

Tetra Tech

Engineers & Geologists

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Executive Summary

Iron Ore Mining and Beneficiation Project, Sindh, Pakistan.

*Import Substitution Solution for
Pakistan's Steel Industry*

&

*Foreign Exchange Earnings
From Export Markets*




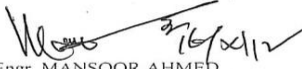

2020




Synopsis of Iron Ore Project in Sindh, Pakistan

Province of Sindh, Pakistan known for its vast coal deposits also contains massive quantities of iron ore; our team of highly qualified professionals have extensively studied this resource, performed excavations and lab testing. Mining rights on several thousand acres have been secured. This is first of its kind discovery of iron ore in the area is our exclusive private sector initiative, at a distance of 400 Kms (6 hours travel time) via a high-quality road to Port Qasim, where the Pakistan Steel Mills and Tuwairqi Steel Mills are located. Extensive Geologic and Engineering investigative work by our experts indicate sufficient reserves that are considered techno-economically feasible for development in order to meet raw material demands of local steel industry or for export by utilizing Port Qasim facilities.

Laboratory tests by SGS and Pakistan Steel Mills indicate that site deposits are primarily comprised of Magnetite and Hematite with a smattering of other oxides of iron with total iron (Fe) content of $\pm 50\%$ with relatively low Sulfur and Phosphorus contaminants.

	PAKISTAN STEEL PROCESS LABORATORIES (ISO-9001:2000 CERTIFIED) (ISO-17025 ACCREDITED)													
Process Laboratories is accredited by Pakistan National Accreditation Council, Ministry of Science & Technology Islamabad with Registration No. Lab-014														
ENVIRONMENTAL CONDITION: Temperature N/A Humidity: N/A	TEST REPORT	Page: 1/1												
Customer's Name	M/S PLATINUM POWER PVT LTD.	Your Ref NIL												
Sample Description	IRON ORE (AS INDICATED)	Receiving Date: 12-10-2012												
Report No.	PS/PL/SR-302/ XRF/2012	Issue Date: 16-10-2012												
Dated: 08-10-2012														
Tests Carried Out (%)													Test Method	
Sample Code	Fe(T)	FeO	Fe ₂ O ₃	SiO ₂	Al ₂ O ₃	CaO	MgO	MnO	TiO ₂	P	S	L.O.I	ALK	
NIL	50.20	6.06	65.05	6.32	6.10	1.33	0.23	0.15	0.76	0.60	0.14	11.57	0.19	- XRF Spectrometry - Wet Chemistry
<small>Note:-</small> 1. THE ABOVE RESULTS PERTAIN TO THE SAMPLE PROVIDED TO PROCESS LABORATORIES FOR TESTING. 2. THIS TEST REPORT IS NOT VALID FOR "ACCEPTANCE" OR "REJECTION" OF THE MATERIAL. 3. IN CASE OF ANY CONTROVERSY, INCHARGE (PROCESS LABORATORIES) CAN BE CONTACTED WITHIN 15 DAYS AFTER THE ISSUE OF THIS TEST REPORT. 4. REPORT RETENTION PERIOD = 01 YEAR. 5. REMARKS														
 MUHAMMAD YAR SECTIONAL HEAD(XRF LAB)	 Engr. MANSOOR AHMED S.E (COMMERCIAL / GROUP HEAD)	 Engr. FAKHRUDDIN DCE/INCHARGE (PROCESS LABS)												

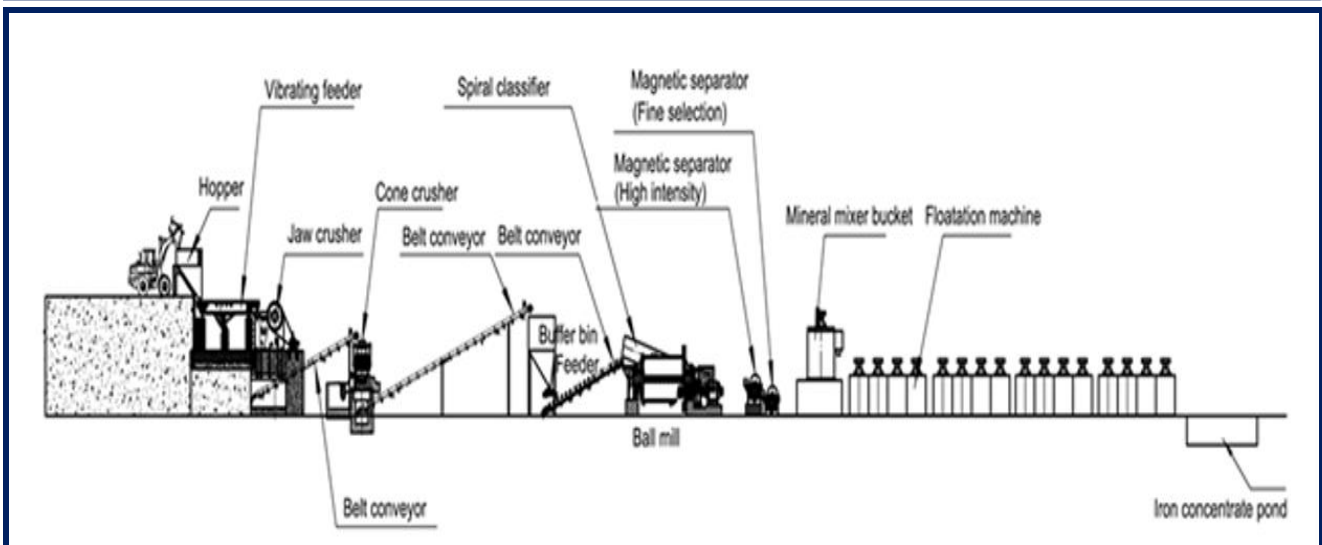
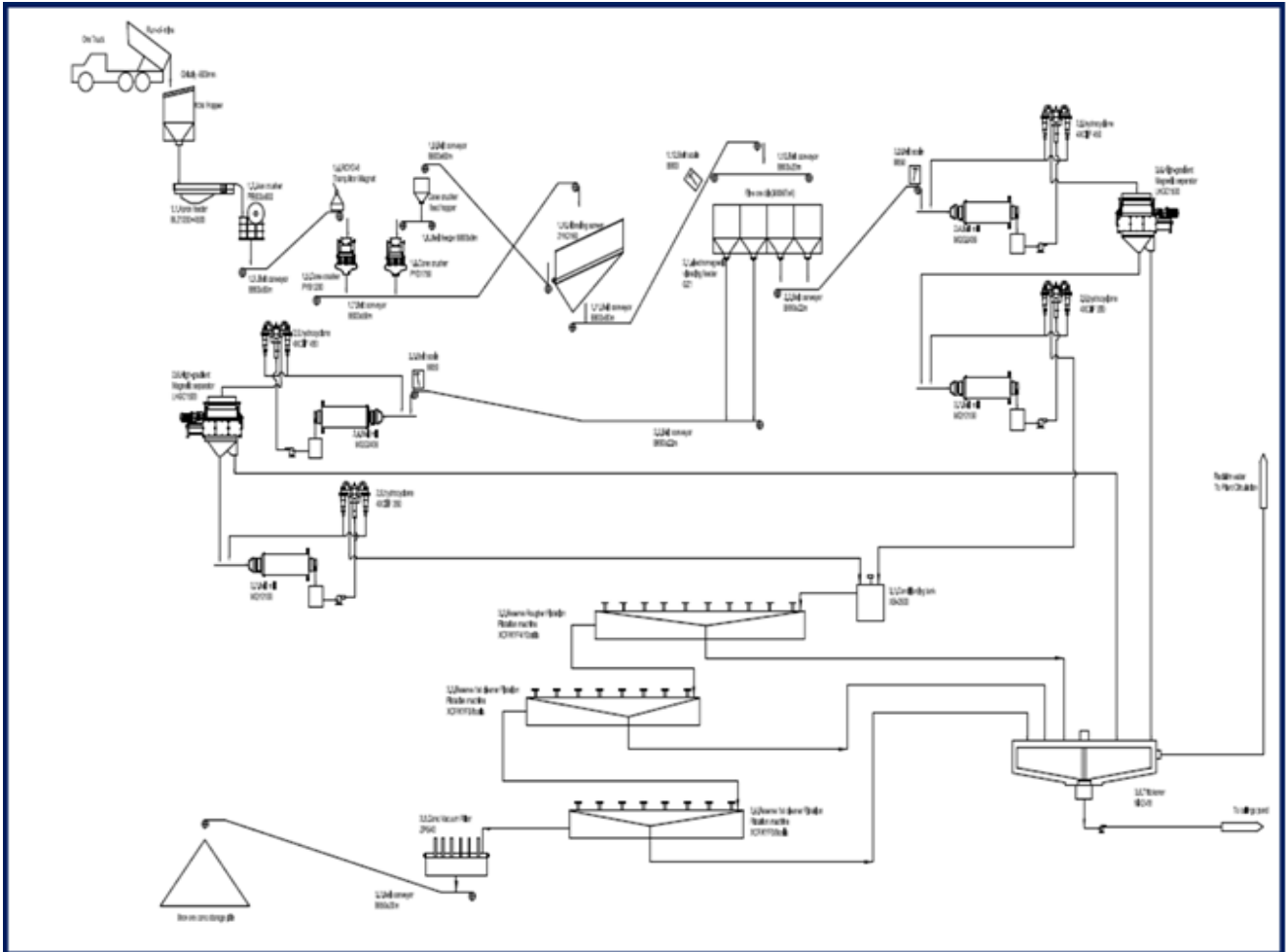
	Test Report # June 27, 2012 Page 02 of 02
CHEMICAL LABORATORY	
TEST REPORT	
Sample not Drawn by SGS Pakistan (Pvt.) Ltd.	
Job No :	Minlab - 42172 / 2012
Client Name & Address :	Tetra Tech Group. / 192 N, PECHS Block-2, Karachi, Pakistan.
Description Of Sample :	Iron Ore (As Stated)
Marking (If Any) :	STP-II
Sample Condition Upon Receipt:	Satisfactory & Unsealed
Environmental Conditions:	Temperature : NA Humidity: NA
No. Of Samples :	01
Date :	22-06-2012

Sr. #	Parameters	Method	Unit	Test Results
01	Total Iron (Fe)	Based on ISO 2597 - 1	%	50.24
02	Iron Oxide (Fe ₂ O ₃)	Calculated	%	71.83

Remarks: Analysis Conducted on Dry Basis.

Ore Quality Beneficiation (Upgradation): Best economic use and commercial benefits can be realized by upgrading the ore through 'Beneficiation' process, a value addition technique practiced worldwide to produce high quality, internationally competitive product for domestic as well as export markets worldwide. Upgradation of ore will require modest investment and offers hefty rates of return on investments. Preliminary designs, project equipment costing have been developed by the EPC contractor engaged in China, however, additional drilling, sampling and metallurgical test work will be required in order to optimize and finalize process flowsheet and other technical aspects in accordance with final project specific requirements.

Beneficiation Plant Process Flow Sheet



Iron Ore Outcrops





Exposed iron Ore seam



Excavated iron Ore seam

General:

Our iron ore deposits are located only 400 Kms from both Pakistan Steel Mills and Tuwairqi Steel Mills, with no law and order issues, easily transportable via an international quality road network and other infrastructure including an airport nearby. Compared to other sources of iron ore i.e. Baluchistan (800 Kms) and Khyber Pakhtunkhwa (1,200 Kms) where substantial part of access to iron ore deposits is via unpaved roads and supply from these areas can be inconsistent subject to uncertain law and order conditions.

Iron ore at the site occurs as a surface deposit; large scale earth moving operations will not be required. Conditions are favorable for open pit quarry mining. Costly groundwater issues are not a factor. Developing this iron ore resource by utilizing modern mining and processing techniques will minimize wastage and maximize output and will be a key cost-effective factor in the revival and profitability of Pakistan Steel Mills and Tuwairqi Steel Mills by ensuring a steady supply of domestically produced high quality raw material feedstock needed for steel production. Since this will be the first of its kind project in Pakistan, a 10-year duration, 600,000 tons/year production pilot project requiring only 9 million tons of iron ore reserves is suggested, alternatively, a 5-year, 300,000 tons/year production project requiring only 2.25 million tons of ore reserves can also be considered which can be subsequently expanded as experience and personnel training is acquired and additional iron ore reserves are confirmed. Pilot module will produce feedstock for the following markets:

- 1) 67% Fe content, DR grade Iron Oxide Pellets required by Tuwairqi Steel Mills.
- 2) 60% and above Fe content iron ore required by Pakistan Steel Mills.
- 3) 62% Fe content iron ore fines for export to China.

Business model is based on the 10-year 600,000 tons/year production project for domestic and Chinese demand, pricing, transportation, freight and other factors. Statistical import price data of the Chinese market for 10 years is used as benchmark for financial projections.

Iron Ore Production Cost in PKR:

Government Royalty and lease related expense	= 300/ton
Raw Ore Mining and Extraction	= 1200/ton
Beneficiation Cost	= 2000/ton
Transportation to Port Qasim, Karachi	= 1600/ton
Miscellaneous /Administrative	= <u>300/ton</u>
Total production cost = 5400/ton	
or US\$ 32/ton (PKR 170/US\$)	

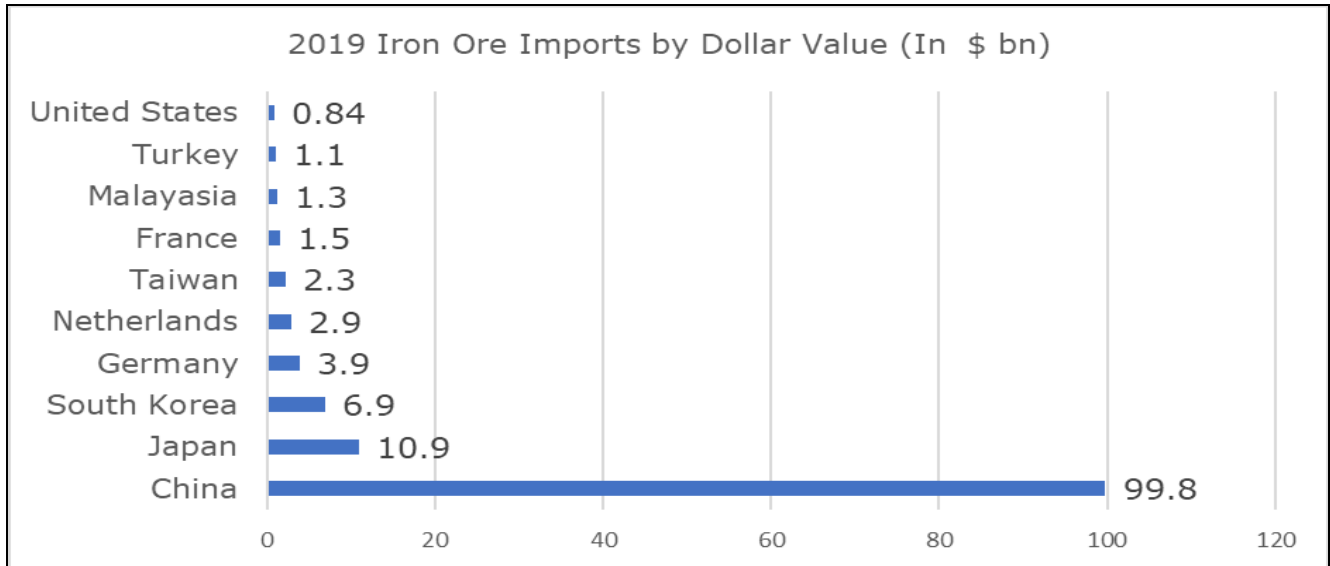
Domestic Market

Pakistan Steel Mills and Tuwairqi Steel Mills located 400 Kms from the mine site will be the primary destination of this iron ore and represent a combined “captive” demand of **4.5 Million tons/year**. Steel industry in Pakistan has relied on imported ore and scrap iron. Purchase prices are influenced by the Chinese Market and structured accordingly. Utilizing the local iron ore as raw material will save substantial foreign exchange through import substitution encouraged by government due to high US\$ parity with PKR, enabling easy project financing through governmental programs specifically designed for this purpose.

Export Market

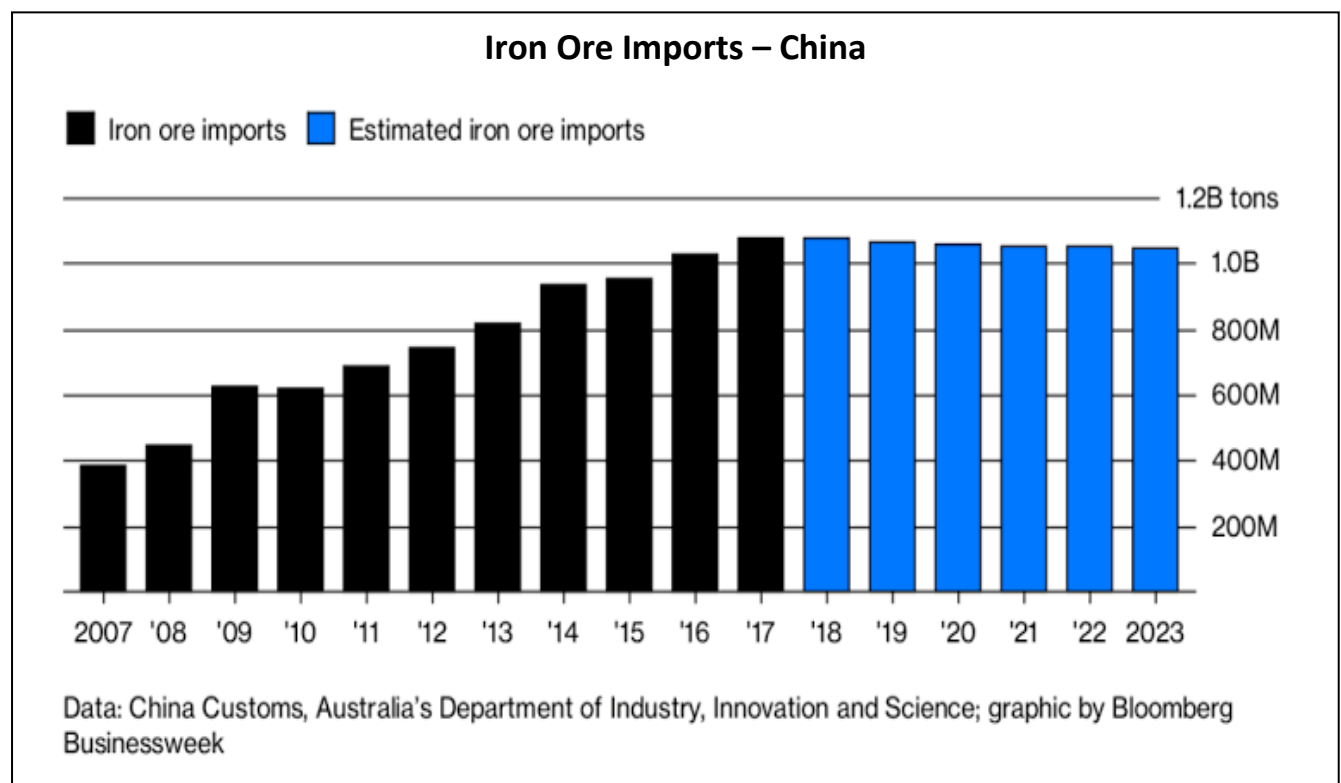
Top 10 countries in the world imported \$122 Billion worth of iron ore in 2019 and represent the potential export market. for high quality feedstock for the steel industry. Mining leases have been secured and the proposed pilot project can be started immediately to become cash flow generating in very short time.

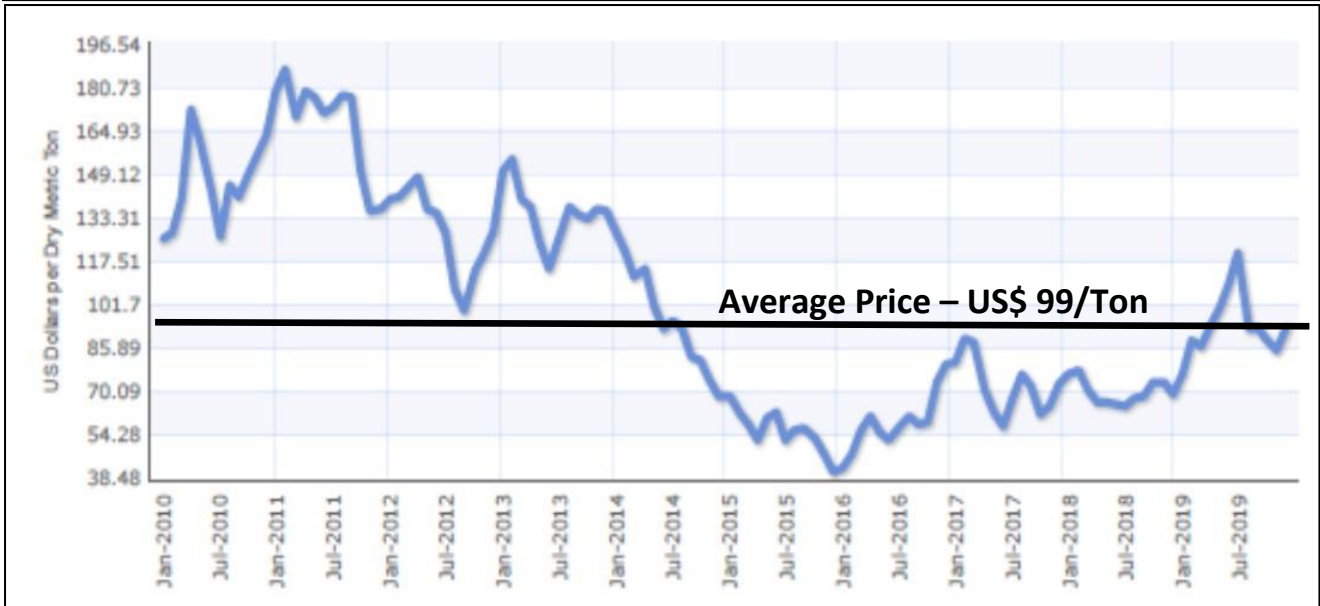
Top 10 Export Markets



Export to China

China offers the biggest market for export of this product. Import volumes in China increased from 300 million tons in 2006 to more than **1 billion** tons/year in 2016, 2017, 2018 and 2019 and projected to stay above 1 Billion Tons/year moving forward. CPEC related development in western China will create substantial additional demand for imported iron ore.





Export to China Based on 10-year Average Price:

10 Year Average Price 62% Fe Fines	= (+) \$ 99/ton
Less Production Cost	= (-) \$ 32/ton
Less Shipping & Handling Cost	= (-) \$ 7/ton
Gross Profit = US\$ 60/ton	

Annual Gross Income (EBITDA) = US\$ 60 X 600,000 = US\$ 36 Million

Although the business model is based on 600,000 TPY production, a smaller production pilot may be considered as a startup. Our team of highly qualified professionals is familiar with all aspects of this project and we are seeking joint venture or other suitable project development arrangement with private or quasi-private sector entities in order to move forward on this highly profitable project of vital national importance.

Please do not hesitate to contact us for any questions



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