Ministry of Finance of the Republic of Tajikistan

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EXPLORING THE POSSIBILITY OF USING MINING SECTOR FOR PROMOTION ECONOMIC DEVELOPMENT

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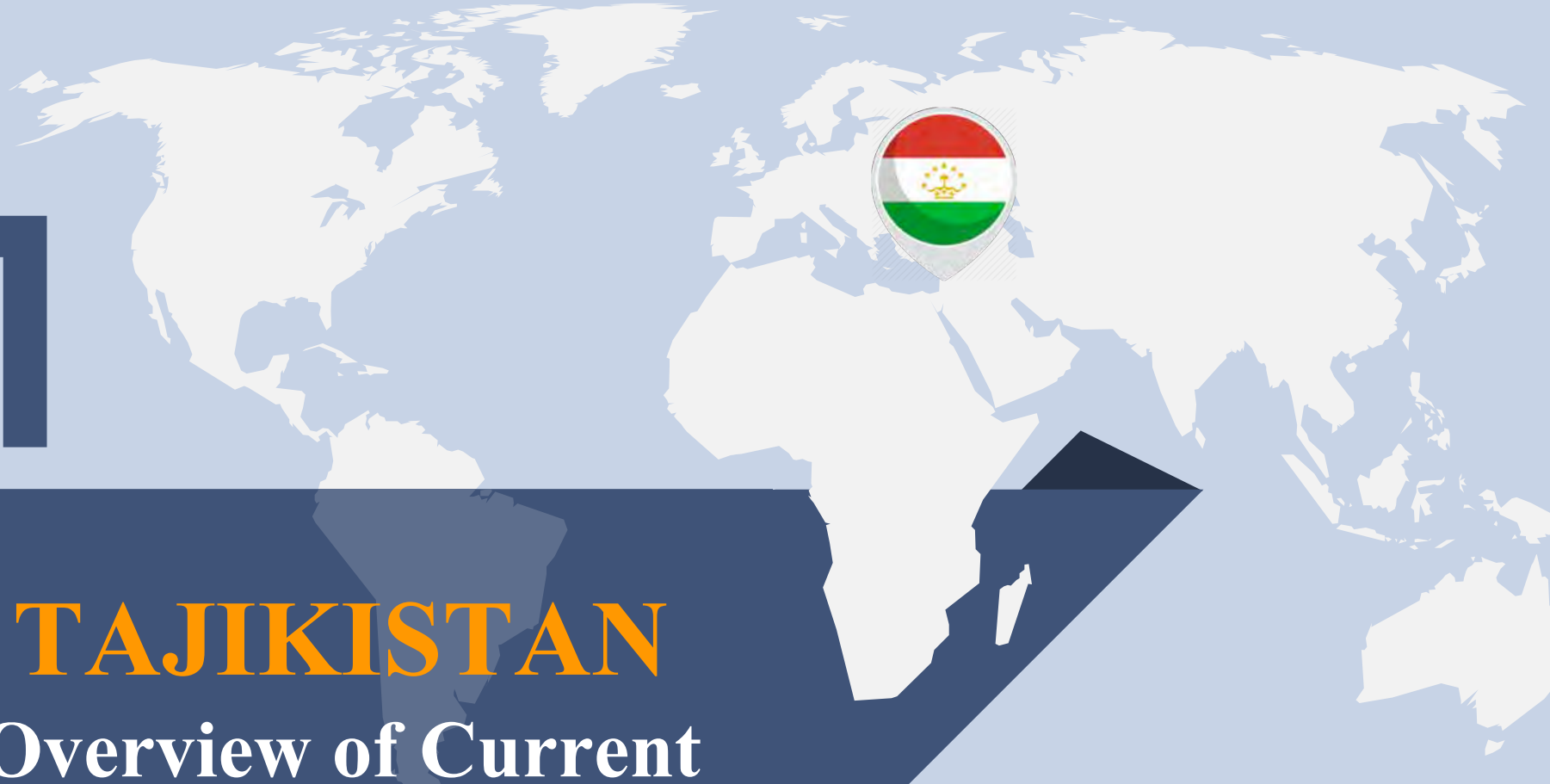

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TAJIKISTAN

Overview of Current Economy

OVERVIEW

GDP

GDP – US$8.1 billion (2019);
GDP growth – 7.5% (2019);
GDP per capita – US$876.7 (2019).

(Source: TAJSTAT 2020).

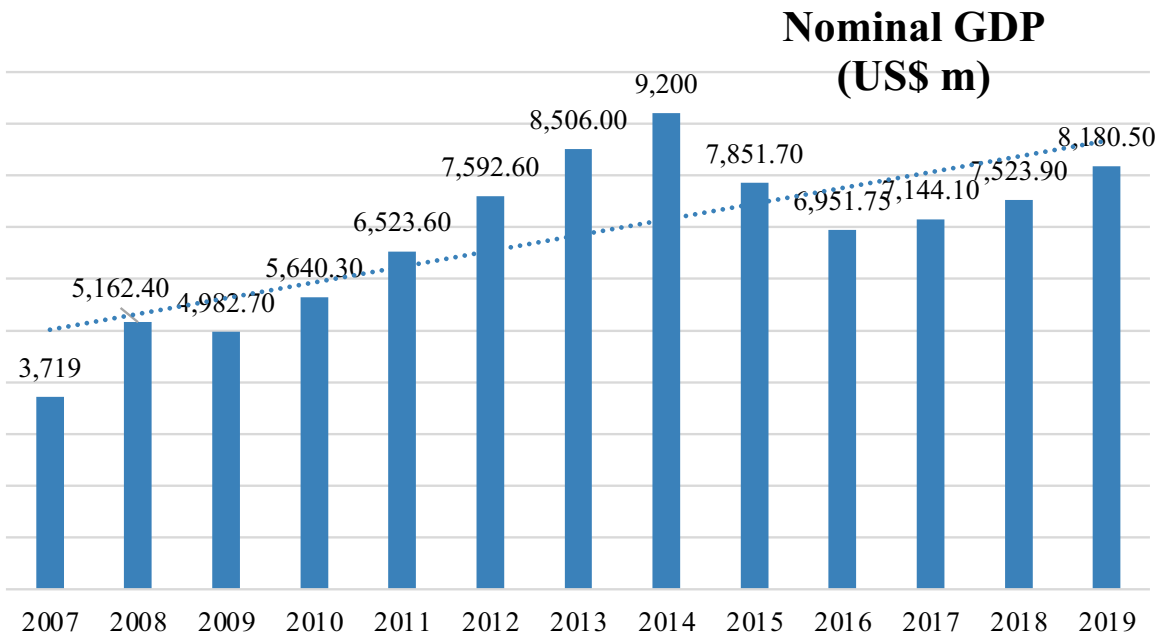
Inflation rate – 8.0% (2019);
Remittances – US$2.7 billion (2019);
External Debt – US$2.8 billion (2019).

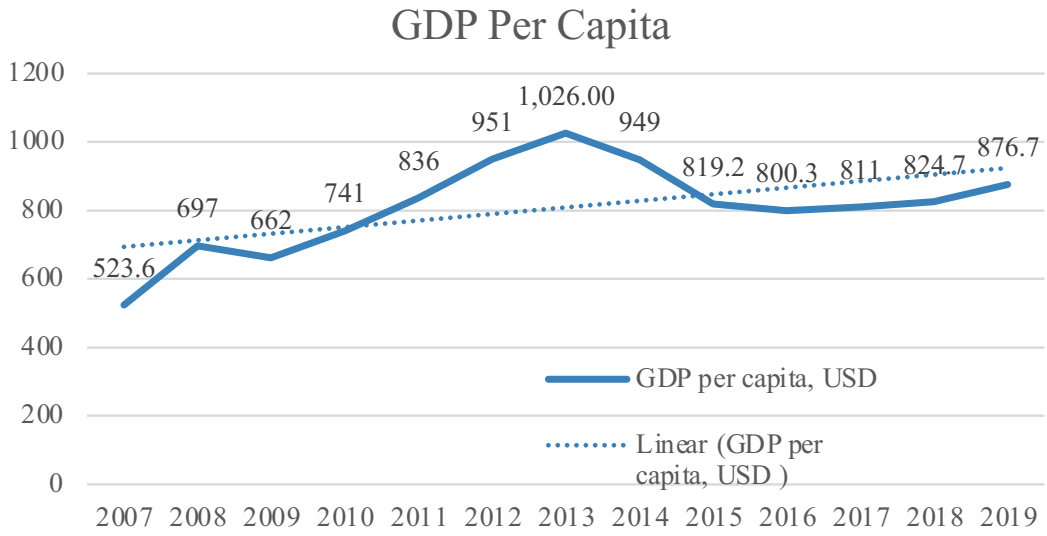
(Source: TAJSTAT 2020).

POVERTY

Population - 9.2 ml. (2019);
Poverty rates – 27.4%; (2018);
Unemployment rate - 10.92% (2018).

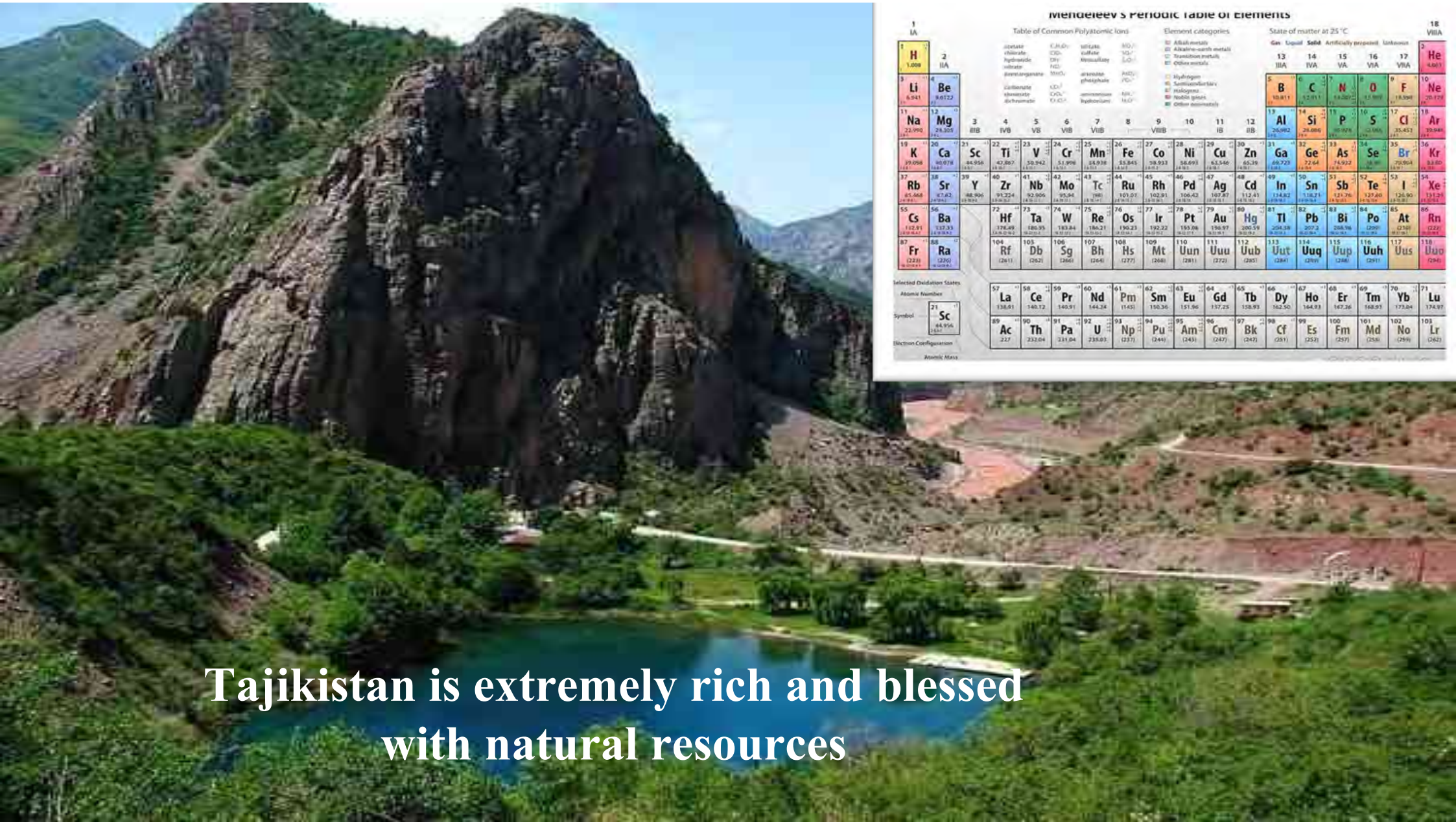
(Source: TAJSTAT 2020).





RESEARCH OBJECTIVE

- (To present conducted) analysis on the grasping possible impact of using mining sector for economic development of Tajikistan, based on its main export commodity groups: lead ores, zinc ores, antimony ores and cooper ores.


Tajikistan is extremely rich and blessed
with natural resources

MINING SECTOR OVERVIEW

- It is estimated that more than 600 deposits and 800 potential sites for excavation lies in Tajikistan;

- Iron, zinc, antimony, uranium, coal, oil, natural gas, mercury, gold, silver, tin, salt, talc, precious/semiprecious stones, building materials and hydropower potential etc.;

- Tajikistan has issued 316 licenses for subsoil use and 66 of these are for exploration of 250 extractive area (EITI of Tajikistan 2017).

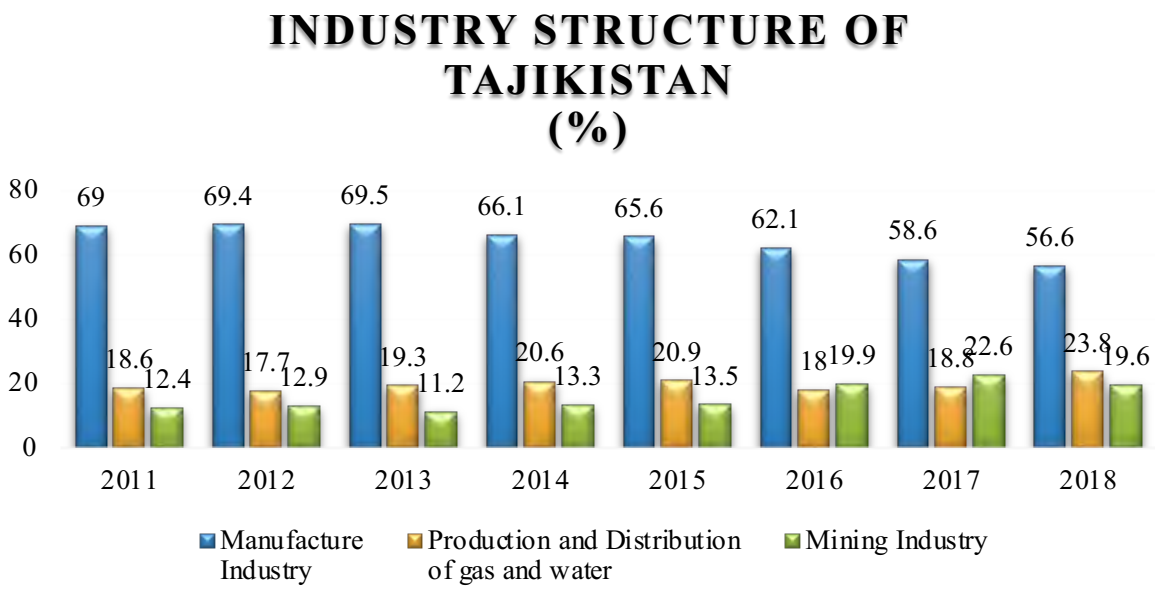
The Place of Mining Industry in the Economy of Tajikistan

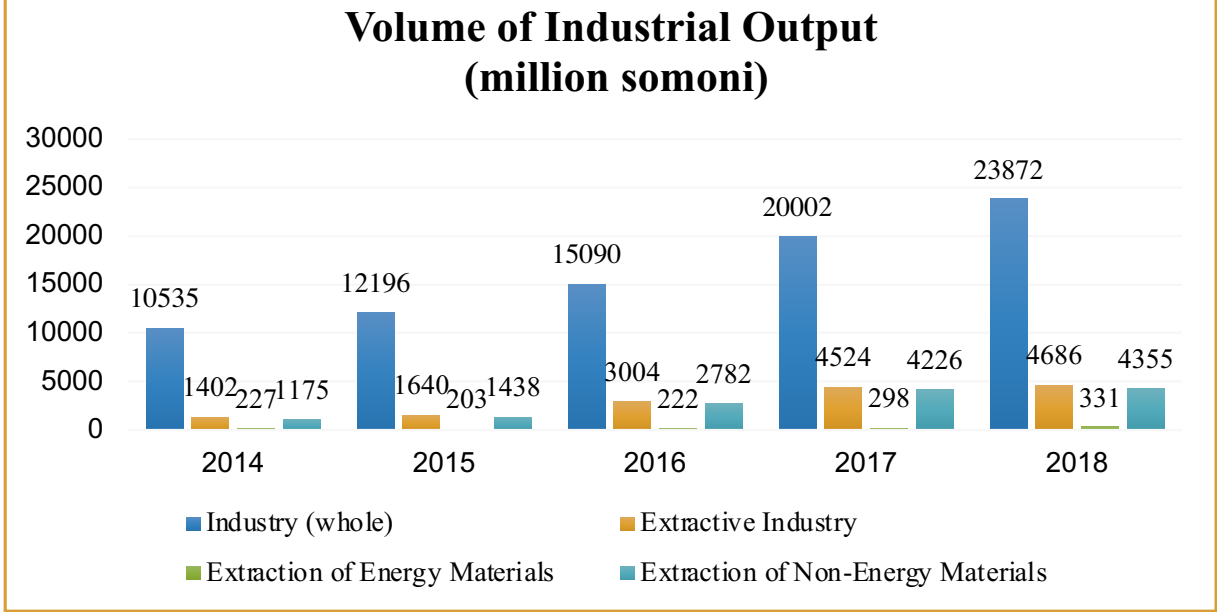
- Mining Sector (MS) growth 2% (2018);
- Portion in the Budget revenues is 4.2% (2018);
- MS employment – 12% or 10.2 thousand people (2018).

(Source: TAJSTAT 2020).

- Contribution of the mining industry in the economy is **23.8%** (2018);
- In 2018 was registered **249** extractive enterprises.

(Source: TAJSTAT 2020, EITI-Tajikistan 2020).





EXPORT

Export of Commodity Group of EI

2018

Lead ores and concentrates

86.5 thousand tons=US$119,230

Zink ores and concentrates

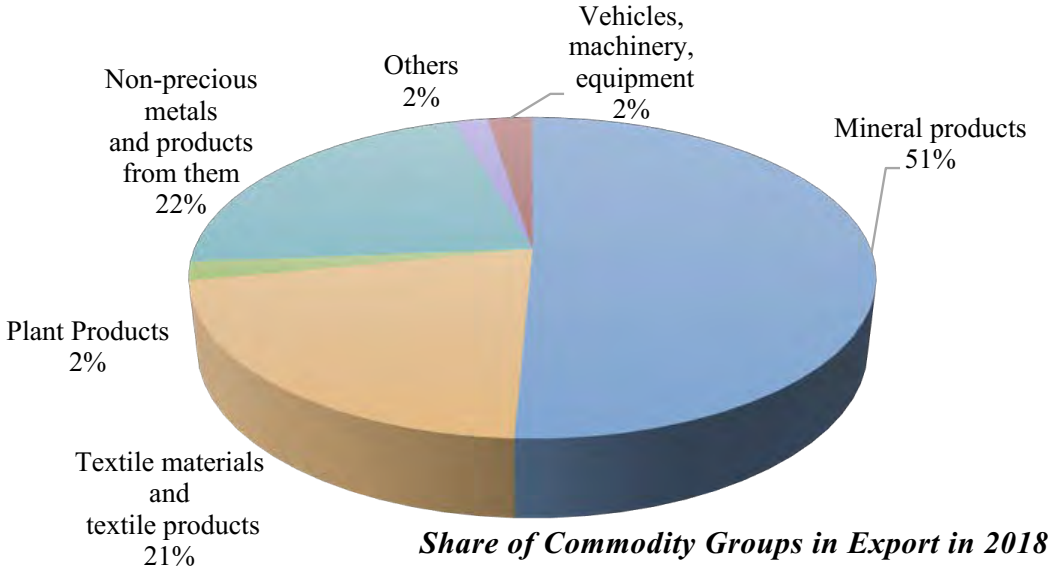
192.1 thousand tons=US$168,609

Antimony ores and concentrates

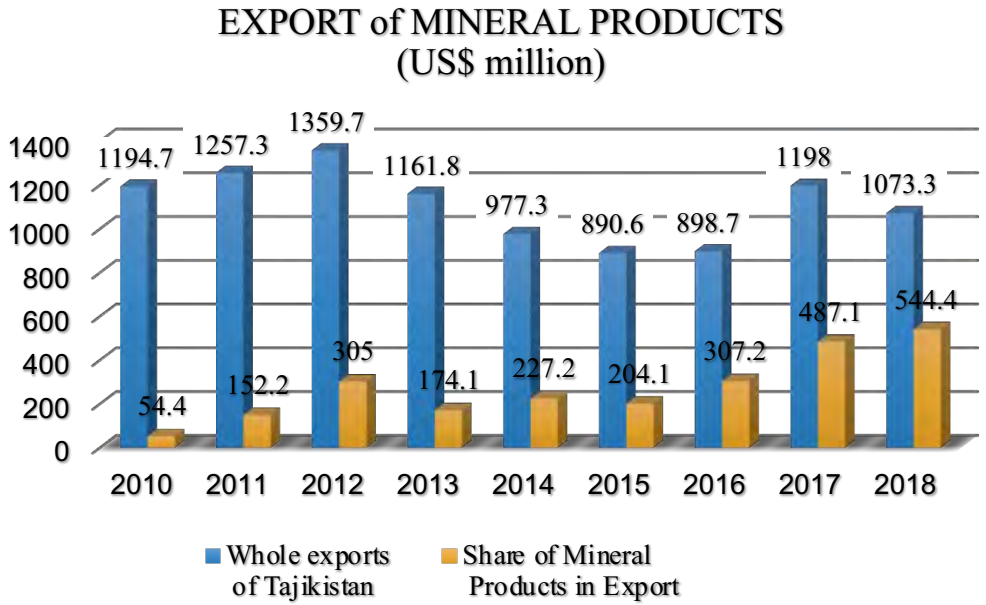
30.6 thousand tons=US$35,847

Copper ores and concentrates

38.4 thousand tons=US$75,278



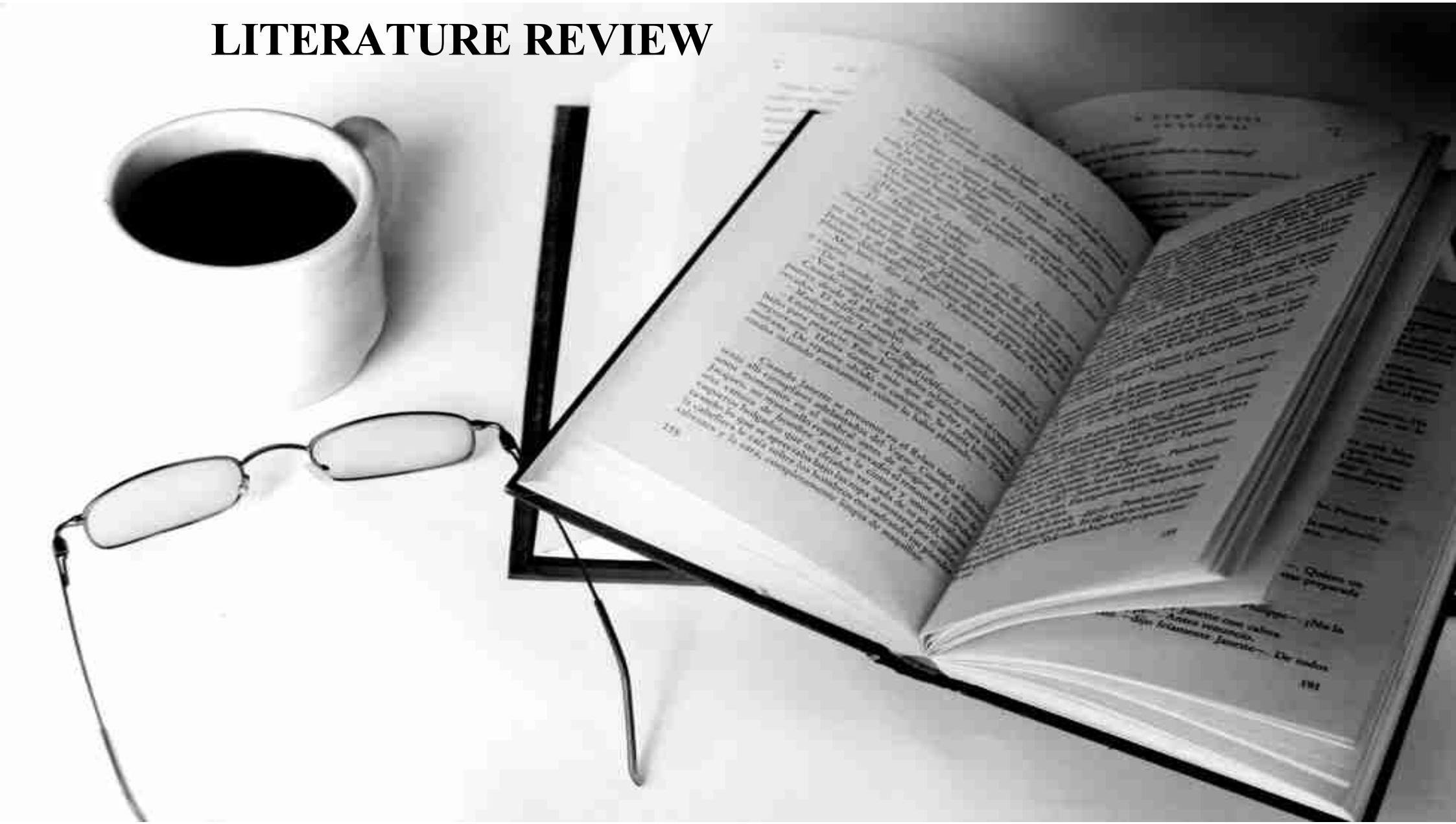
Share of Commodity Groups in Export in 2018



CHALLENGES

- *Legislative* - adverse changes in legislation, as a result of which economic activity in the state becomes impossible;
- *Bad Governance* -associated with corruption, poor management, as well as abuse of official position by some officials etc.;
- *Tendency of deindustrialization* – that reduces the growth of fixed capital, primarily due to the presence of investments in their formation;
- *Monetary policies* - pursued by the state, and they include: inflation risks, deflation risks and currency risks;
- *Infrastructure and Communications* – poor roads or no road;
- *Investment* - country does not have sufficient investment attraction climate;
- *Export of raw materials* – which reduces to get more benefits;
- *Environment* – does not have strong policy regulations.

LITERATURE REVIEW



LITERATURE REVIEW FRAMEWORK

Natural Resource Management	Why is Natural Resource Management Complex?	Beyond the Resource Curse; Dutch Disease; Environmental Issues;
Mining Industry Development	The Economics of the Extractive Industries Sector (Mining Sector)	Policies and Practices; Impact of EI; EITI;
Good Governance and Extractive Industries	Good Governance Principles and Indicators	Role of the Good Governance on economic and social reforms

Methodology

METHODOLOGY

- This research primarily uses quantitative analysis that is designed for assessing the impact of Mining Sector on the economic growth with use of an Input-Output Table model;
- Input-output model, developed by Leontief in the late 1930s, it was intended to study the interdependence among the different sectors in any economy (Miller&Blair, 1985);
  - Leontief Inverse Matrix:

$$(\mathbf{I} - \mathbf{A})^{-1}$$

where, **I** is an Identity matrix and **A** is the input coefficient matrix.

METHODOLOGY

Quantitative analysis will be carried out using following process:

- Reconstruction of the IOTs from the Available Data Sources of SUTs;
- Estimate of Future Growth of the Mining Sector of Tajikistan
- Assessment of the Impact of the Increased Production of the Mining Sector on the Economy of Tajikistan

METHODOLOGY

It is focused on the *Impact Analysis of the Mining Sector on the Economy of Tajikistan* at the following three levels:

- At Sector Level: Estimation of the *Mining Sector's impact* on Tajikistan economy for the period 2020-2022;
- At Mining Sector's Group of Products Level: Estimation of group of products of the Mining Sector's impact on Tajikistan economy for the period 2020-2022;
- At Corporate Level: Estimation of *Mining Sector's enterprises such as LLC TALCO Resource and LLC "Tajik-Chinese Mining Company"* impact on the economy for the period 2020-2022.

RESTRICTIONS:

- From 1987 Tajikistan did not develop Input-Output Tables (IOTs) as the Soviet Union collapsed;

- From 1993 Tajikistan established National Account System under UN standards;

- In 2014, Supply Use Tables (SUTs) for the year 2011 was developed with GIZ support;

- Development of SUTs discontinued for lack of finance and staff.

		INTERMEDIATE DEMAND					FINAL DEMAND	
		1	2	…	***n***	Total	GDP	**X** Total Output
Producers		Quadrant I					Quadrant II	
	1	x_{11}	x_{12}	…	x_{1n}	$\sum x_{1j}$	Y_1	X_1
	2	x_{21}	x_{22}	…	x_{2n}	$\sum x_{2j}$	Y_2	X_1
	…	…	…	…	…	…	…	…
	n	x_{n1}	x_{n2}	…	x_{nn}	$\sum x_{nj}$	Y_n	X_n
	Total	$\sum x_{i1}$	$\sum x_{i2}$	…	$\sum x_{in}$	$\sum_{i-1}^{n}\sum_{j-1}^{n} x_{ij}$		
Primary Inputs	Value added	Quadrant III					Quadrant IV	
		V_1	V_2	…	V_n	$V = \sum V_j$	$\sum V_j = \sum Y_i$	
	Total Inputs	X_1	X_2	…	X_n	$X = \sum X_j$		$\sum X_j = \sum X_i$

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ANALYSIS

INPUT-OUTPUT TABLES OF TAJIKISTAN-2015

Calculations have been made that on firming the consistency of the balance of 58 industries with the 6 aggregated industries:

- ***First -*** sector includes the all enterprises from *Agriculture Sector*;
- ***Second-*** sector includes all enterprises of *Mining Sector*;
- ***Third*** – sector includes all enterprises of *Industry Sector* including processing sector;
- ***Fourth -*** sector includes all enterprises of *Construction Sector*;
- ***Fifth*** – sector includes all enterprises of *Service Sector* that includes transportation, communication enterprises and utilities services**;**
- ***Sixth*** –sector includes all enterprises of *Financial Sector* that includes banks, insurance companies, stock, trust companies and real estate companies.

Consolidated Results of Simulation Model for Sector Level. Impact of Mining Sector on Economy of Tajikistan for the Period 2020-2022 (thousand somoni)

Sample Period	2020						
Sectors	Agriculture Sector (1)	Mining Sector (2)	Industry Sector (3)	Construction Sector (4)	Service Sector (5)	Financial Sector (6)	Total
Gross Output Before Simulation*	20,731,494	2,403,733	17,626,911	7,957,209	37,137,251	5,271,698	91,128,300
Increased Production Demand in M	0	7,879,400	0	0	0	0	7,879,400
Gross Output after Simulation	20,816,885	11,520,359	18,179,911	8,031,591	38,002,127	5,340,349	101,891,225
Impact on Economy **	85,390.7	9,116,626	552,999.8	74,381.5	864,876	68650.6	10,762,925
Impact %***							**1.36**
Sample Period	2021						
Gross Output before Simulation	20,731,494	2,403,733	17,626,911	7,957,209	37,137,251	5,271,698	91,128,300
Increased Production Demand in M		9,384,462					9,384,462
Gross Output after Simulation	20,833,196	13,261,747	18,285,541	8,045,798	38,167,329	5,353,462	103,947,075
Impact on Economy	101,701.4	10,858,013	658,629.6	88,589.2	1,030,078	81,763.7	12,818,776
Impact %							**1.36**
Sample Period	2022						
Gross Output before Simulation	20,731,494	2,403,733	17,626,911	7,957,209	37,137,251	5,271,698	91,128,300
Increased Production Demand in M		10,716,200					10,716,200
Gross Output after Simulation	20,847,628	14,802,595	18,379,006	8,058,370	38,313,506	5,365,065	105,766,173
Impact on Economy	116,133.7	12,398,861	752,094.9	101,160.8	1,176,255.2	93,366.7	14,637,873
Impact %							**1.36**

RESULTS of Simulation Model for Sector Level (1)

- This means that annually increasing demand of production of Mining Sector had promising *positive impacts*: direct (0.24%), indirect (1.12%), and total effects (1.36%) on the economy of Tajikistan;
- Which makes us believe that an increase in the production demand from the *Mining Sector* will contribute *a profound and significant impact on the economy growth* of Tajikistan.

Consolidated Results of Simulation Model for Mining Sector's Group of Products Level. Impact of the Mining Sector's Products on Tajikistan Economy for the Period 2020-2022 (thousand somoni)

Sample Period	2020			
Mining Sector's Group of Products	Coal and Lignite, Peat (10)	Crude Petroleum and Natural Gas (11)	Metal Ores (13)	Other Mining and Quarrying Products (14)
Total Gross Output Before Simulation*	91,128,300	91,128,300	91,128,300	91,128,300
Increased Production Demand in GP	429,000	800,100	7,141,100	229,200
Total Gross Output after Simulation	91,910,935	91,278,138.8	103,264,135	91,510,262
Impact on Economy**	782,635.3	149,839.1	12,135,836	381,962.9
Impact %**	**1.82**	**1.87**	1.69	1.66
Sample Period	2021			
Total Gross Output before Simulation	91,128,300	91,128,300	91,128,300	91,128,300
Increased Production Demand in GP	711,985.5	130,299	8,276,535	265,642.8
Total Gross Output after Simulation	92,427,192.5	91,372,043	105,193,734	91,570,994.6
Impact on Economy	1,298,893	243,743.8	14,065,434	442,694.9
Impact %	**1.82**	**1.87**	1.69	1.66
Sample Period	2022			
Total Gross Output before Simulation	91,128,300	91,128,300	91,128,300	91,128,300
Increased Production Demand in GP	729,351	137,691	9,542,845	306,286.2
Total Gross Output after Simulation	9,245,887	91,385,871.4	107,345,746	91,638,727
Impact on Economy	1,330,573	257,571.7	16,217,446	510,427.3
Impact %	**1.82**	**1.87**	1.69	1.66

RESULTS of Simulation Model for Mining Sector's Group of Products Level (2)

- Simulation Models reached the following *impacts* on the economy:
  - Coal and Lignite, Peat (10) products obtained high economic impact by ***1.82%;***
  - Crude Petroleum and Natural Gas (11) products gained the highest and most promising economic impact by ***1.87%;***
  - Metal Ores (13) products reached positive economic impact by ***1.69%;***
  - Other Mining and Quarrying Products (14) got also positive economic impact by ***1.66%.***
- Through the obtained results it can be understand that, even without an increase of demand, production of Crude Petroleum and Natural Gas (11) products obtained *the highest promising impact by 1.87% on the economy* of Tajikistan.
- Followed by Coal and Lignite, Peat (10) products that also obtained *the high economic impact by 1.82%* among of other products of the Mining Sector.

CONCLUSION

- Conducted analysis suggests that if Tajikistan wishes to accomplish the national objectives regarding the industrialization and economic development that were defined in National Development Strategy -2030, the *radical and effective policies on investment, industry development, government contribution concerning Mining Sector development have to be adopte*d.

- Otherwise, Tajikistan will remain far behind on the path of its development goals and the economic potential of Mining Sector, as it was defined that the given industry is *highly promising*.

IMPORTANT POLICIES FOR MINING SECTOR OF TAJIKISTAN

- **Stimulating Economic Growth** (Sovereign Wealth Fund; Infrastructure; Corporate Social Responsibilities; Industrialization);

- **Fiscal Policy - Taxation** (Profit tax; Royalties; Resource Rents; Bonuses; VAT);

- **Introducing Good Governance** that will strengthen Extractive Industries Transparency Initiatives Standards and support EITI of Tajikistan:
  - Transparency Promotion – Struggle Against Corruption (Data disclosure; Audit; Evaluation);
  - Promotion of Accountability (Disclosure of distribution and allocation of Rents/Revenues data);

- **Environment Policies** (Waste management; Standards to manage the negative impacts on biodiversity, Recycling).

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