



# OVERVIEW OF MINING INDUSTRY OF PAKISTAN

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# NATURAL RESOURCES SECTOR

- Constitutional Apportionment
- National Mineral Policy
- Geological Profile of Pakistan
- Coal Sector
- Metallic Minerals Sector
- Gemstone Sector
- Industrial Minerals & Dimension Stones Sectors



# CONSTITUTIONAL APPORTIONMENT



## Federal:

- Regulation of nuclear minerals and those occurring in federally controlled areas, Islamabad Capital Territory and International Offshore Water Territory.
- Geological surveys.
- National policies formulation, facilitation and coordination at national and international levels.

## Federating Units:

- Regulation of mineral sector.
- Mineral exploration and development.
- Safety of exploration and mining operations.

# NATIONAL MINERAL POLICY



- First National Mineral Policy (NMP) formulated in 1995 with consensus of federating units.
- Its implementation played a vital role in:
  - discovery of world-class mineral deposits (Copper, Gold, Coal, Gemstones, Dimension stones)
  - attracting investment of about US\$ 1.0 billion.
  - increasing revenues by manifolds and employment opportunity.
- Pakistan has huge mineral potential which is yet to be fully explored. It was therefore, necessary to review the policy to make it internationally competitive and to address challenges of large-scale mining for attracting foreign investment.
- NMP 2013 was prepared in consultation with Commonwealth Secretariat, U.K., federating units and other stakeholders and launched in February 2013.

# SALIENT FEATURES OF NMP-2013



- Define role of federal government and federating units.
- Emphasis on corporate social responsibility and local value-addition;
- Compliance with international reporting standards for mineral resource evaluation;
- Clarity in fiscal and regulatory regimes for international competitiveness;
- Development of infrastructure, environmental impact mitigation and enhancement of contribution of mineral sector to GDP;
- Mineral agreements as per international standards.
- Projection of mineral sector at international promotional events; and
- Joint mechanism for implementation of NMP-2013 by federal & provincial governments.

# PAKISTAN'S MINING SECTOR



- Pakistan is blessed with an abundance of mineral resources.
- At present, about 50 minerals are being mined on a small scale.
- The major production is coal, rock salt and industrial –construction materials.
- Despite the huge prospects of investment in the minerals sector, its contribution to the GDP of Pakistan is about 0.5%.
- The contribution of the Pakistan minerals sector to GDP is very low compared to other countries rich in mineral resources.

# MINING CONTRIBUTION TO GDP

- Chile – 8.5%
- Australia – 5.6%
- Canada – 3.6%
- USA – 1.6%
- Pakistan – 0.5%



# Mineral Production Data

More than 50 minerals have been explored in Pakistan, production data of top 10 minerals is given in the table



(million tons)

S. No.	Name of Mineral	2010-11	2011-12	2012-13
1	Limestone	34.240	35.021	39.481
2	Silica Sand	0.358	0.089	0.359
3	Coal	3.427	3.506	3.350
4	Argillaceous Clay	4.484	4.562	4.514
5	Rock Salt	1.895	2.156	1.069
6	Marble	1.482	1.603	2.166
7	Gypsum	1.036	1.564	1.254
8	Fireclay	0.275	0.683	0.457
9	Dolomite	0.283	0.183	0.205
10	Copper Blister	0.018	0.018	0.014



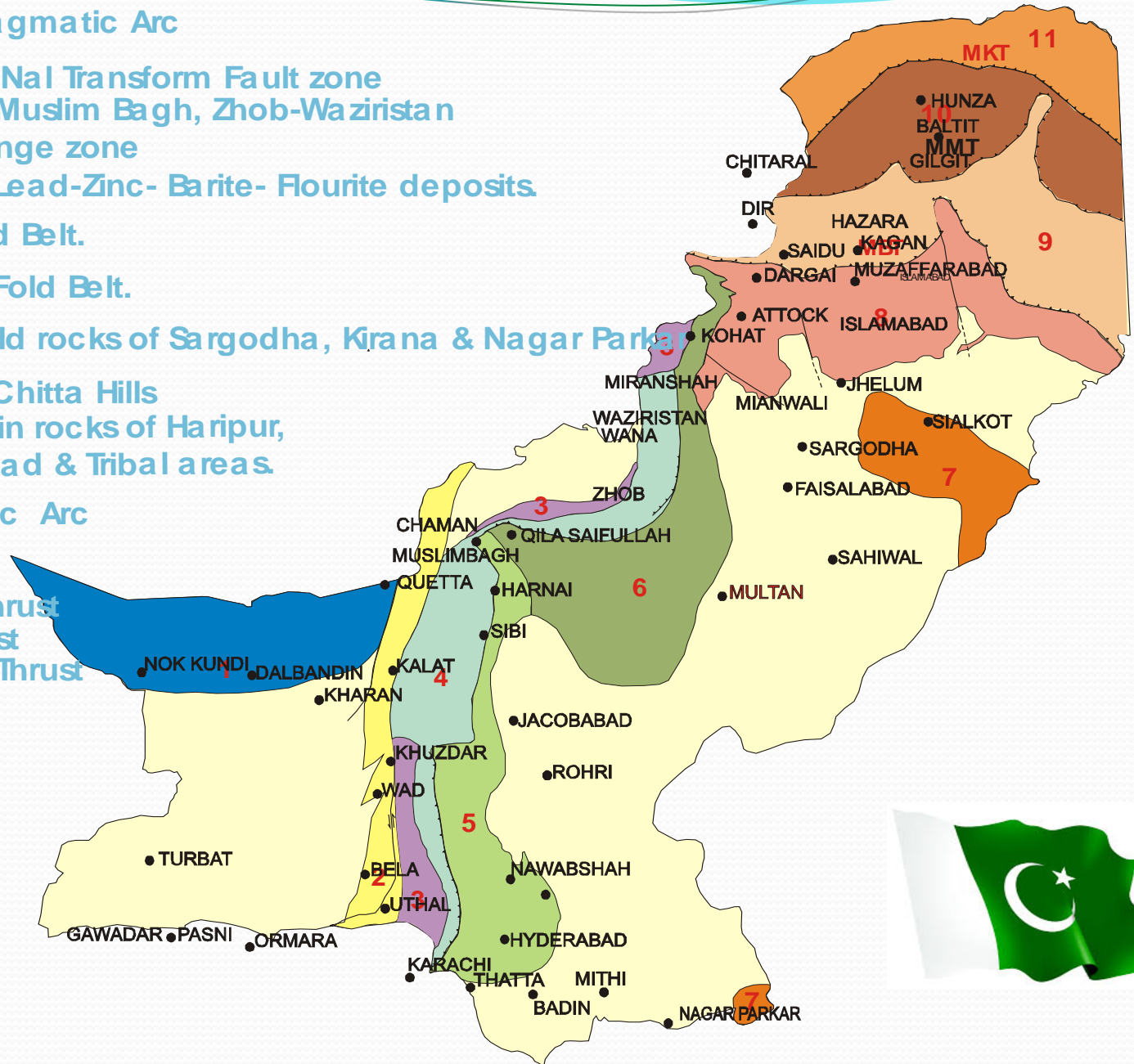


# Metallic Minerals Sector

# METALLOGENIC ZONES OF PAKISTAN




- 1** Chagai Raskoh Magmatic Arc
- 2** Chaman- Ornach-Nal Transform Fault zone  
Lasbela- Khuzdar, Muslim Bagh, Zhob-Waziristan
- 3** Ophiolites & Melange zone
- 4** Sediment hosted Lead-Zinc- Barite- Flourite deposits
- 5** Kirthar Thrust & Fold Belt.
- 6** Sulaiman Thrust & Fold Belt.
- 7** Indo Pakistan Shield rocks of Sargodha, Kirana & Nagar Parkar
- 8** Salt range & Kala-Chitta Hills
- 9** Gondwanic domain rocks of Haripur, Sherwan, Abbotabad & Tribal areas.
- 10** Kohistan Magmatic Arc
- 11** Karakoram Block

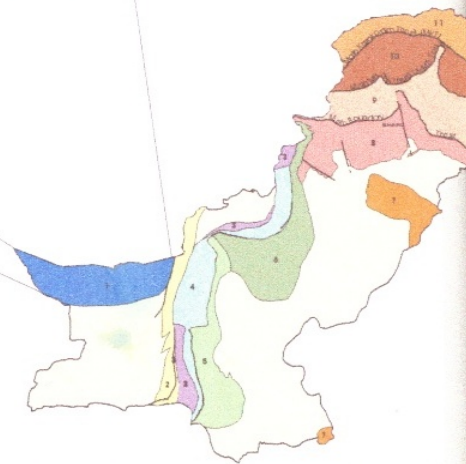
**MBT** Main Boundary Thrust  
**MMT** Main Mantle Thrust  
**MKT** Main Karakoram Thrust



## Chagai- Raskoh Magmatic Arc

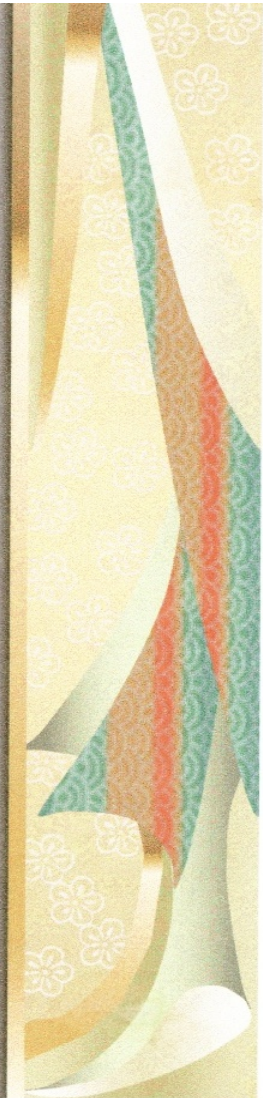


-  Copper
-  Chromite
-  Iron ore



## CHAGAI - RASKOH MAGMATIC ARC

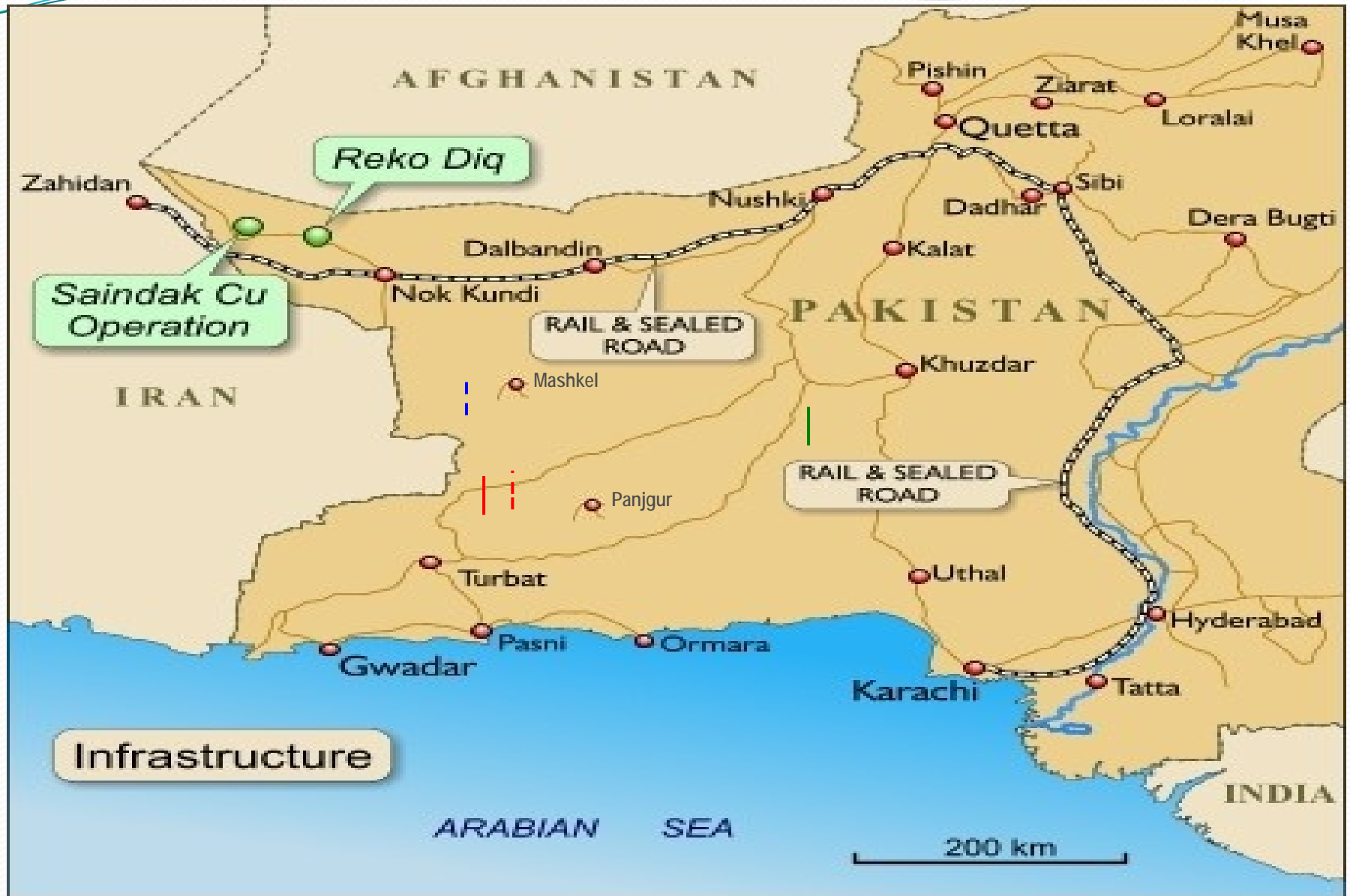
- ❖ Most important metallogenic belt, extending from Yugoslavia - Turkey – Iran to Pakistan. It contains world class deposits of Copper, Gold, Silver. Saindak & Reko Deq porphyry copper gold deposits are part of this belt.
- ❖ Occurrence of gold has also been reported from the area.
- ❖ Iron ore and exploitable deposits of Sulphur are also identified in the same belt.



# TETHYAN BELT - Major Copper-Gold Deposits



# Location Map of Reko-Diq Project



Infrastructure

200 km



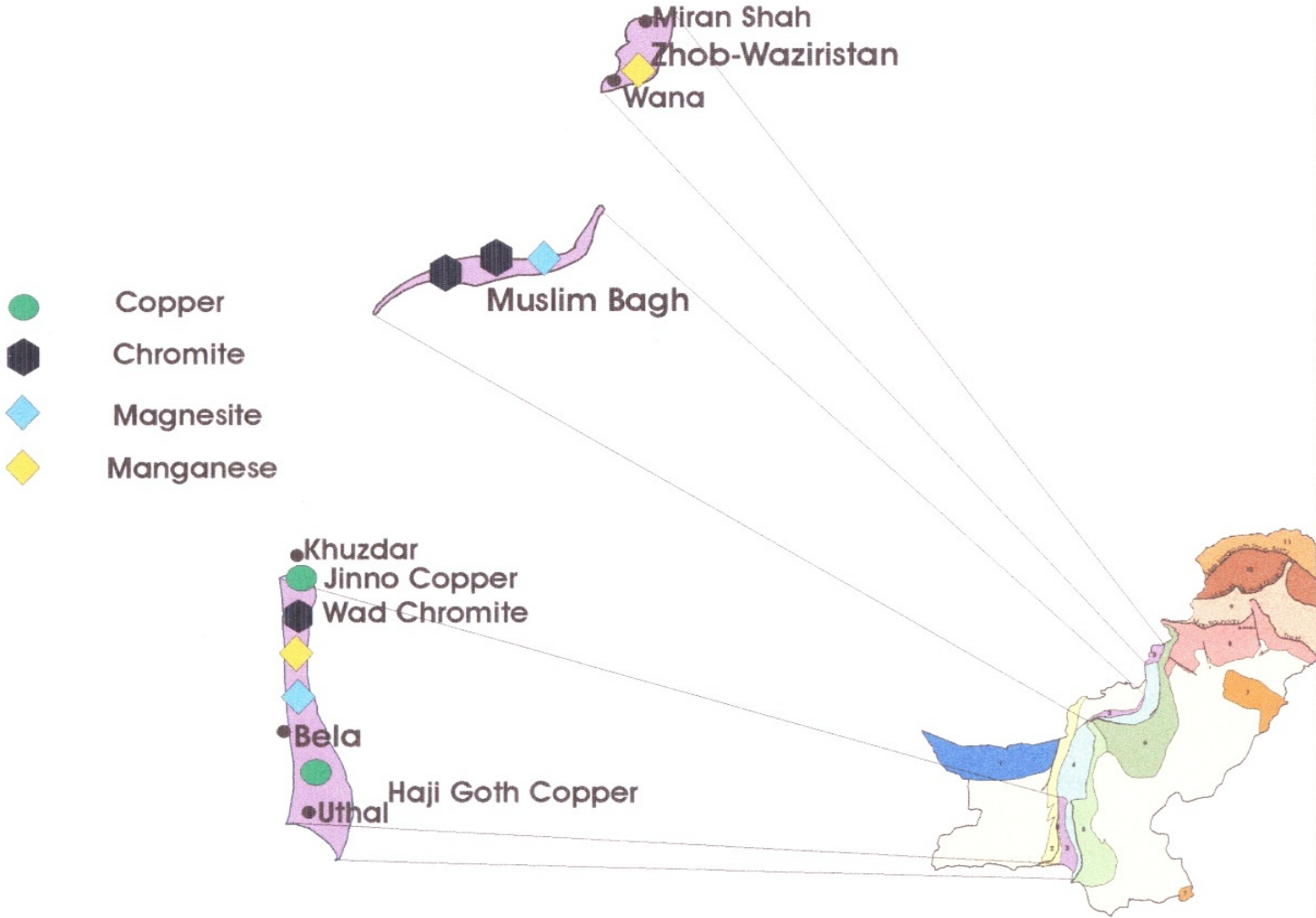
## SEDIMENTS HOSTED LEAD-ZINC DEPOSITS

- This zone extends from Uthal to Zhob.
- Contains Zinc, Lead, Iron, Barite and Fluorite.
- Zinc-Lead deposits of Gunga & Duddar are part of this zone and there are good prospects of finding more deposits.
- Large deposits of Dilband iron ore (200 million tonnes) are in mining stage.



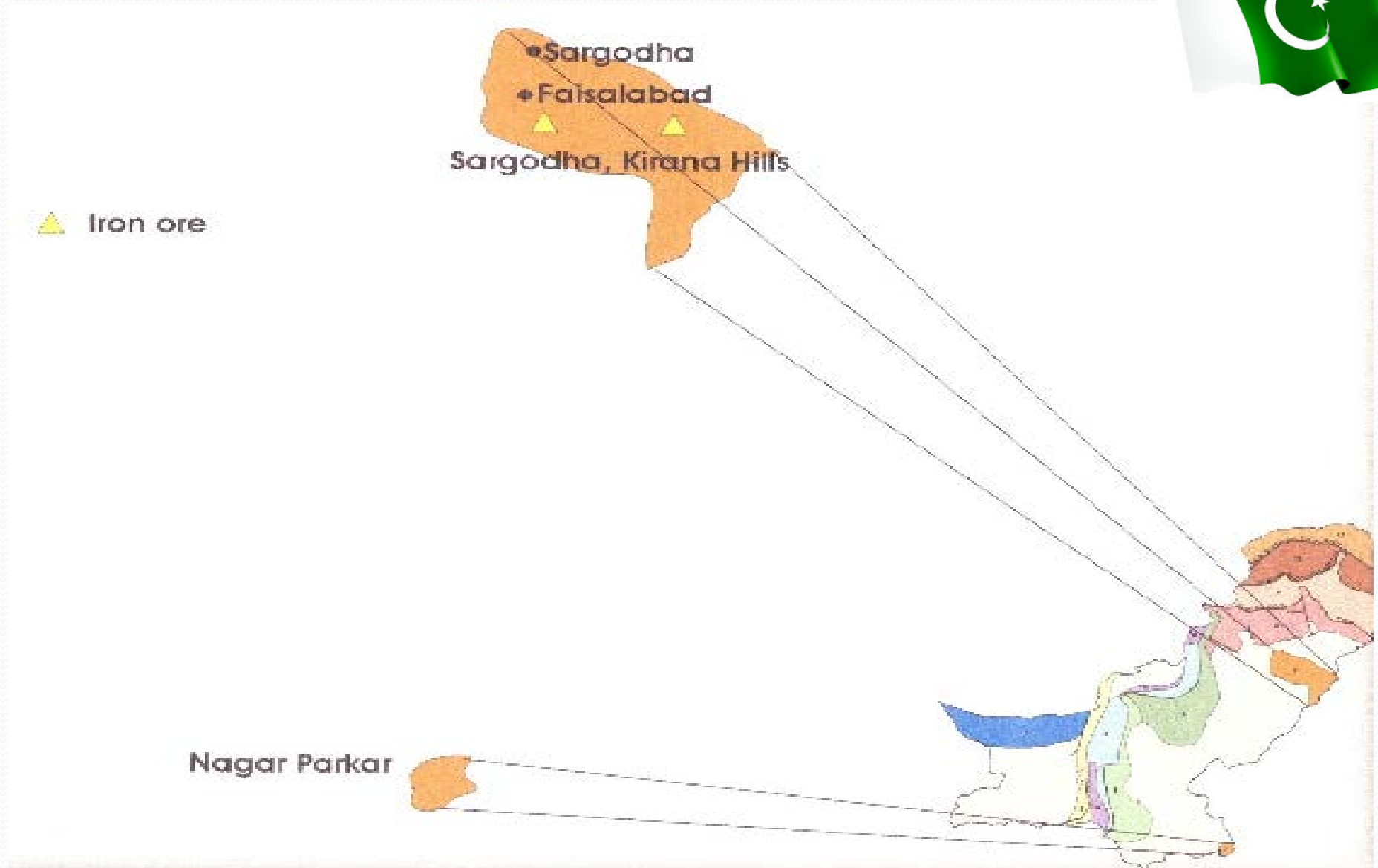


Lasbela- Khuzdar, Muslim Bagh, Zhub-Waziristan Ophiolites & Melange zone

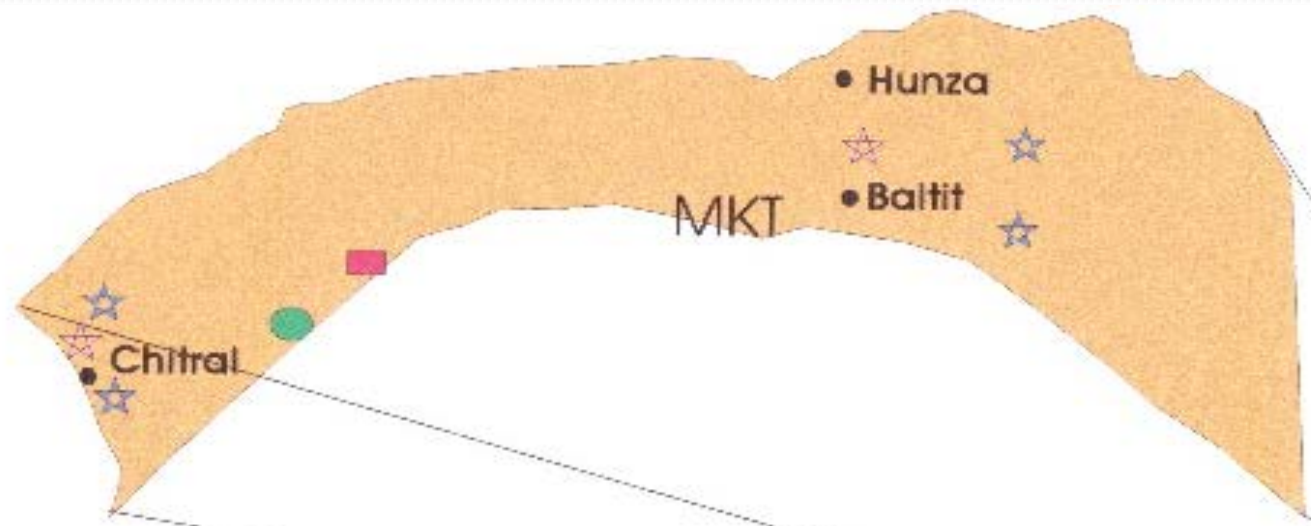




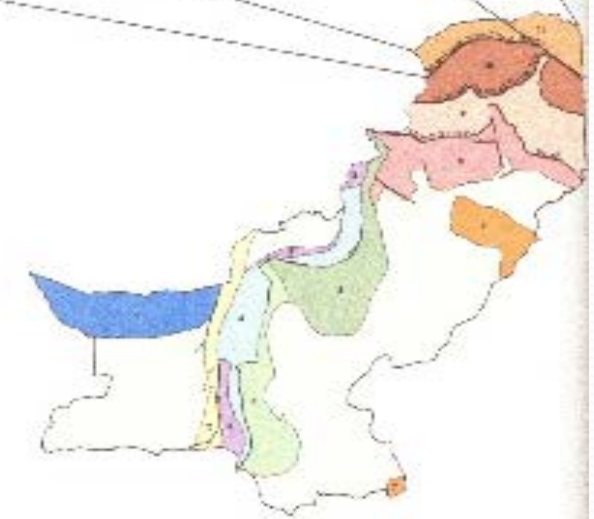
# Indo Pakistan Shield Rocks of Sargodha, Kirana & Nagar Parkar



# Karakoram Block



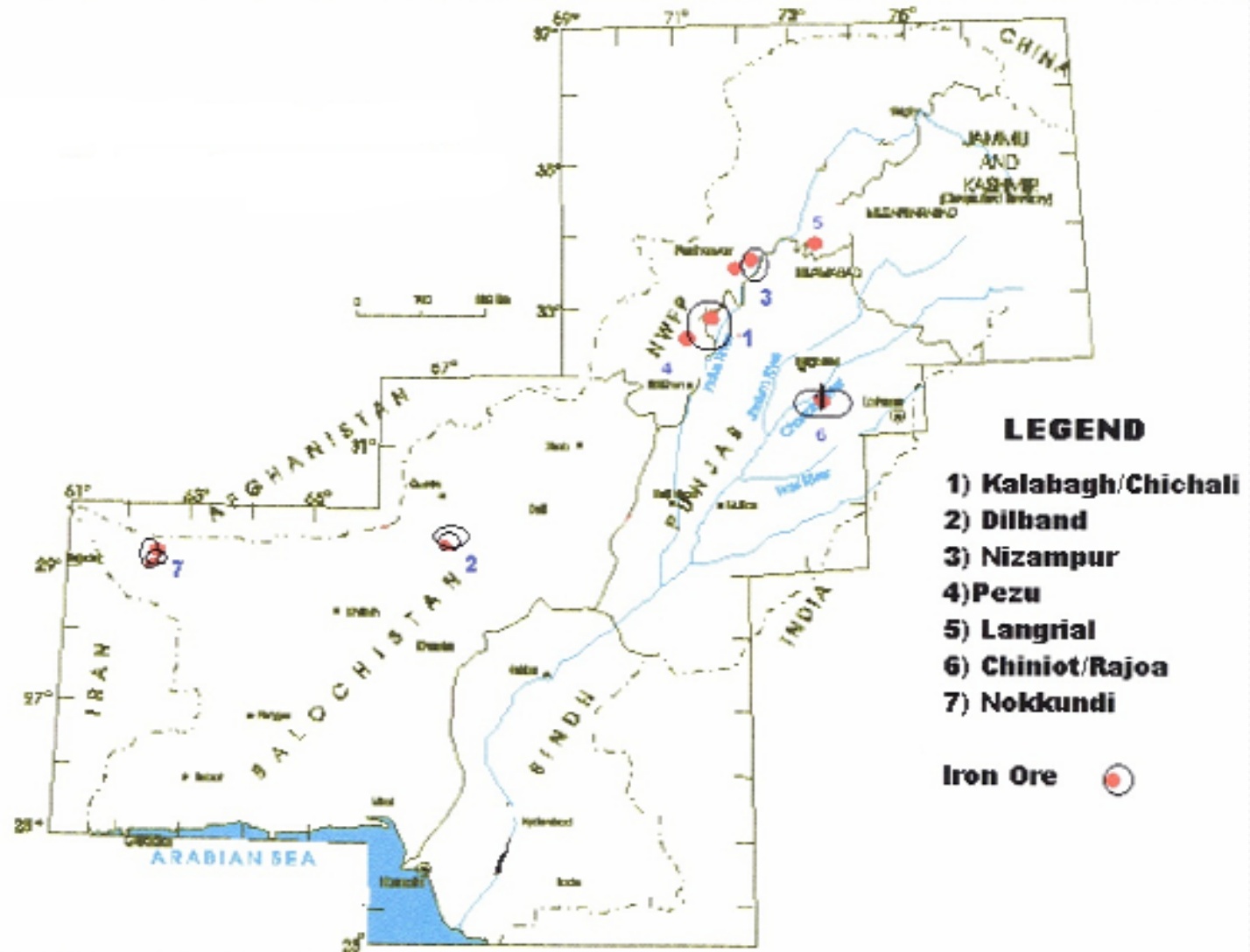
-  Copper
-  Lead- Zinc
-  Tourmaline
-  Emerald
- MKT** Main karakoram thrust



# Iron-Ore Deposits of Pakistan



Name of Deposit	Resource (MT)
1. Kalabagh	250
2. Dilband	200
3. Nizampur	168
4. Pezu	13
5. Langrial	20
6. Chiniot/Rajoa	110
7. Nokkundi	45



# Resource Potential of Major Metallic Minerals



<b>Mineral</b>	<b>Reserves (million tons)</b>	<b>Grade</b>
<b>Bauxite</b>	<b>1.000</b>	<b>Medium to High</b>
<b>Chromite</b>	<b>2.527</b>	<b>Low to Medium</b>
<b>Copper</b>	<b>6,300.000</b>	<b>Low to High</b>
<b>Gold</b>	<b>1,656.00 Tons</b>	<b>Low</b>
<b>Iron Ore</b>	<b>1,427.200</b>	<b>Low to High</b>
<b>Lead-Zinc</b>	<b>23.720</b>	<b>Low to Medium</b>
<b>Manganese</b>	<b>0.597</b>	<b>Low to Medium</b>

# COAL SECTOR



# Pakistan's Coal Resources



**Sindh**  
*185.5 billion tons*

**Punjab**  
*235 million tons*

**Balochistan**  
*217 million tons*

**Khyber-Pakhtunkhwa/FATA**  
*90 million tons*

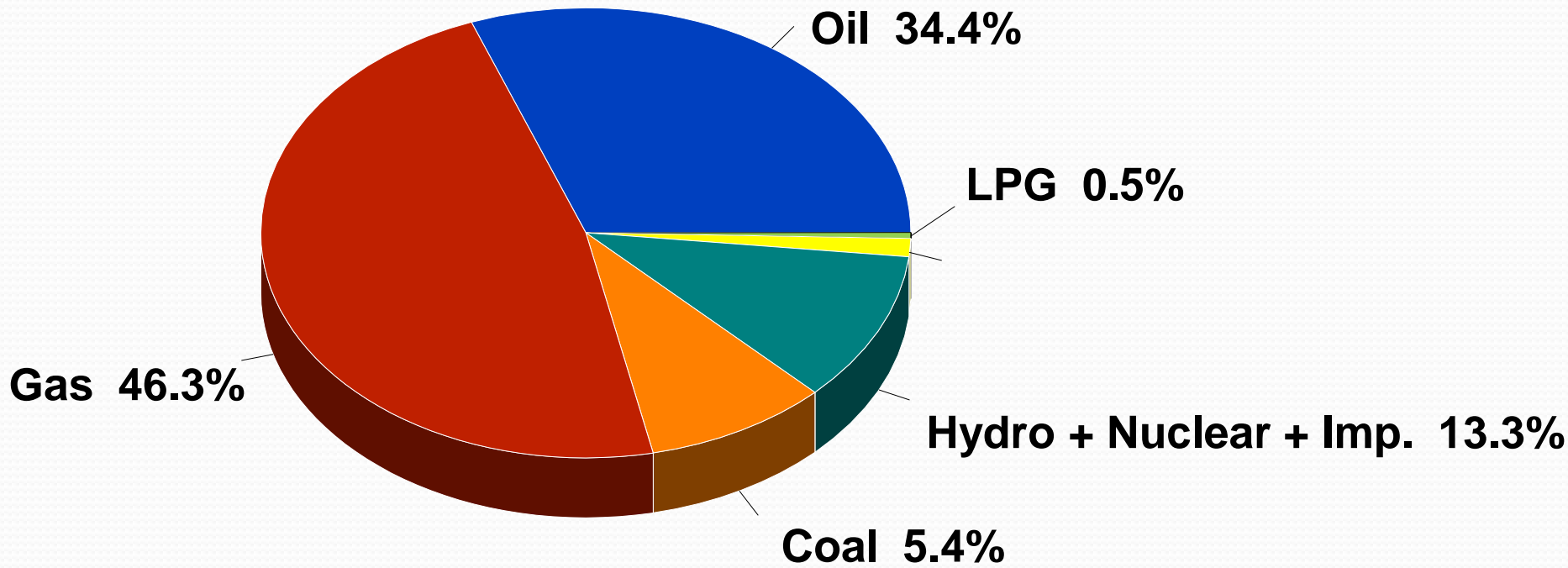
**Azad Kashmir**  
*9 million tons*

**Total**  
*186 billion tons*



Thar Desert is one of the largest coal reserve estimated at 175 billion tons

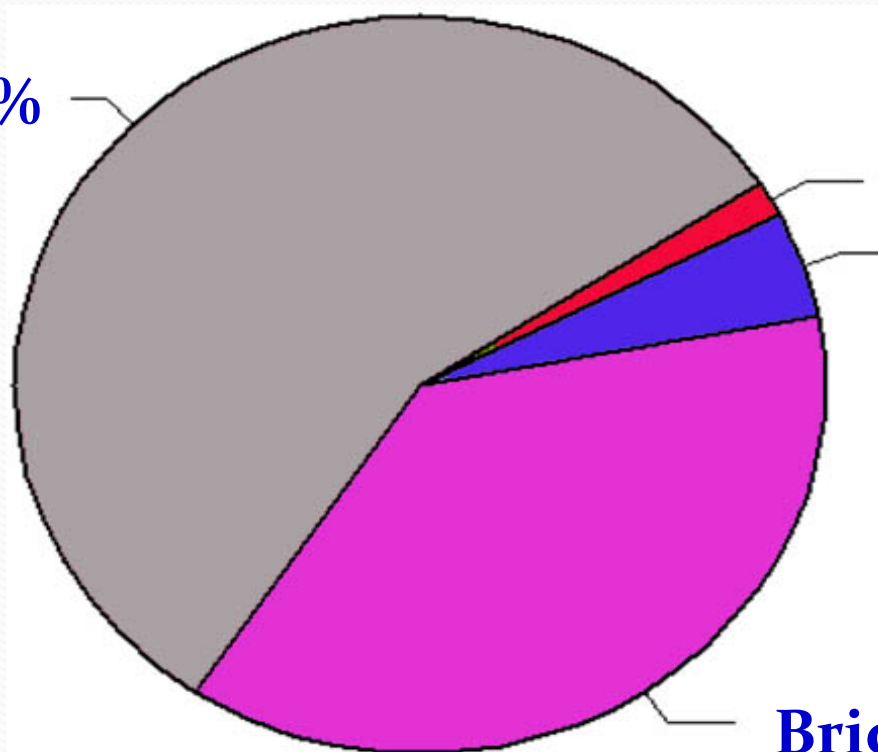
# Pakistan's Primary Energy Supply Mix 2013-14



# Sectoral Coal Consumption 2013-14



**\*Cement 54.3%**



**Coke Use 1.7%**

**Power 2.5%**

**Brick Kilns 41.5%**

**\* includes Other Industry also**



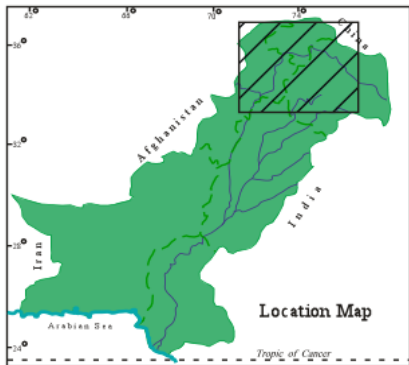









# Coal Sector of Pakistan






- Pakistan's coal potential estimated at 186 billion tons.
- Current consumption of coal is around 6.557 million tonnes per annum against domestic coal production of 3.438 million tons.
- Supply & demand gap (about 3.119 million tons) is being met through imported coal.

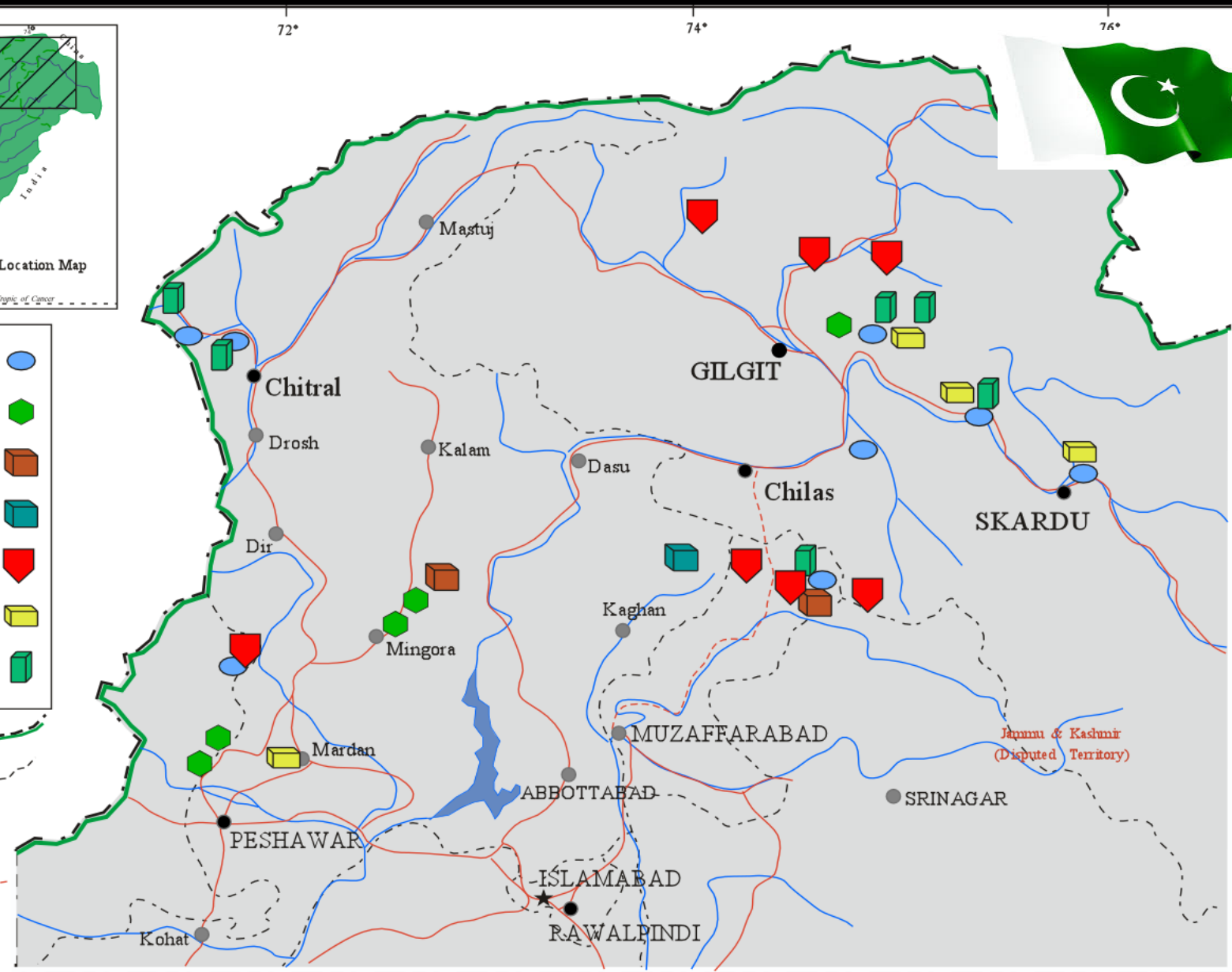


# Gemstone Sector



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

- International Boundary 
- Administrative Boundary 
- Main River 
- Metalled Road 
- Unmetalled Road 



MAJOR GEMSTONE OCCURRENCES OF PAKISTAN

# GEMSTONE SECTOR



- Pakistan has world-class deposits of emerald, ruby, tourmaline, topaz, garnet, aquamarine and quartz.
- Country exports gems of about US\$ 12 million, mostly in raw form.
- Price ratio between raw and processed gems is about 1 to 100.
- Swat Emerald & other gemstones : **70.00 Million Ct.**
- Kashmir Ruby & other gemstones: **200.00 Million Ct.**



# **INDUSTRIAL MINERALS & DIMENSION      STONES SECTORS**

# Status of Industrial Minerals and Dimension Stones Sector



## Industrial Minerals

Rock Salt, Limestone, Gypsum, Fireclay, China Clay, Silica Sand, Bauxite, Dolomite, Magnesite, Bentonite and Fuller's Earth exploited on medium to large-scale.

## Dimension Stones

Granite, Marble and Sand Stone quarried on large-scale as dimension stones.

## NOTE

Punjab, Balochistan and Khyber Pakhtunkhwa are the richest provinces in industrial minerals (rock salt, gypsum, limestone, fuller's earth, Dolomite etc.), metallic minerals (iron ore, copper, gold, lead, zinc, chromite, etc.) dimension stones and gemstones, respectively.

# Resource Potential of Industrial Minerals & Dimension Stones



<b>Mineral</b>	<b>Reserves (million tons)</b>	<b>Grade</b>
<b>Barite</b>	<b>13.708</b>	<b>Medium to High</b>
<b>Fireclay</b>	<b>100.00</b>	<b>Medium to High</b>
<b>Fuller's earth</b>	<b>Fairly Large</b>	<b>Medium to High</b>
<b>Granite</b>	<b>4,140.00</b>	<b>Medium to High</b>
<b>Gypsum</b>	<b>4,850.00</b>	<b>Medium to High</b>
<b>Limestone</b>	<b>Large</b>	<b>High</b>
<b>Magnesite</b>	<b>12.00</b>	<b>Medium to High</b>
<b>Marble</b>	<b>Very Large</b>	<b>High</b>
<b>Phosphate</b>	<b>7.00</b>	<b>Low to Medium</b>
<b>Red Oxide</b>	<b>100.00</b>	<b>Low to Medium</b>
<b>Rock Salt</b>	<b>Very Large (inexhaustible)</b>	<b>High</b>
<b>Silica Sand</b>	<b>557.00</b>	<b>Medium to High</b>

# Investment Opportunities in Mining Sector



- **Huge Coal resources** (*Thar, Sonda-Jherruk, Lakhra, etc.*)
- **High grade resources of Marble & Granite** (*Khyber Pakhtunkhwa & Balochistan*).
- **In-exhaustible deposit of Rock Salt** (*Salt Range Punjab & Jatta-Bahadar Khel, Khyber Pakhtunkhwa*).
- **Substantial precious and semi-precious stone deposits** (*Aquamarine, Emerald, Garnet, Peridot, Ruby, Topaz & Tourmaline in Khyber Pakhtunkhwa, Gilgit-Baltistan & AJK*).
- **Large metallic mineral deposits** (*Copper, Chromite & Lead-Zinc in Balochistan, iron ore in Punjab & Balochistan*).



Thank you

