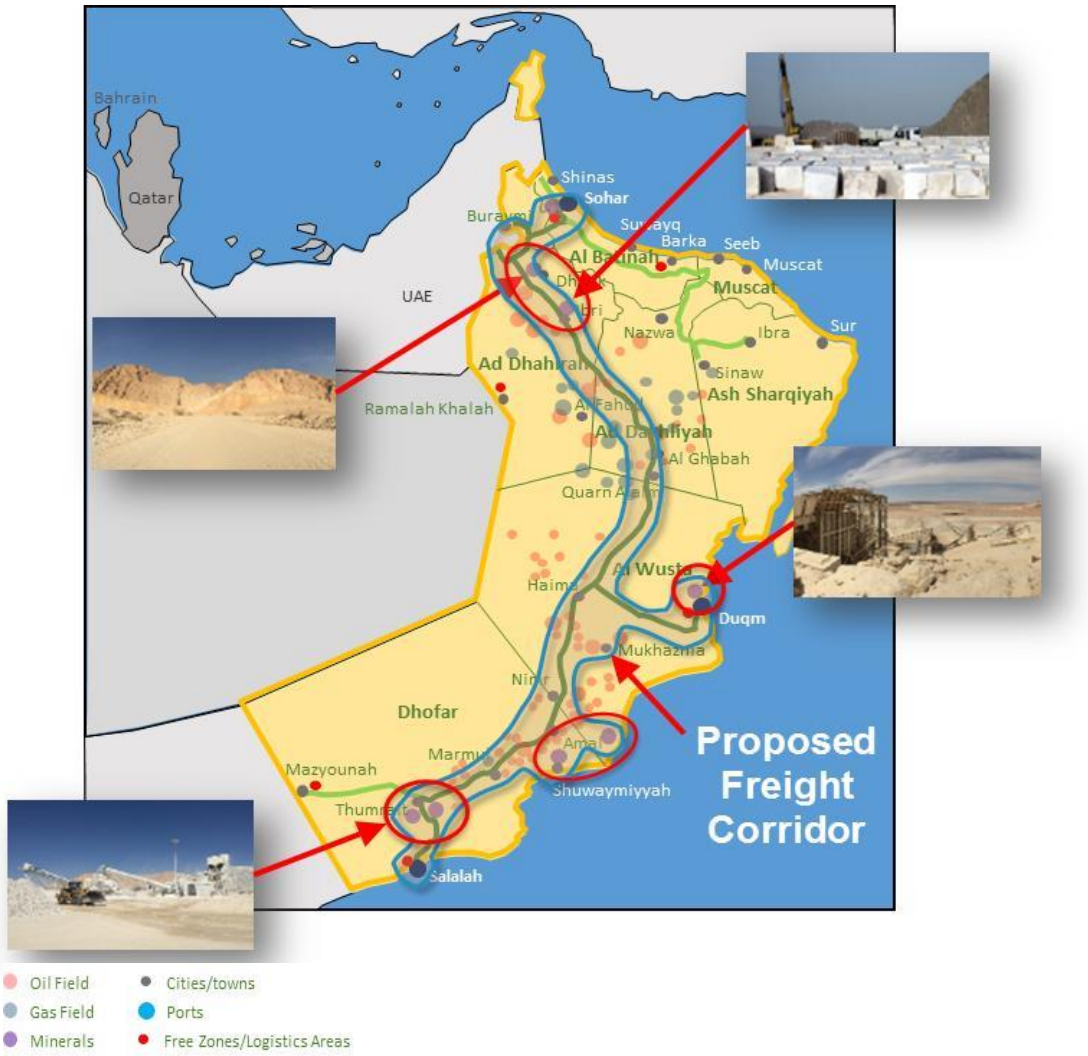
IV. Role of the Duqm Port

4. Duqm and its surroundings are rich in minerals (Figure 1) attracting both local and foreign mining companies to operate at the Duqm Special Economic Zone (SEZ). Duqm Port is set to be a major port serving the Duqm SEZ, its associated industries as well as the growing mineral industry sector exploiting the rich mineral ore reserves in and near the Al Wusta region, and to handle bulk dry cargoes in particular with the aim to establish Duqm as a center for minerals export.

5. Duqm Port sustainability will also be dependent on the commercialization of the substantial mineral resources of Wusta Governorate to generate a sizeable volume of the port's

cargo volumes over the long term. A Dry Bulk Terminal with a capacity of up to 10 million tonnes per annum is part of the Port's immediate development plan under the *Duqm Port Commercial Terminal and Operational Zone Development Project* proposed for AIIB financing.

Figure 1: Location of Mineral Resources, and Oil and Gas Fields



Sources: Mining and Petroleum Industries, and Public Authority of Mining

V. Duqm Port's Mineral Export Market

6. The total mineral trade from Duqm Port is expected to reach 4-5 million tonnes within 5 years from start of its operation and planned to reach 15 million tonnes by year 2028. The pace of this increase is linked with the ongoing new mines development and/or the planned expansion of existing mines. The railway mineral line will be a catalyst for Duqm Port's mineral export volume. Based on Duqm market study, the details of potential export opportunities of Oman's major minerals are as follows:

A. Gypsum

7. Potential export opportunities for Omani gypsum during 2016- 2030 are:

- Indian cement industry, which is projected to consume over 4.25 million tons of gypsum. The local supply is limited to about 1.50 million tons. Deficit of over 2.75 million tons in the domestic supply is dependent on imported gypsum and Oman is the closet market for this demand.
- Due to a supply crunch in Thailand where mineral mining has been facing several regulatory constraints, the existing Thai gypsum consumers like Indonesia, Vietnam, Malaysia, Japan, Bangladesh, and Philippines are expected to look elsewhere to import over 200 million tons of gypsum.
- Growing construction industries in South and East Africa are estimated to consume around 10 million tons of imported gypsum.
- Construction industries in UAE, Qatar, Kuwait and Bahrain are projected to import over 50 million tons of gypsum.

8. Export of gypsum from Duqm is expected to start off around 1.25 million tons per annum to progressively increase to around 5 to 9 million tons per annum as more mines are operated and incentivized by the availability of rail transport.

B. Limestone

9. The Indian steel industry requires high grade limestone with low silica content, which is abundant in Oman. About 30% of India's high grade limestone requirement is imported. Furthermore, Kingdom of Saudi Arabia (KSA) imports about 2/3rd of its Steel manufacturing limestone requirement. Limestone exports from Duqm Port can be expected to capture a significant share of this trade due to its strategic location and short haulage. The overall export of limestone from Duqm is expected to be around 1.8 million tons per ann um in the near term to subsequently reaching to around 6.5 million tons per annum.

C. Dolomite

10. Oman has up to 500 million tons of dolomites. The markets for Oman dolomite are in Dubai, Abu Dhabi, Qatar and India. An operational dolomite quarry with a proven reserve of 300 million tons is located a mere 30km from Duqm Port with contracts to export to India. This quarry alone has the capacity to produce and export between 1.5 to 2 million tons a year. Duqm Port successfully exported its inaugural shipment of dolomites in February this year (2016).

D. Salt

11. Rock salt deposits are present in Umm Samim region. A large sea salt manufacturing facility (1 million tons per annum, using solar evaporation method, is expected to come up in Barr Al Hikman /Nagdah area.

12. UAE and Qatar salt imports are expected to grow as a result of the growth of the petro-chemical industry (due to availability of cheap feedstock) in these regions. These countries currently import salt from KSA, India and Iran; Duqm Port can compete for these imports. The Port is estimated to handle about 0.5 to 0.75 million tonnes per annum of salt exports.

E. Silica Sand

13. Prominent silica sand deposits are in Al Hawf, Abu Tan, Ar-Raqi and Wadi Baw. The silica sand availability near Duqm Port is estimated at 40 million tonnes.

14. UAE and Qatar are large markets for silica sand from Duqm Port. Their import of silica sand through Duqm Port is projected to grow from about 0.5 million tonnes to 1.6 million tonnes.

VI. Duqm Port in serving the SEZ Industries

15. Oman's industrial sector will largely depend on export market for growth in view of a limited domestic market. The Duqm SEZ has designated industrial zones ranging from light to heavy industries. These industries will import raw materials and export their products through Duqm Port.

16. In May 2016, SEZAD signed an agreement with Oman Wanfang to build a Sino-Oman industrial park at the Duqm SEZ on an area of 1,172 hectares and with an investment of about $10.7 billion. Oman Wangfang is a subsidiary of China-Arab Wanfang Investment Management Co, established with government backing in 2015 by companies in the northwestern Chinese region of Ningxia. The Sino-Oman industrial park is projected to generate about 22 million tons per year volume of cargo handling for import and export through Duqm Port.

VII. Commercial Quay Capacities and Spill Over Contingency

17. The commercial quay will have three distinct cargo terminals. The allocation of space currently allows on an annual basis 20 million tons of dry bulk, 2.3 million TEUs of containers and 2.6 million tons of general cargo. Terminals are only segregated by internal fences. These would be adjusted to allow more space to each terminal when demand exceeds the terminal allocated capacity. In the event that mineral ore export exceeds 20 million tons, the multipurpose terminal could be relocated and the space vacated made available for dry bulk handling. Warehouses vacated could also be used as covered storage for the more valuable minerals. This contingency measure allows the dry bulk capacity to reach 25 million tons a year.

VIII. Duqm Liquid Bulk Cargo

18. The final group of captive cargo base for the Duqm Port is liquid bulk cargo. In this respect, a 230,000 bpd refinery is taking root in Duqm. Along with it will be a petrochemical cluster and tank storage. Terminals will be dedicated for handling liquid bulk and located away from the terminals handling dry bulk and break bulk cargos. The annual volume of liquid bulk including imported crude to be handled at Duqm Port is projected to begin with about 1 million tonnes to gradually rise to 23 million tonnes in 20 years, which comprise 11.2 million tonnes of crude imports and 12.1 million tonnes of petrochemical products.