

# Mineral Potential of Pakistan

An Ecosystem for Indigenous Mineral Based Industrialization

*Presentation by*

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# Key Minerals

## 1 Industrial

- Rock Salt, Limestone, Gypsum, Dolomite, Barite, Bentonite, China Clay, Fireclay, Phosphate, Silica Sand

Cement



Chemical Industry



Drilling



Glass



Soda Ash



Paints Industry



## 2 Metallic

- Chromite, Copper, Gold, Silver, Iron, Lead-Zinc

Steel Mills



Battery Industry



Cables



Ammunition

## 3 Dimension Stones

- Marble, Granite, Sand Stone

Decorative



Construction Sector



## 4 Gemstones

- Emerald, Ruby, Tourmaline, Topaz, Aquamarine

Gem & Jewellery



## 5 Energy

- Coal

Brick Kiln



Cement



Power



# Metallic Minerals Potential

Mineral	Estimated Resources (Million Tons)	Grade
Chromite	2.53	Low to Medium
Copper	>6,000	Low to High
Gold	1,656 metric tons	Low
Silver	618 metric tons	Low
Iron Ore	1,427	Low to High
Lead-Zinc	24	Low to Medium

## Coal Potential

Province	Resources Estimate (Million Tons)
Sindh	185,457
Balochistan	217
Punjab	235
Khyber – Pakhtunkhwa	9
FATA	81
AJK	9
<b>Total:</b>	<b>186,008</b>

***Coal Quality:*** Lignite to Bituminous  
***Heating Value:*** 5,200 -15,500 BTU/lb.

Thar Coal resources have the capacity to support 100,000 MW electricity generation for centuries.

# Industrial Minerals & Dimension Stones

Mineral	Resources Estimate (Million Tons)	Grade
Barite	14	Medium to High
Fireclay	> 100	Medium to High
Fuller's Earth	Fairly Large	Medium to High
Granite	4,140	Medium to High
Gypsum	4,850	Medium to High
Limestone	Very Large	High
Magnesite	12	Medium to High
Marble	Very Large	High
Phosphate	7	Low to Medium
Red Oxide	100	Low to Medium
Rock Salt	>22,000	High
Silica Sand	557	Medium to High

# Mineral Map of Pakistan

## Metallic Minerals

- Chromite
- Manganese
- Iron ore
- Copper / Gold
- Zinc-Lead

## Non-Metallic Minerals

### Dimension Stones

- Aragonite/Marble
- Granite
- Onyx marble
- Fossiliferous/re-crystallized Limestone

### Chemical, Fertilizer & Industrial Minerals

- Barite (Barytes)
- Dolomite
- Feldspar
- Gypsum (including anhydrite)
- Magnesite
- Phosphate
- Rock salt
- Silica sand
- Soapstone / Talc

### Clays

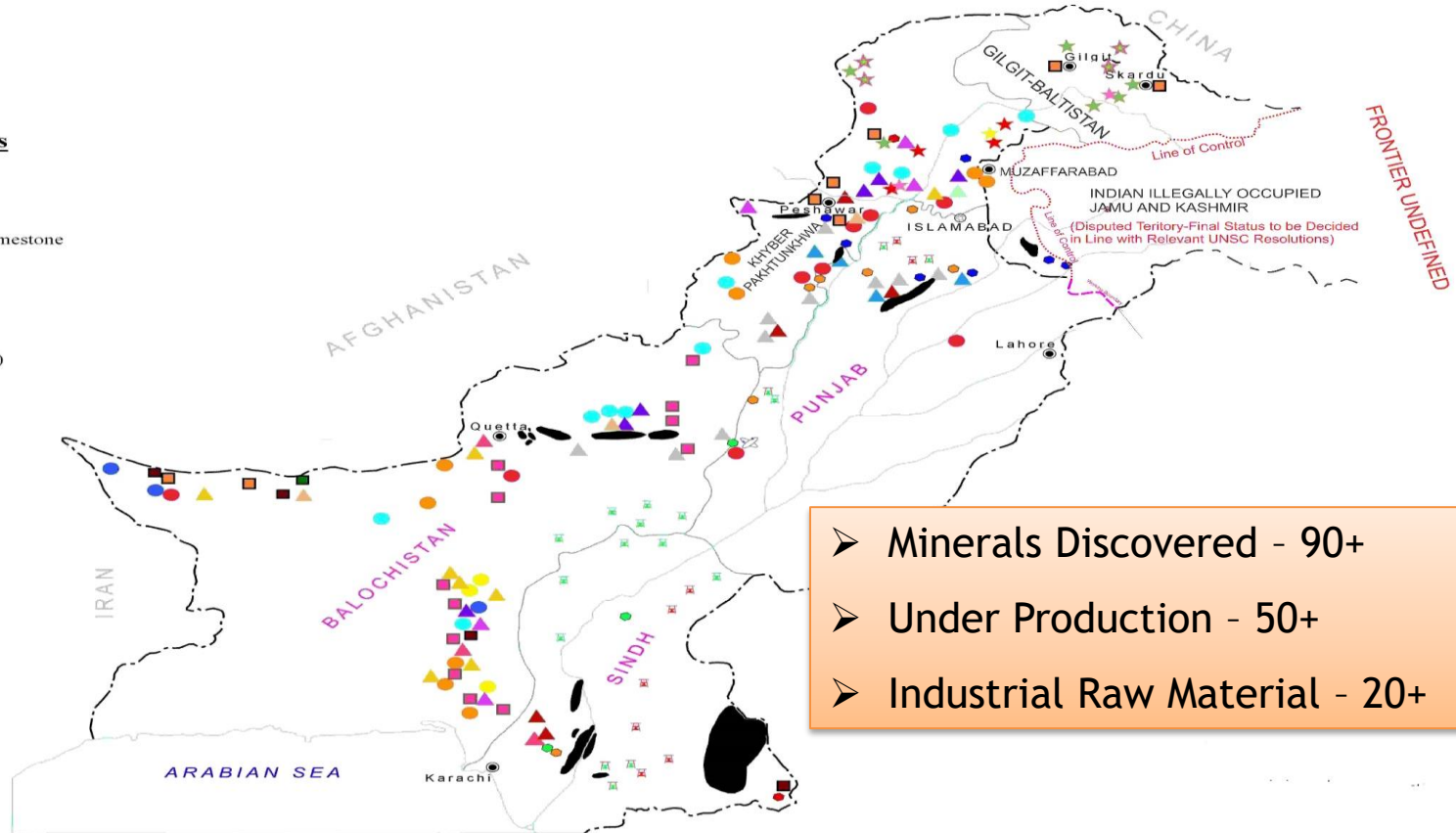
- Bentonite
- China clay
- Fire clay
- Fuller's earth

### Gemstones

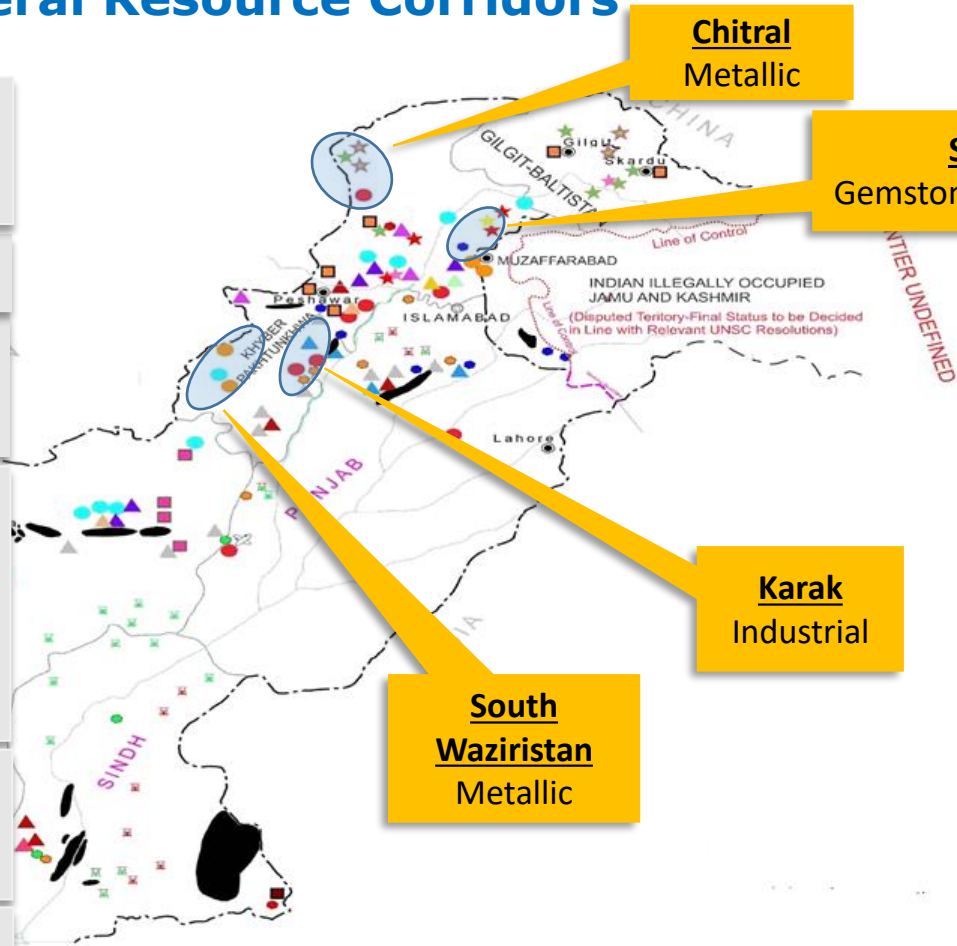
- Emerald
- Peridot
- Ruby
- Topaz
- Tourmaline
- Aquamarine

### Fuels

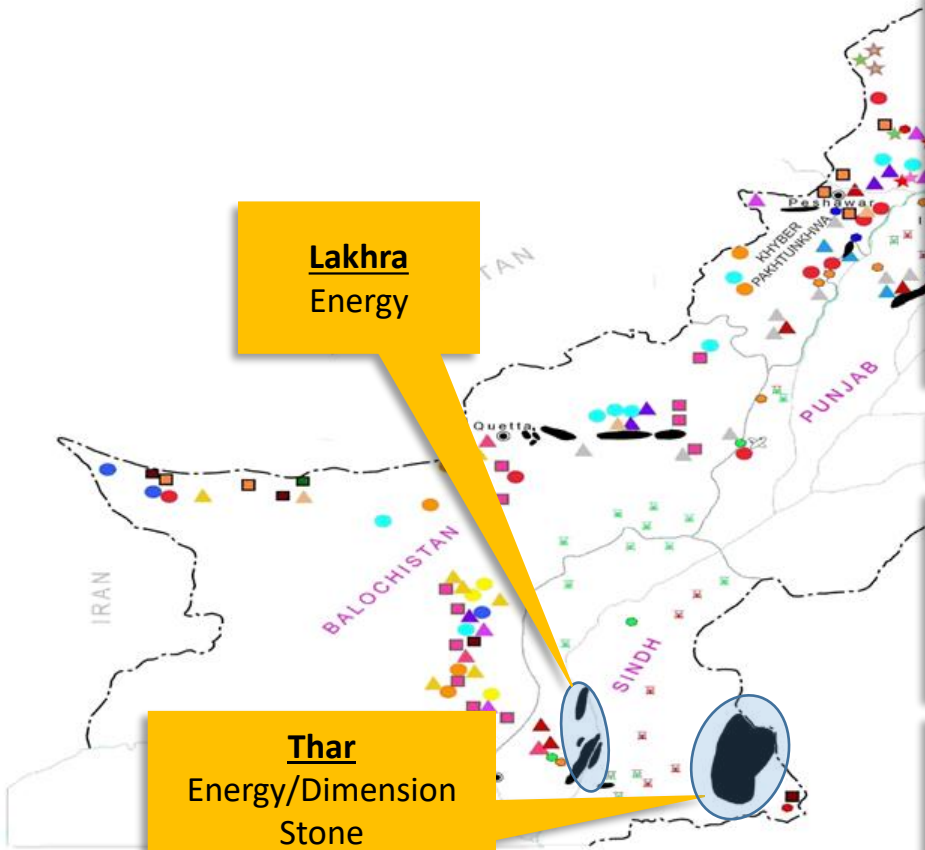
- Coal
- Oil
- Gas
- Oil & Gas
- Uranium



Gemstone	▶ Swat Emerald Mines – Best Emerald in the world.
Granite	Reserves: 3 Billion Tons
	▶ Indus Mine ▶ Islam Marble Mine & Bampokha Mining Corp
Limestone	▶ 7 Cement Plants
	Lucky Kohat Cherat Askari
	Bestway Dewan
	▶ 5 new blocks auctioned for new Cement Plants
Metallic	▶ Geo Chemical Survey in Malakand & Chitral has indicated vast potential
Copper	▶ MEDO Copper Mining Project



# Mineral Resource Corridors



Lakhra  
Energy

Thar  
Energy/Dimension  
Stone

## Coal

Reserves: 185 Billion Tons

- Sindh Engro  
Annual Production: 4 Million Ton/yr  
Commissioned ~ 600MW
- Sino Sindh  
Mine Development Phase
- Oracle Power  
Licensing in Process

Upcoming Power Projects' Capacity ~ 5,940 MW

## Granite

Reserves: 26 Billion Tons

- Kohinoor Marble
- Pakistan Stone  
Development

## Limestone

- 5 Cement Plants
  - Lucky
  - Power
  - Thatta
  - Rohri
  - Dewan

### Limestone

Reserves: Inexhaustible

- ▶ 11 cement plants in Punjab having basic raw material

### Rock Salt

Reserves: Inexhaustible

ICI	Olympia Chemicals	Ittehad Chemicals	Sitara Chemicals
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### Iron Ore

Reserves: Inexhaustible

- ▶ Chiniot Iron Project  
Investment Arrangement Underway

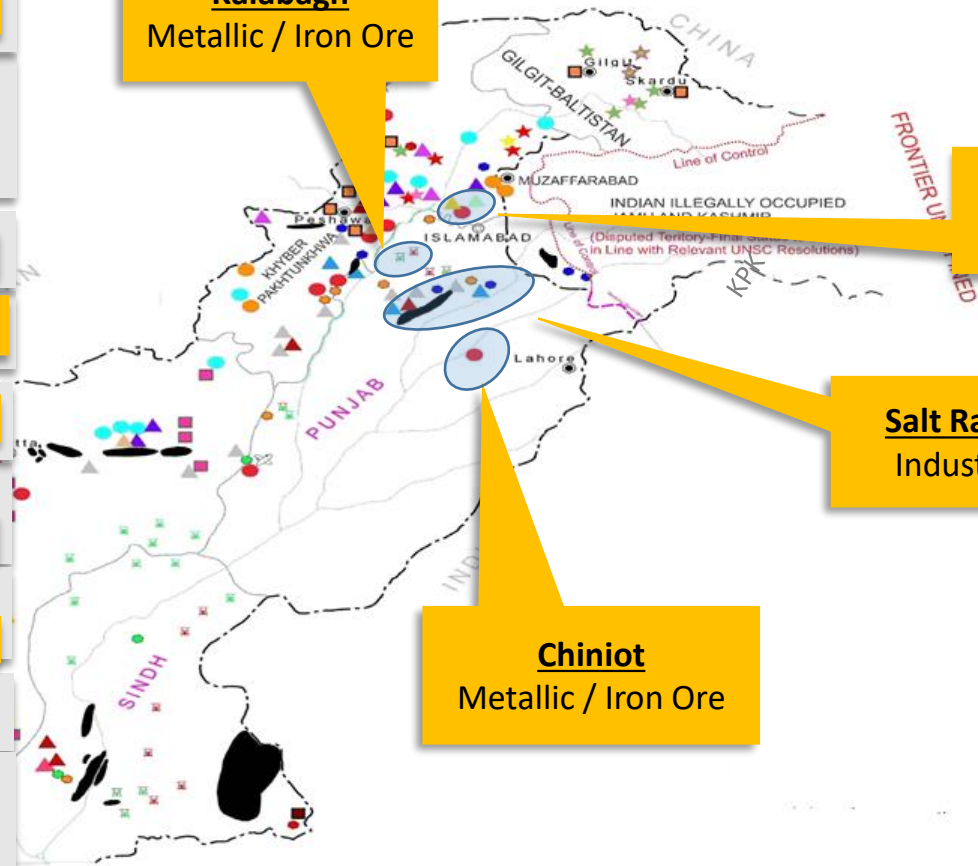
- ▶ Kalabagh  
Potential for Steel Industry

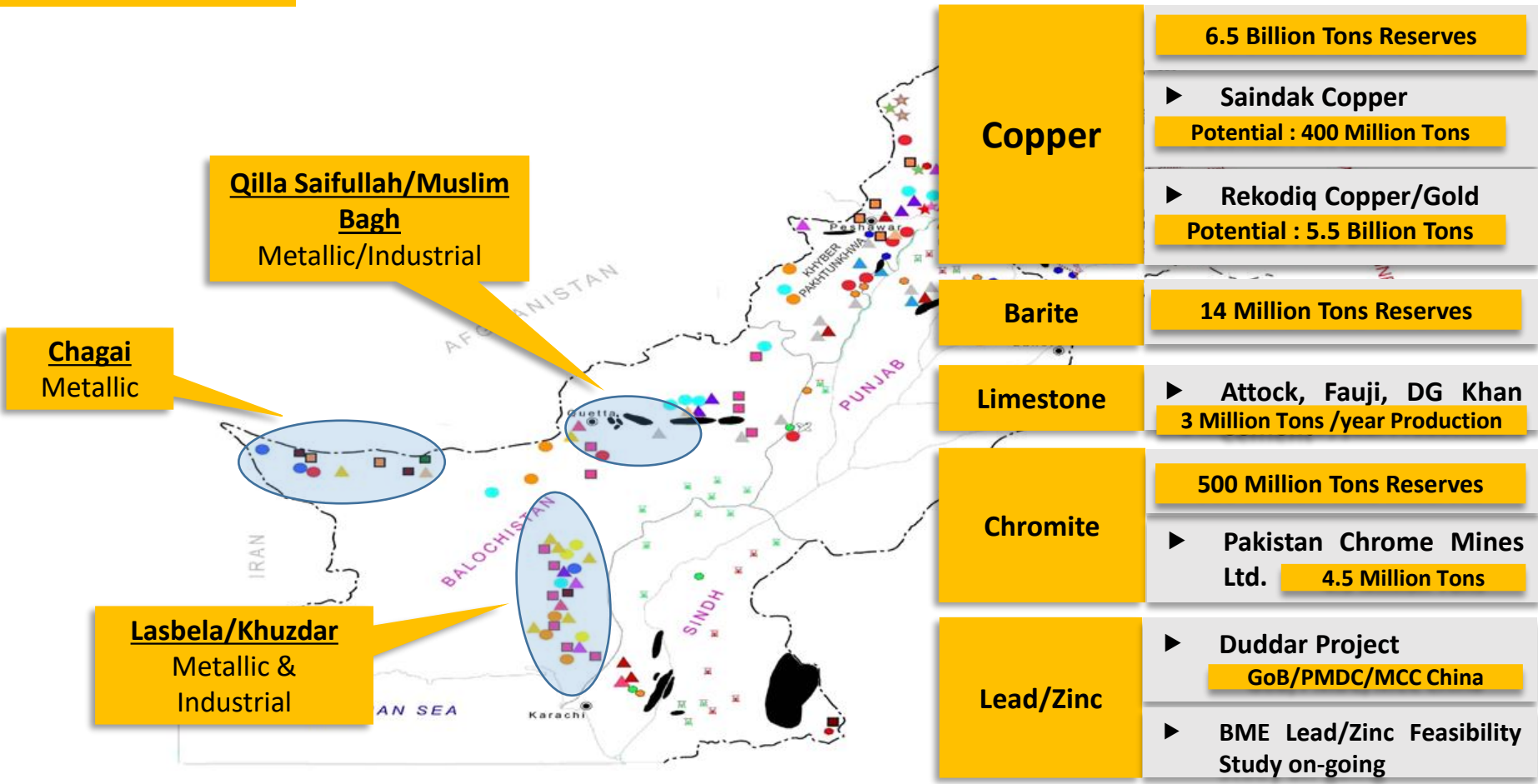
### Silica

134 Million Tons Reserves

- ▶ Major Glass Industry

Ghani Glass	Gunj Glass	Toyo Nasik
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# Mineral Resource Corridors

**Gemstone**

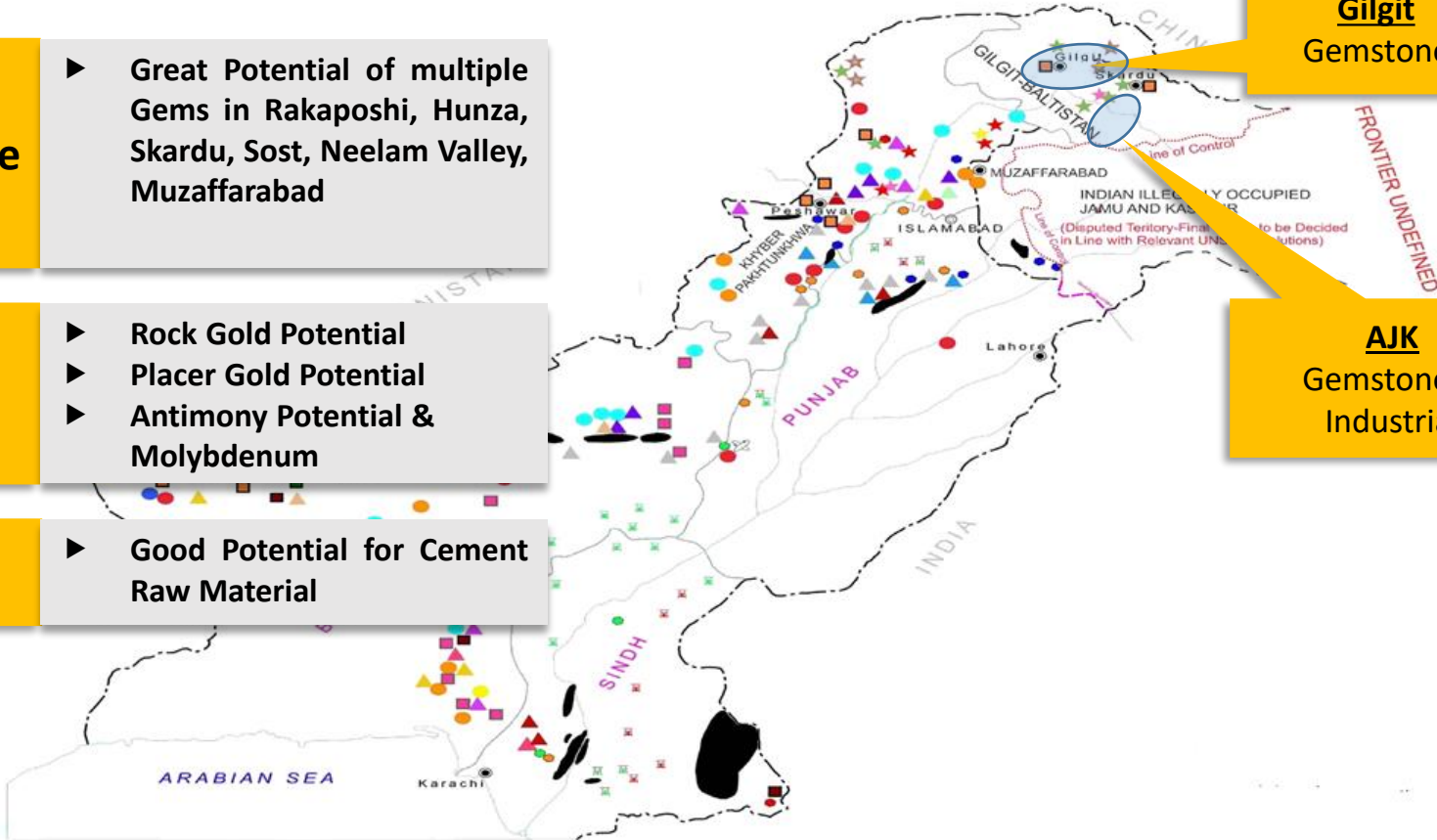
- ▶ Great Potential of multiple Gems in Rakaposhi, Hunza, Skardu, Sost, Neelam Valley, Muzaffarabad

**Metallic**

- ▶ Rock Gold Potential
- ▶ Placer Gold Potential
- ▶ Antimony Potential & Molybdenum

**Limestone**

- ▶ Good Potential for Cement Raw Material



# Sector Highlights



- Geological mapping, mineral investigations and publication of maps/reports
- Extend assistance to private sector as contractual work



- 100% owned by Federal Government
- Engaged in exploration & mining of coal, salt, soapstone, lead-zinc & copper



- 100% owned by Federal Government
- Engaged in Saindak Copper-Gold Project



- Joint venture (50:50) between PPL and Government of Balochistan
- Engaged in Barite mining & processing, Iron Ore and Lead-Zinc exploration



300,000  
workforce



> 50 minerals  
exploitation



GDP < 1%



Locations 5,000



BMRL

BME  
C



Oracle Power PLC

# G2G Arrangements & Success Stories

**Saindak Copper-Gold**  
[SML & MCC, China]  
**Operational**

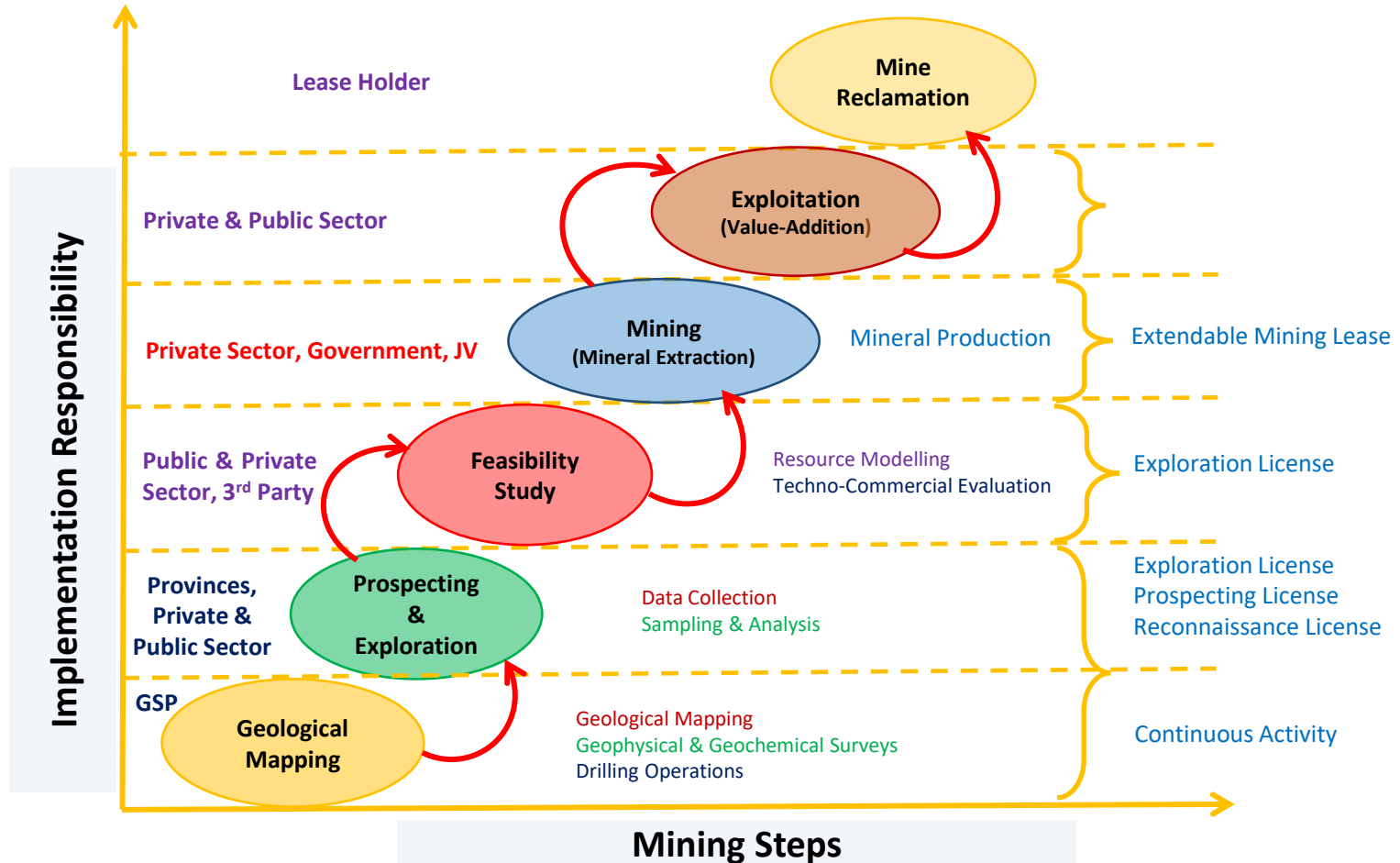
**Duddar Lead-Zinc**  
[PMDC & MCC, China]  
**Operational**

**Geochemical Mapping**  
[GSP &  
China Geological Survey]  
69 elements, 1:1,000,000

**Thar Coal -**  
**Sindh Engro Block-II**  
CPEC, **Operational**

**Thar Coal -**  
**Sino Sindh Resource**  
CPEC,  
Under Development

# Mineral Development Process



# Ecosystem for Mineral based Industrialization

JORC



**Resource Estimation**  
- Int'l Standards / JORC etc.

**Efficient/Incentive-based Mineral Concession Regime**

**Upfront Provision of Infrastructure**  
- Road, Rail, Utilities

**Trained Professional Manpower**  
- Technical & Management Professionals

**Import Parity Pricing**  
- where essential

**Minerals Based Industrialization**

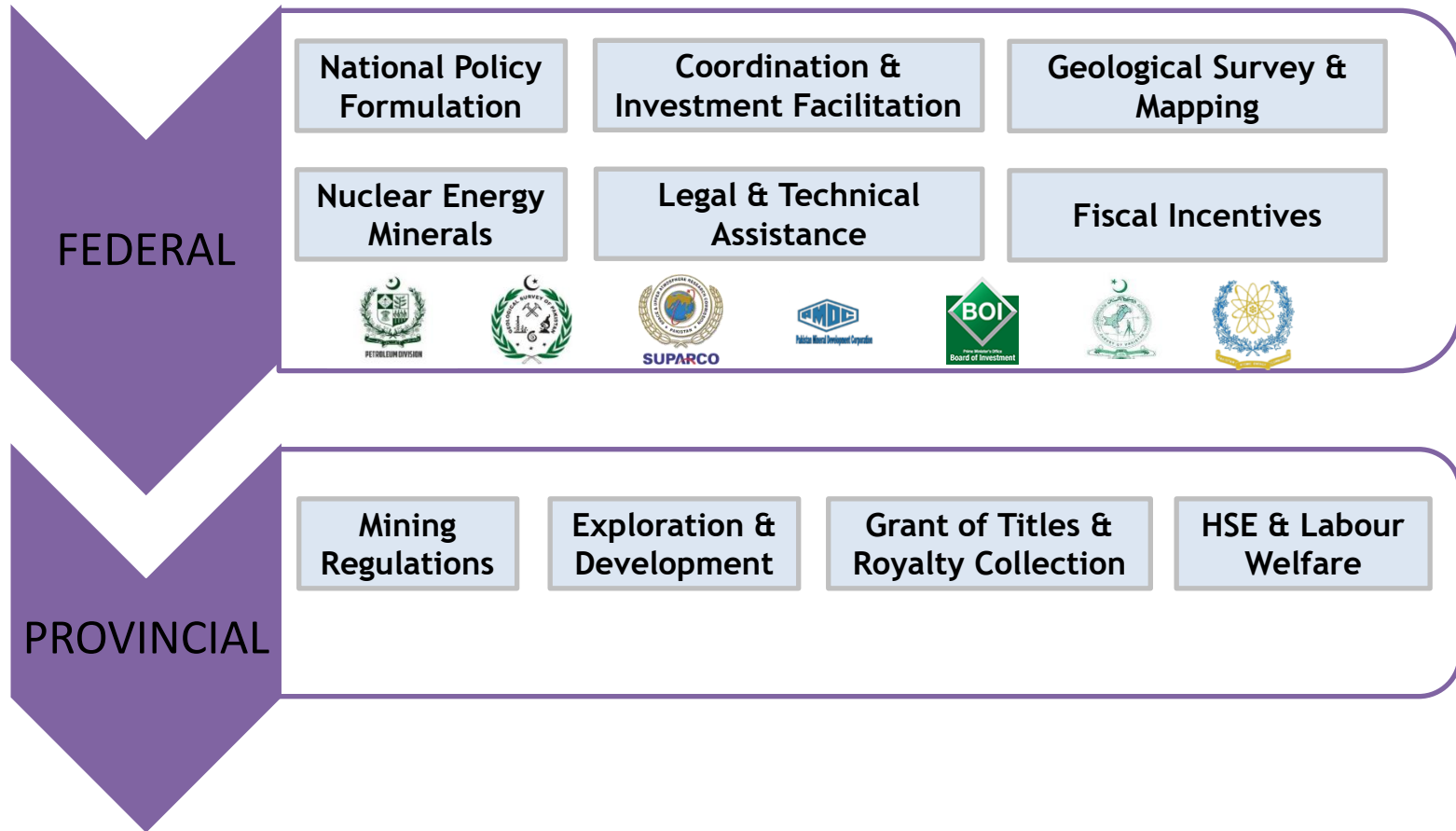
**Progressive Credit Policies & Banking Products**  
- Mine Collateralization

**Fiscal Incentives**  
- Financial Facilitation

**Logistics & Export Facilitation**  
- Export Incentives



# Constitutional Domain & Regulatory Functions



# Strategic Interventions

## Key Initiatives

## Major Actions

<b>Legal Framework Review</b>	<b>Uniform Legal Regime</b>	<b>Tenure Security</b>	<b>Fiscal Regime Sustainability</b>	<b>Business Friendly &amp; Competitive Policies</b>
<b>Governance &amp; Management Review</b>	<b>Performance Review</b>	<b>Institutional Restructuring</b>	<b>Professional Linkages</b>	<b>Capacity Building</b>
<b>Graduation towards Modern &amp; Competitive Mining</b>	<b>Preparation of Detailed Geological Maps</b>	<b>Resource Estimation</b>	<b>Shaping of Minerals Resource Corridors</b>	<b>Online Data Availability</b>
<b>Attracting Investment – Foreign &amp; Local</b>	<b>Minerals based SEZs</b>	<b>Promotion of Mineral Based Industries</b>	<b>Investment Promotion / Marketing</b>	<b>Effective Coordination among Entities</b>
<b>Incentive Packages</b>	<b>Collateralize &amp; Subsidies</b>	<b>Machinery &amp; Equipment Pool</b>	<b>Fair and Equitable Royalty</b>	<b>HR Level</b>
<b>Ensuring Sustainable Growth</b>	<b>Efficient Lease Planning &amp; Contract Management</b>	<b>Value Addition &amp; Clarity of Roles</b>	<b>Smart Work Initiatives by Corporate Entities</b>	<b>HSE Standards &amp; Rehabilitation</b>

Thank You!

