

# Coal production and deep processing



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# Coal Industry of Tajikistan



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According to the latest geological data, there are more than **36 coal deposits** in Tajikistan, which represent all types of coal from brown coal to Anthracite and even metallurgical coal. The total reserves of these coals are estimated at **4.5 billion tons**. Tajikistan produced about 1.9 million tons of coal in 2018. According to statistics, these figures are higher than the same period last year by 67 thousand tons. The Ministry of Industry and New Technologies of the country announced that in 2018, coal production in Tajikistan is planned to increase to 1.9 million tons. It should be noted that in 2010, production was only 199,700 tons. Coal mining in Tajikistan in **14 locations** is carried out by domestic and foreign companies. According to statistics, since the beginning of the year, exports have reached 27 thousand tons, which is 628,930 US dollars. Coal is exported to Afghanistan and Uzbekistan. According to the Ministry of Industry and New Technologies of Tajikistan, currently more than **200 enterprises** in the country use coal as fuel.



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# Coal market in the Republic of Tajikistan

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## 2018



- The country's population is 9.1 million people
- Coal production - 1 million 505 thousand tons
- Coal export - 10 thousand 946 tons

## Coal use



- population – 6%,
- industrial enterprises – 32.1%
- state budget organizations -1% and 0.9% – export
- Dushanbe CHPP-2 - 856 thousand tons or 58% of the total volume





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# Project Description



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- Deep processing of coal, which consists in the extraction and use of its components, has long been a major global industry.
- Each stage of coal processing is an additional income and means for the further development of our country.
- Coal is a unique raw material for the production of dozens of different types of products, which are in great demand in the domestic market and have priority in export.
- As part of the deep processing of coal, it is planned to produce such products as:

**Coal**



**Salt peter**



**Baking soda**



**Ammonia**





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# Goals and objectives

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## goals

- Providing Republic of Tajikistan enterprises (including their own plants) with coal processing products, with the subsequent possibility of exporting the developed products to the foreign market.
- Country's economy industrialization.

## objectives

- Products production of deep processing of coal.
- Increase the volume of coal produced and processed in Tajikistan.
- Creation of closed-loop enterprises, integration of all stages of production of the final product.
- Creation of more than 1070 new employment.



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# Positive aspects



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**100% locally produced raw materials**

**Wide range of applications**

**Stable prices**

**Cheapness**

**Logistics**

**Stimulating coal production in the regions**



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# Negative aspects



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**High risk to life**

**Extraction difficulty**

**Negative impact on the environment**

**Low calorific value**



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# Main production resources

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Coal-local



Electricity is one of the cheapest in the world



Staff – relatively cheap labor







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# Coal mining and processing process

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Drilling operations



Blasting operations



Overburden loading



Transportation of coal to  
processing and  
processing plants



Processing plant



Coal shipment





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# Coal processing products

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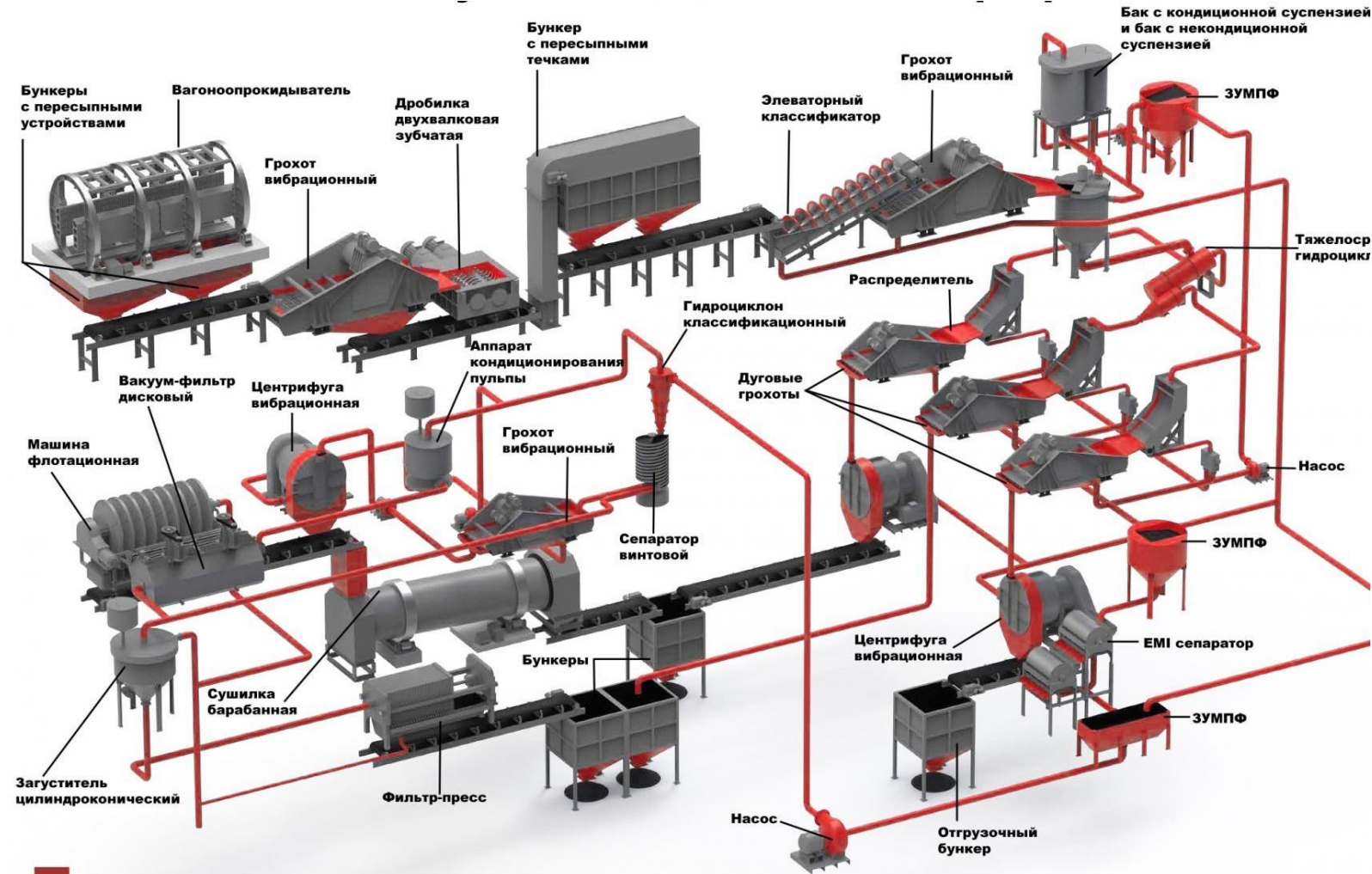
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# Coal processing plant diagram

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Детали и узлы, подверженные износу



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# DEEP COAL PROCESSING PRODUCTS

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## Coal

A solid fuel mineral is a form of coal intermediate in carbon content between brown coal and anthracite.

Applications: Coal is used as technological, energy - technological and energy raw materials, in the production of coke and semi-coke in connection with the production of a large number of chemical products (naphthalene, phenol, pitch, and so on), on the basis of which fertilizers, plastics, synthetic fibers, lacquers, paints, and so on are obtained.



## Protein, feed protein

Special yeast biomass based on vegetable substrates (waste of pulp and paper and starch-treacle production) and non-vegetable raw materials (oil fractions)

Applications: grown for food for farm animals, fur-bearing animals, birds and fish. Feed yeast is used in the production of mixed feeds, as well as a dietary supplement in feed rations.

## Coke

Coal coke is a solid porous product of gray color, obtained by coking coal at temperatures of 950-1000C without oxygen access.

When using coal, the following products are formed: coke oven gas, above-ground water, coal tar.

Coke is used in metallurgy for the reduction of metals).





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# DEEP COAL PROCESSING PRODUCTS

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## Ammonia

- Colorless gas, with a sharp smell, in 1v of water will dissolve 700v of ammonia. Ammonia solution-ammonia alcohol(in medicine).
- In industry, it is used as a refrigerant, in the production of mineral fertilizers and explosives.



## Saltpeter

- Saltpeter is used as a nitrogen fertilizer, while potassium nitrate is also a source of potassium needed by plants.
- Potassium nitrate is also one of the ingredients of black powder.
- Ammonium nitrate is used for the preparation of explosives such as ammonal and ammotol.



## Baking soda

**It is used :** in industry, food industry, in cooking, in medicine as a neutralizer of chemical burns of the skin and mucous membranes with concentrated acids and to reduce the acidity of gastric juice. It is also used in buffer solutions.







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# First phase of project planning (Option One)

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| Name                             | Feedstock (tons) | Intermediate product (tons) | Final product (tons) | Investments (dollars) | total area                           | employees (people) | Price per unit (USD / ton) | Revenue(dollars) |
|----------------------------------|------------------|-----------------------------|----------------------|-----------------------|--------------------------------------|--------------------|----------------------------|------------------|
| Coal                             | 3 000 000        |                             |                      |                       |                                      |                    |                            |                  |
| Coke                             |                  |                             | 2 000 000            | 510 000 000           |                                      | 800                | 290                        | 580 000 000      |
| Protein, feed, protein 3         |                  |                             | 10 000               | 18 000 000            |                                      | 70                 | 1050                       | 10 500 000       |
| ammonia                          |                  | 165 000                     |                      | 130 000 000           |                                      | 200                |                            |                  |
| salt peter                       |                  |                             | 300 000              | 65 000 000            |                                      | 200                | 330                        | 99 000 000       |
| Baking soda (sodium bicarbonate) |                  |                             | 150 000              | 25 000 000            |                                      | 200                | 500                        | 75 000 000       |
| other                            |                  |                             |                      |                       |                                      | 300                |                            |                  |
| <b>TOTAL</b>                     | 3 000 000        |                             | 2 460 000            | 748 000 000           | 1 334 000 m <sup>2</sup><br>(2000ap) | 1770               |                            |                  |





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# First phase of project planning (Option Two)

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| Name                             | Feedstock (tons)    | Intermediate product (tons) | Final product (tons) | Investments (dollars) | total area                 | employees (people) | Price per unit (USD / ton) | Revenue (dollars) |
|----------------------------------|---------------------|-----------------------------|----------------------|-----------------------|----------------------------|--------------------|----------------------------|-------------------|
| Coal                             | 250 000+<br>120 000 |                             |                      |                       |                            |                    |                            |                   |
| Coal gas                         |                     | 5.5x10^9                    |                      | 250 000 000           |                            | 100                |                            |                   |
| Protein, feed, protein 3         |                     |                             | 10 000               | 18 000 000            |                            | 70                 | 1050                       | 10 500 000        |
| ammonia                          |                     | 165 000                     |                      | 130 000 000           |                            | 200                |                            |                   |
| saltpeter                        |                     |                             | 300 000              | 65 000 000            |                            | 200                | 330                        | 99 000 000        |
| Baking soda (sodium bicarbonate) |                     |                             | 150 000              | 25 000 000            |                            | 200                | 500                        | 75 000 000        |
| other                            |                     |                             |                      |                       |                            | 300                |                            |                   |
| TOTAL                            | 370 000             |                             | 460 000              | 488 000 000           | 1 000<br>500m2<br>(1500ap) | 1070               |                            |                   |



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# Main coal deposits in Tajikistan



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# Hakimi Coal Field



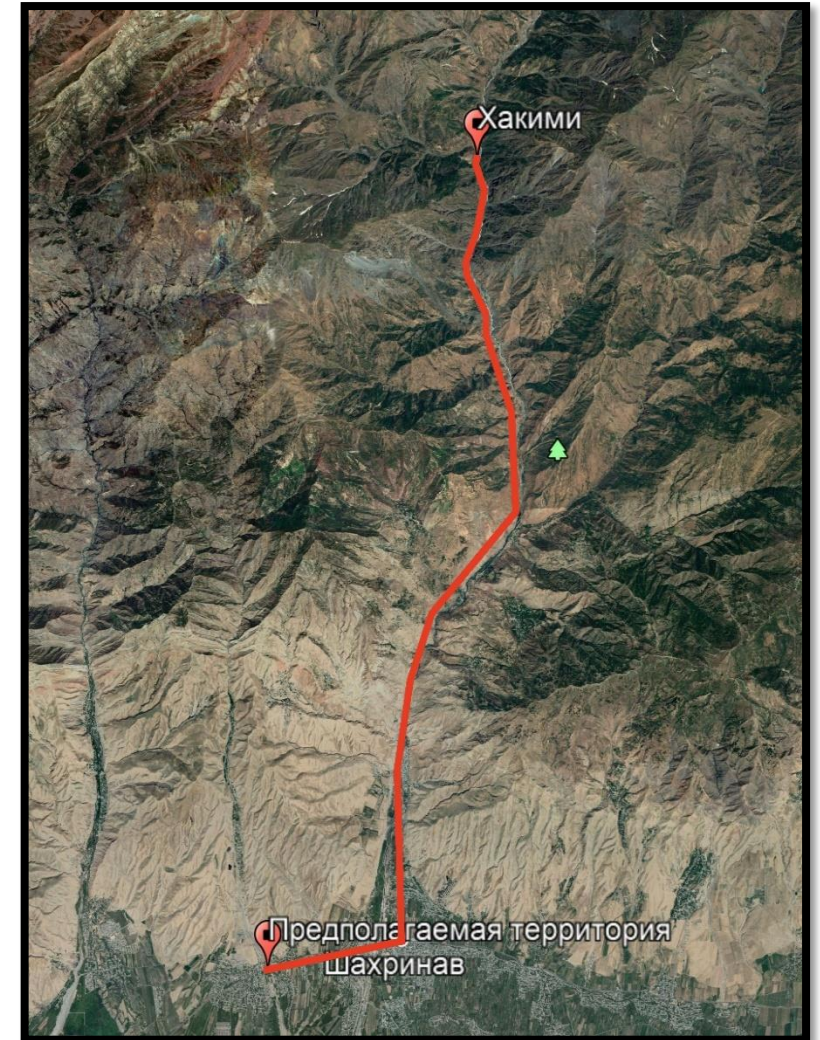
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The Hakimi coal field is located in the 30th kilometer. 20 km of this road is solid ground, and the other part is paved. The field was discovered in 1926. Reserves: analyzed as of September 1, 1993-coal reserves of category C2 were 116,000 tons, P1-2,000,000 tons, P3-38,300,000 tons. Group-3. underground method. The depth of the layers is 1800 m. The mark is GJ. The coal deposit has not yet been fully analyzed.

## Coal Characteristics

|                     |                   |
|---------------------|-------------------|
| humidity            | 3,4-10,2%         |
| friability          | 41%               |
| sulfur              | 0,4%              |
| released substance  | 13%               |
| burning temperature | 6453-7780 kcal/kg |







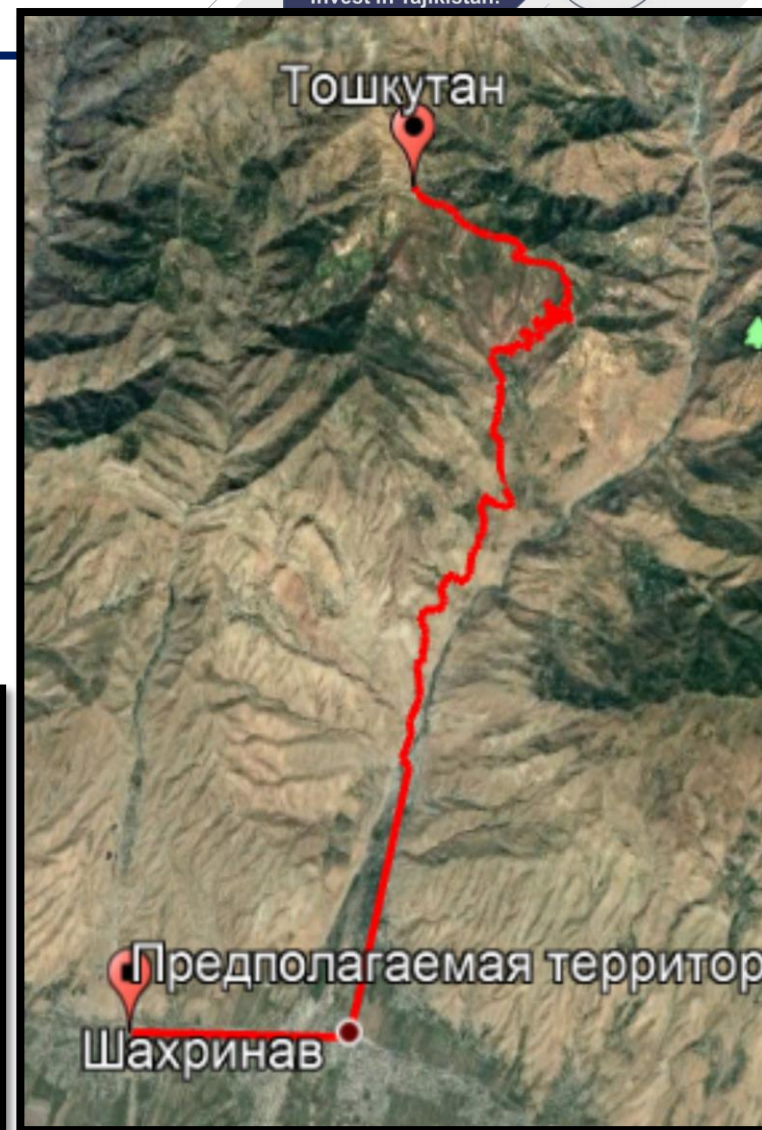
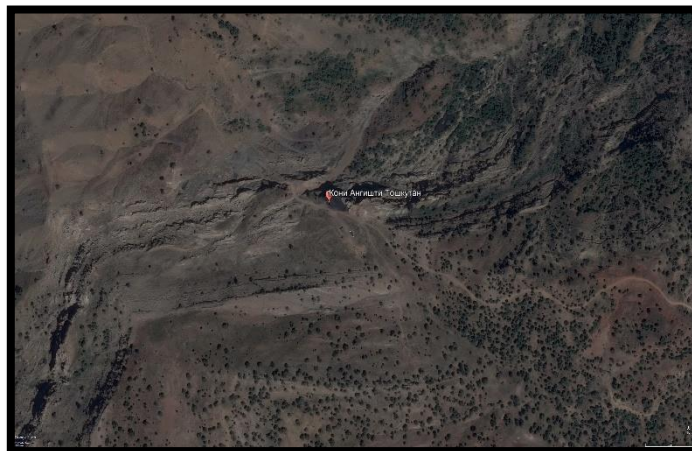
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# TOSHKUTAN Coal Field

The Toshkutan coal deposit is located in the 29th kilometer. 20 km of the road is solid ground, and the other part is paved. The field was discovered in 1926. Reserves: analyzed for 1970-coal reserves of category A+B+C is 2,116,000 tons, P1 is 8,000,000 tons. Anthracite. Group-3. The method of surface development. The depth of the layers is 600m. The coal mine is still not fully analyzed

## Coal Characteristics

|                     |                   |
|---------------------|-------------------|
| humidity            | 5,1%              |
| friability          | 15,9%             |
| sulfur              | 0,2-6%            |
| released substance  | 14%               |
| burning temperature | 4867-8156 kcal/kg |







# SUFFA Coal Field



The Suffa coal field is located in the 52nd kilometer. 43 km of this road is paved, and 9 km is solid ground. The coal deposit was discovered in 1936. Reserves: analyzed for 1997-coal reserves of category C1 amounted to 5,000,000 tons, P3-38,500,000 tons. Group-3. underground method. The depth of the layers is 300m. The coal mine is still not fully analyzed.

## Coal Characteristics

|                     |   |
|---------------------|---|
| Humidity            | - |
| friability          | - |
| sulfur              | - |
| released substance  | - |
| burning temperature | - |







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# FON-YAGNOB Coal Field



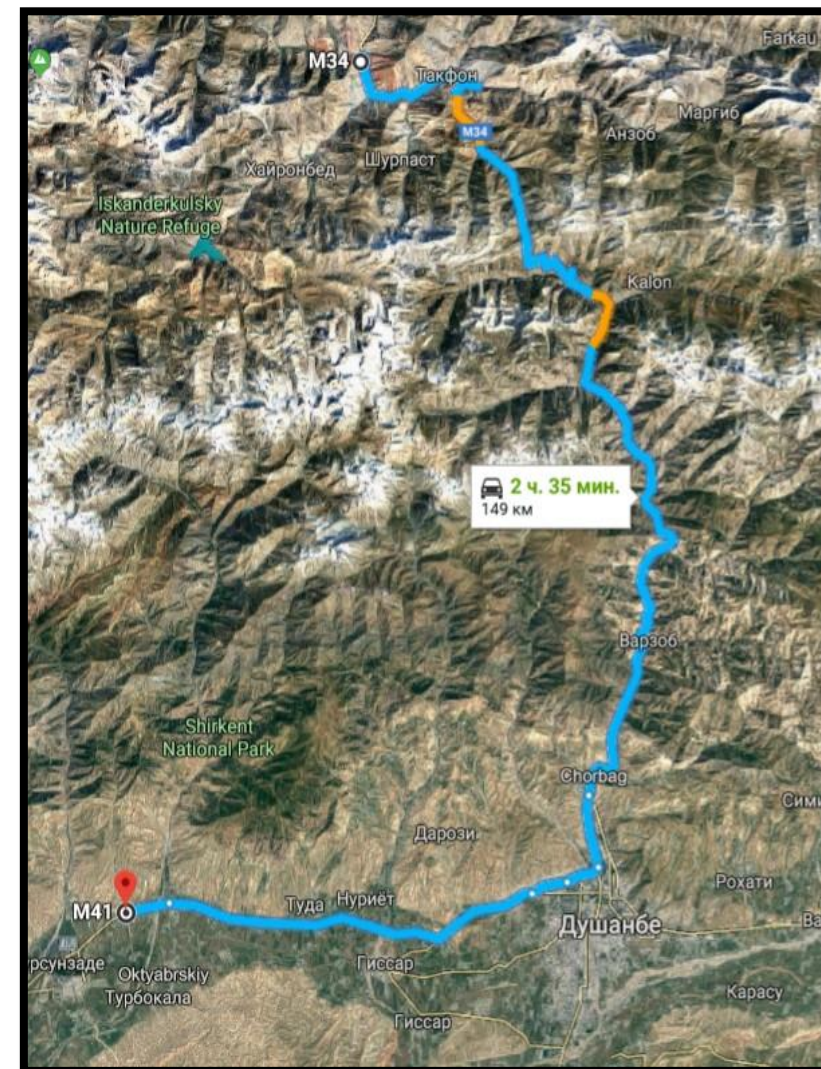
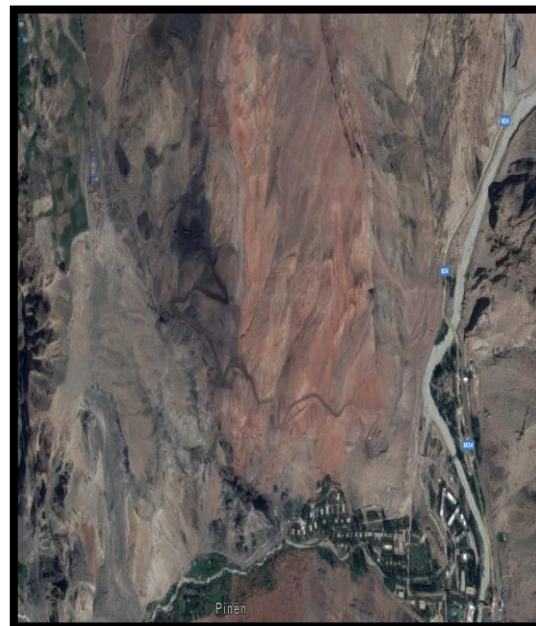
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The Fon-Yagnob coal field is located 149 kilometers away. 5 km of the road is solid ground, the rest is asphalt. The coal deposit was discovered in 1982 .Reserves: A+B+C1-203 084 500 tons.

## Coal Characteristics

|                     |                   |
|---------------------|-------------------|
| humidity            | 0,35-1,88%        |
| friability          | 3,99-24,54%       |
| sulfur              | 0,1-1,96%         |
| released substance  | 23,11-36,90%      |
| burning temperature | 7936-8463 kcal/kg |
| carbon              | 80,43-86,82%      |
| hydrogen            | 4,73-6,10%        |







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# ZIDDI COAL FIELD



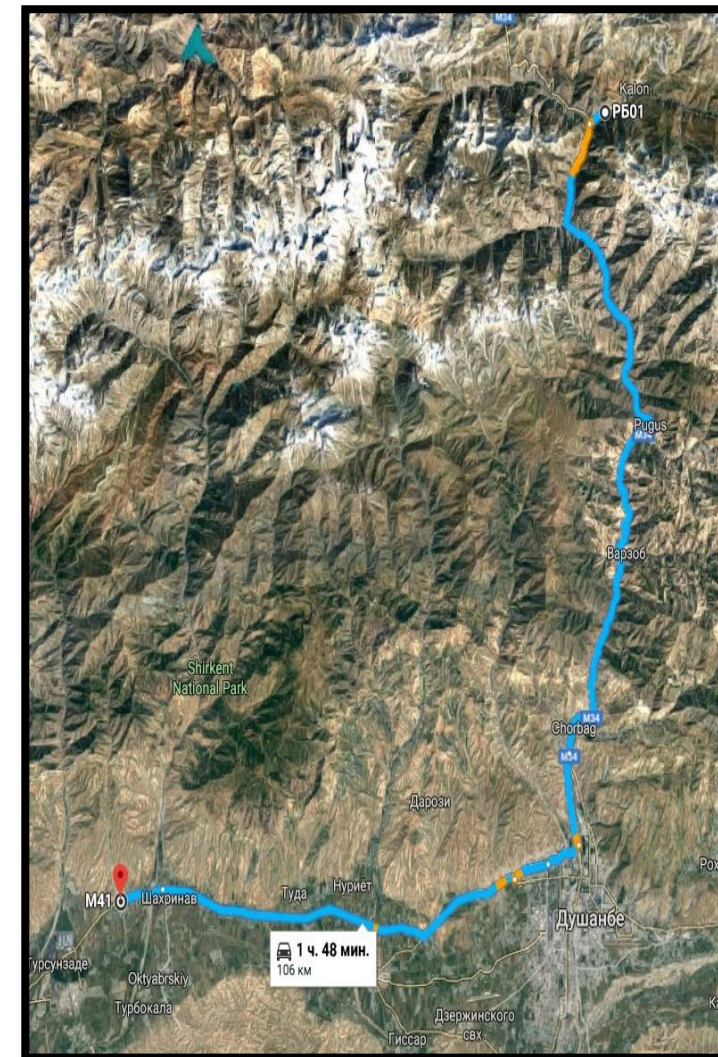
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Coal field “ Ziddi ” - is located in the 106th kilometer. All roads are paved with asphalt. The coal deposit was discovered in 1931. Reserves: A+B+C1-20,729,600 tons.

## Coal Characteristics

|                     |                  |
|---------------------|------------------|
| humidity            | 3,4-10,2%        |
| friability          | 12,6-33,7%       |
| sulfur              | 0,51-0,68%       |
| released substance  | 4,96-25,8%       |
| burning temperature | 6708-7989kcal/kg |
| carbon              | 67,1%            |
| hydrogen            | 5,1%             |







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# GUZN COAL FIELD



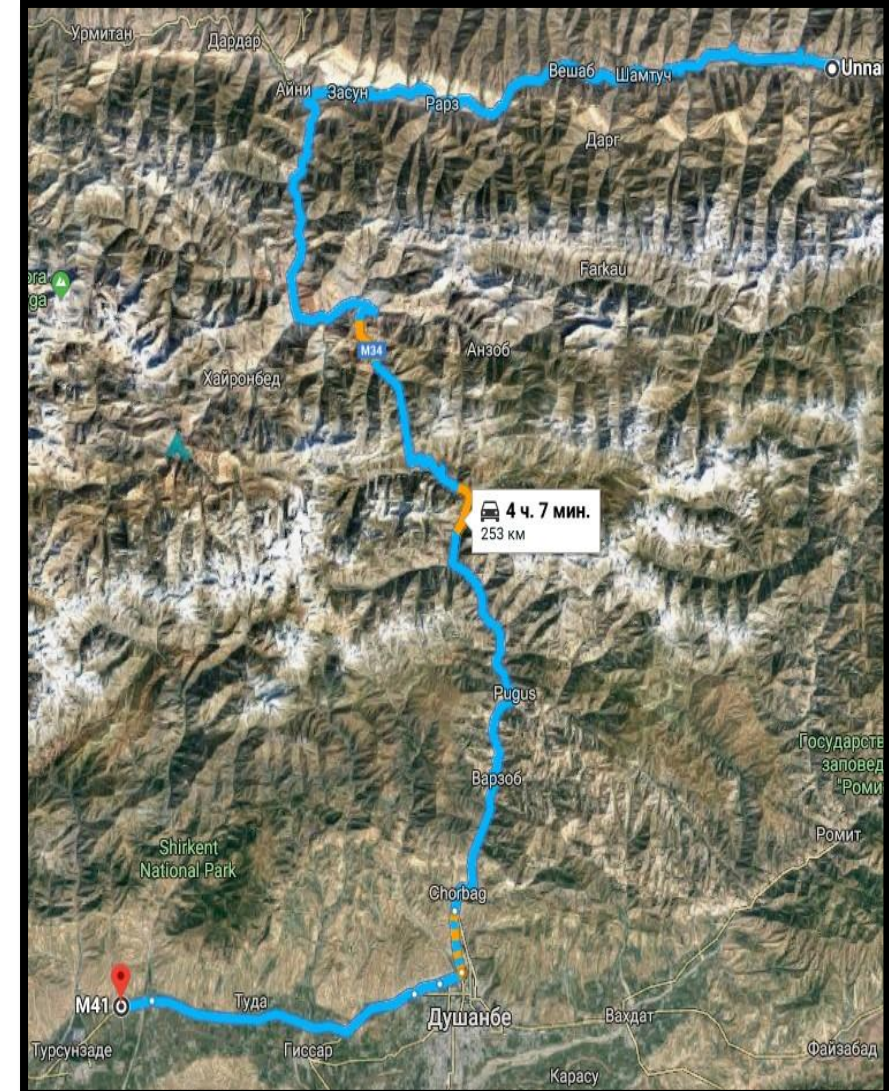
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Coal field" Guzn " - located in the Sughd region, the mine of the armory deposit belongs to the Avesto group of companies. Reserves: C2-13,117,400 tons, C1-256,000 tons. The depth of the layer is 1200m. Brand - Fusinite GAS. Group-2. Anthracite. The middle part of the production is surface mining, and the rest is underground mining. The coal deposit has not yet been fully analyzed.

## Coal Characteristics

|                    |                   |
|--------------------|-------------------|
| Humidity           | 4,3-16,6%         |
| friability         | 0,11-1,3%         |
| sulfur             | 34-36%            |
| released substance | 6700-7700 kcal/kg |





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# GUZN COAL FIELD



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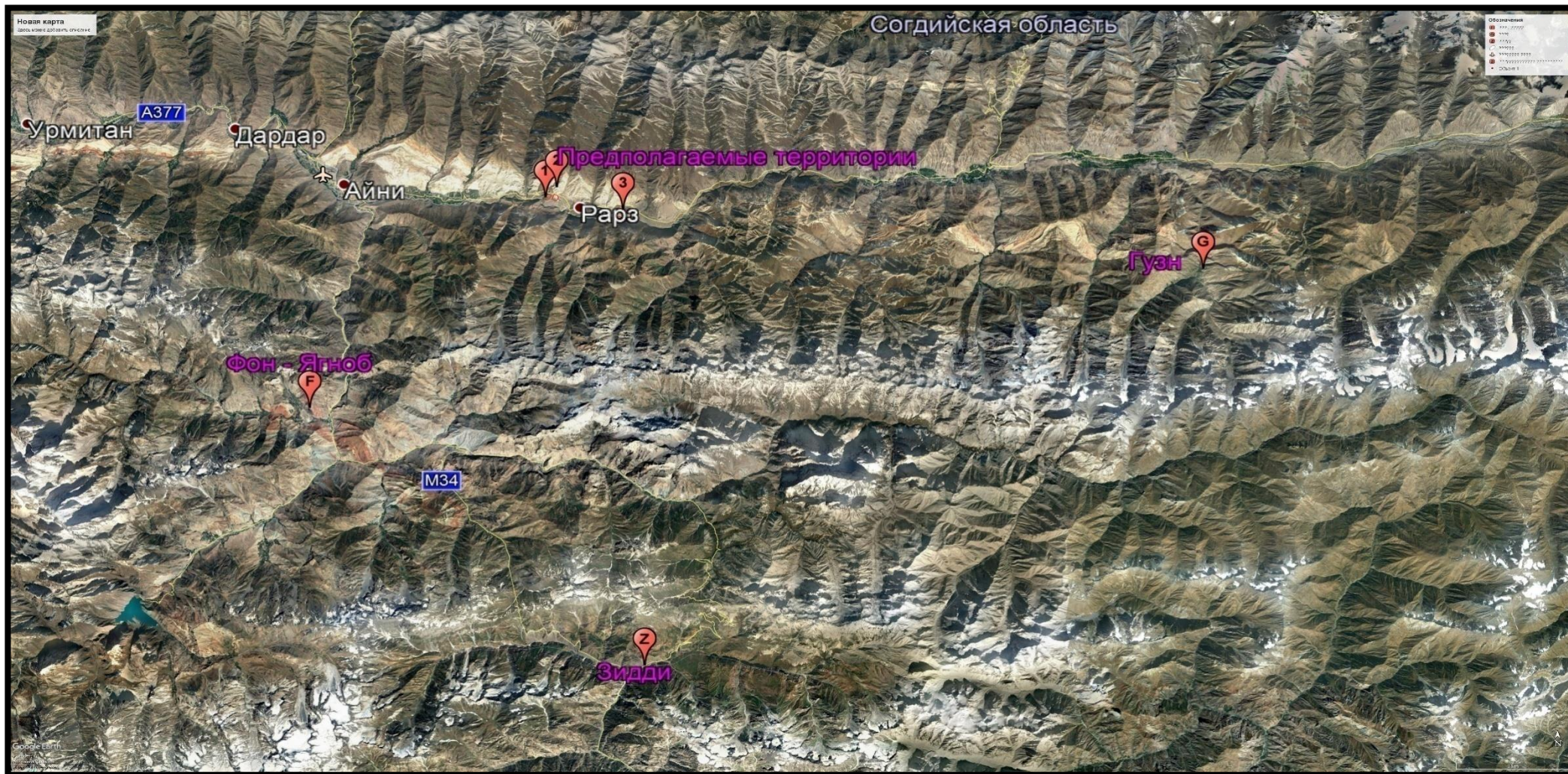
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Due to the fact that the Guzn coal field belongs to the Avesto Group “our management decided to consider the option of the proposed territory, not far from this coal field, in order to independently extract coal for further processing. 3 territories with an area of 19, 16.5 and 93 hectares are provided for the survey of the area.





The proposed option is favorably located to the Ziddi, Fon-Yagnob and Guzn fields.



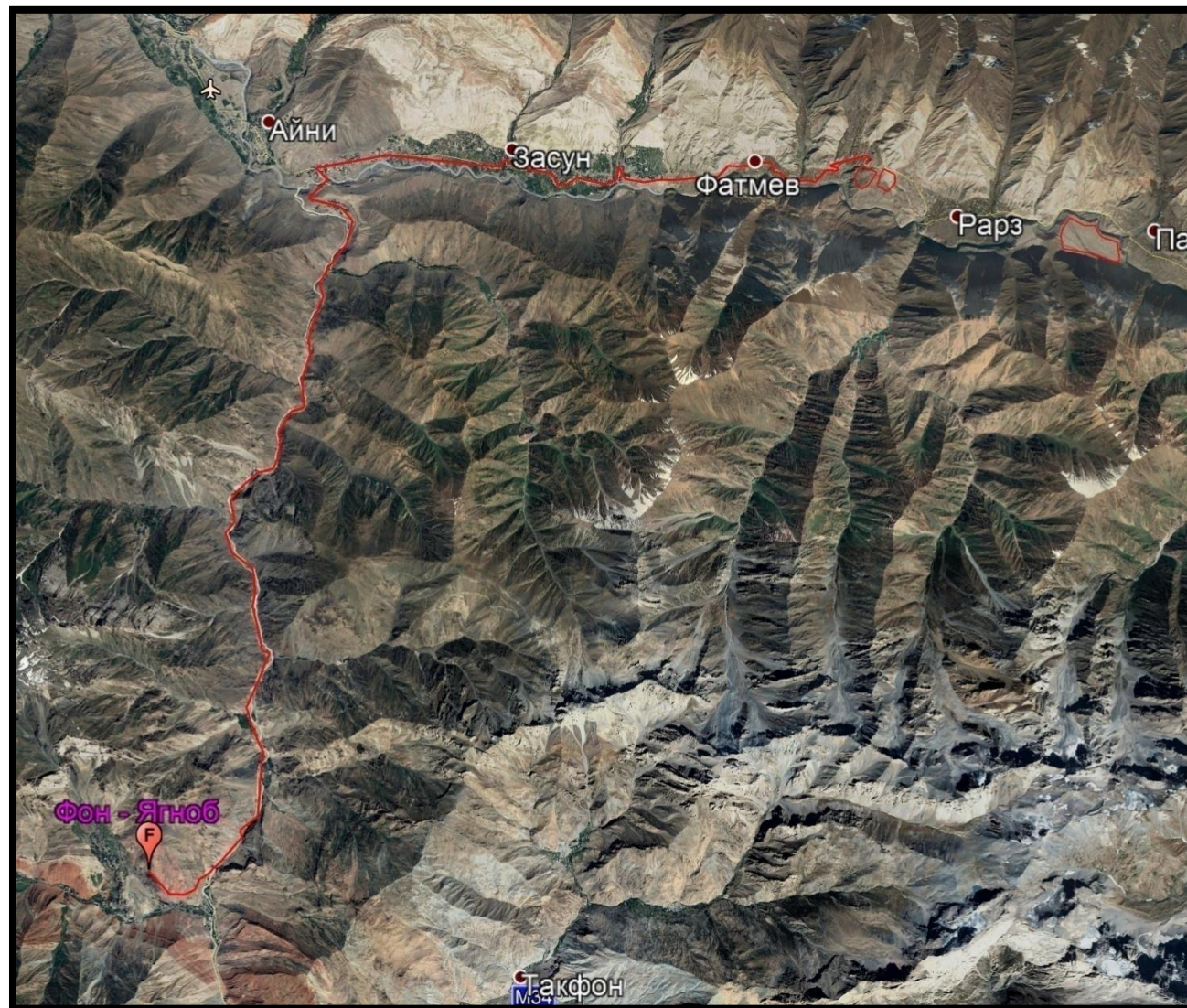


The distance from the Guzn coal deposit is 58 km. 25 km pass on solid ground, and the rest of the road is covered with asphalt.



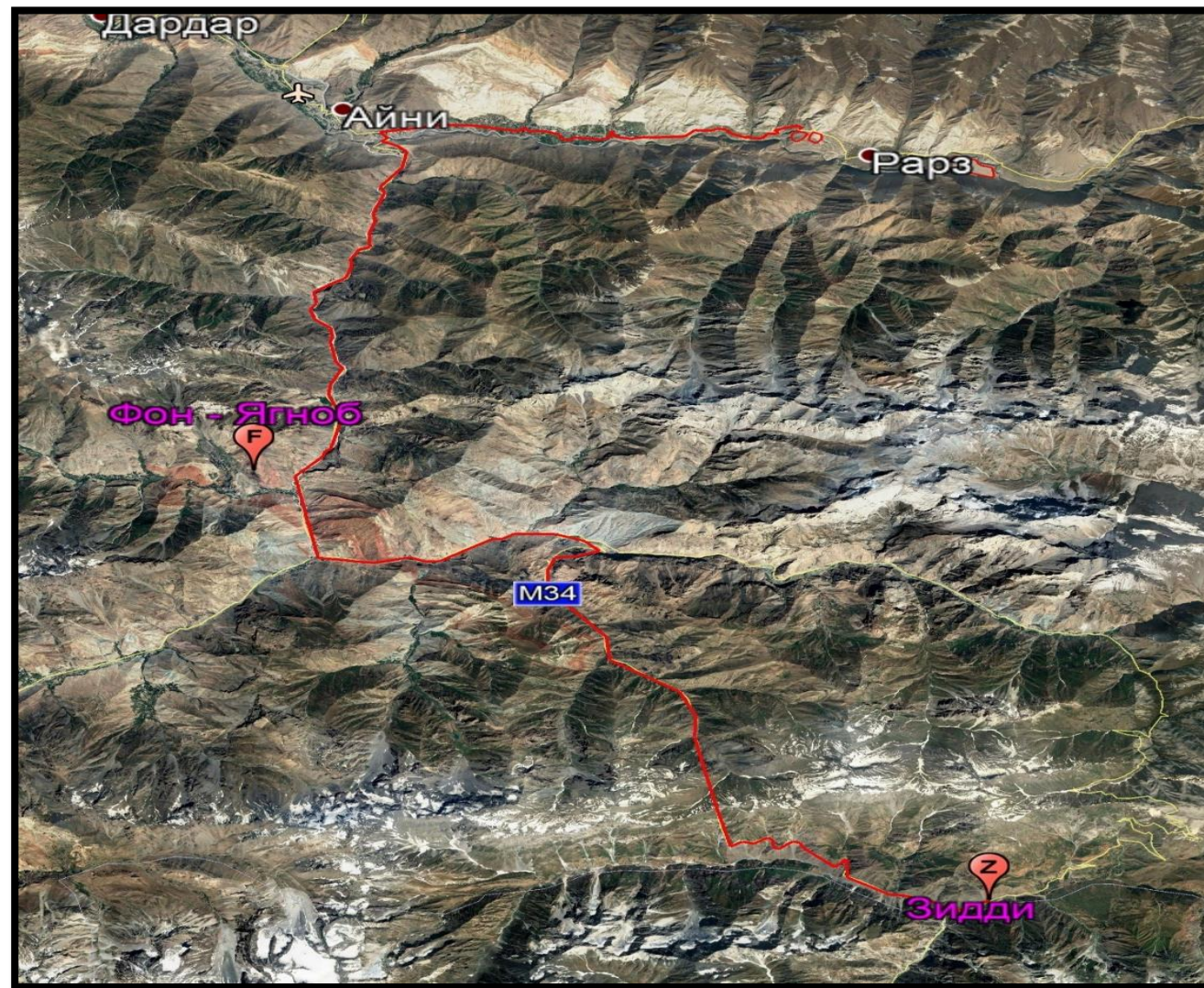


The distance from Fan-Yagnob is 40 km,  
and the road is paved with asphalt.





The distance from the Ziddi coal field is 82 km, and the road is covered with asphalt.



**The preliminary cost of the project for processing is \$  
3,000,000. tons of coal per year**

| No | Name   | unit of measure | Cost        |
|----|--|-----------------|-------------|
| 1  | Equipment and machinery for<br>3,000,000 tons per year | \$              | -           |
| 2  | Construction and installation                          | \$              | -           |
| 3  | other expenses   | \$              | -           |
|    | TOTAL  | \$              | 748 000 000 |



**Preliminary cost of the project for processing 370,000  
tons of coal per year**

| No | Name   | Unit of measure | Cost        |
|----|--|-----------------|-------------|
| 1  | Equipment and machinery for<br>370,000 tons per year | \$              | -           |
| 2  | Construction and installation                        | \$              | -           |
| 3  | other expenses                                       | \$              | -           |
|    | TOTAL  | \$              | 488 000 000 |



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# Investment

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Investing in the economy of the Republic of Tajikistan is a guarantee of successful development, expansion of entrepreneurship and access to new markets in Asia.

## initiator

- Registration of a Joint venture
- Required documents and permits for the implementation of the project
- Production site
- Infrastructure
- Determination of benefits under the Investment Agreement
- Support of projects in all Ministries and departments of the country until their full adoption

## Investor

- Feasibility study
- Technological equipment
- Funding





# Government support



## Tax preferences

### Income tax exemption:

For 2 years, with an investment volume of \$ 200 thousand to \$ 500 thousand.  
For 3 years, with an investment volume of \$ 500 thousand to \$ 2 million;  
For 4 years, with an investment volume of \$ 2 million to \$ 5 million;  
For 5 years, with an investment volume of more than \$ 5 million

## Customs preferences

### Exemption from VAT and customs duties:

- Technical equipment and components;
- Products for projects approved by the Government of the Republic of Tajikistan;
- Goods for the construction of hydroelectric power plants and especially important facilities for Tajikistan;
- Products for full-cycle processing of cotton and aluminum

## Guarantee of protection of investors ' rights

- Equal rights of domestic and foreign investors
- Legal protection of investors. Guarantee of non-interference of the government in business
- The right to transfer income abroad
- Unhindered movement of property and information (entry/exit)
- Intellectual property protection
- The right to use natural resources



# Supporting laws



1

Customs Service under the Government of the Republic of Tajikistan **(CST06)**The import of production and technological equipment and its components forming a single technological set is exempt from VAT. **Law of the Republic of Tajikistan" On Amendments and Additions to the Tax Code of the Republic of Tajikistan", No. 1511 of February 21, 2018;** Tax Code of the Republic of Tajikistan, Article 169The following types of imports are exempt from value added tax:- import, including on the terms of financial lease (leasing), production and technological equipment and components to it, forming a single technological set, for the formation or replenishment of the authorized fund (capital) of the enterprise or technical re-equipment of existing production, provided that this property is used directly for the production of goods, performance of works and provision of services in accordance with the constituent documents of the enterprise and does not belong to the category of excisable goods.

2

Customs Service under the Government of the Republic of Tajikistan **(CST07)**The import of production and technological equipment and its components forming a single technological set is exempt from customs duties. **Law of the Republic of Tajikistan" On Amendments and Additions to the Customs Code of the Republic of Tajikistan", No. 1512 of February 21, 2018;** Customs Code of the Republic of Tajikistan, Article 345The following types of import of goods are exempt from customs duties: import, including on the terms of financial lease (leasing), production and technological equipment and components to it, forming a single technological set, for the formation or replenishment of the authorized fund (capital) of enterprises or technical re-equipment of existing production, provided that this property is used directly for the production of goods, performance of works and provision of services in accordance with the constituent documents of the enterprise and does not belong to the category of excisable goods.





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# Investment agreement with the government

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1.



Memorandum of understanding between local company and foreign investor

2.



Establishment of Joint Venture

3.



Submission of documents for consideration to State Committee on Investment

4.



Development of the draft Government Decree

5.



Approving of Investment Agreement by the Government Decree

6.



Signing of tripartite investment agreement

7.



Ratification of investment agreement by Parliament

8.



Development of the draft Government Decree on the list of imported goods

9.



Notification of entry into force of the Investment Agreement and start of project implementation

# **Thank you for your attention!**



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