



## Aynak Copper Mine

Opportunities and Threats for Development  
from a Sustainable Business Perspective

A Report by Integrity Watch Afghanistan  
Author: Emmanuel Huntzinger

January 2008

## About the Project

This IWA study was conducted in July and August 2007 in Kabul; it relied on in-depth interviews with the main actors directly involved in the Aynak project, reviews of publicly available documentation and analyses conducted by Integrity Watch Afghanistan.

It is the first step of a long-term involvement of Integrity Watch Afghanistan in the monitoring of Aynak.

The Norwegian Embassy in Afghanistan has financially supported this study.

## About Integrity Watch Afghanistan (IWA)

IWA strives to increase transparency, integrity, and accountability in Afghanistan through policy-oriented research, the development of monitoring tools, and the facilitation of policy dialogue. IWA published a number of reports on the integrity of development processes in the country.

IWA is composed of a highly talented team consisting mostly of Afghan researchers with the addition of experienced internationals.

For more details and information about IWA, please see our Internet site at [www.iwaveb.org](http://www.iwaveb.org)

# Project Methodology

## Project Team

		Background	Tasks
<b>IWA Director</b>	<ul style="list-style-type: none"> <li>• <b>Lorenzo Delesgues</b></li> </ul>	<ul style="list-style-type: none"> <li>• MA in Political Sciences (Paris 1 Panthéon Sorbonne and Institut d'Etudes Politiques, Paris) and in Islamic Studies (Institut d'Etudes Politiques, Paris)</li> <li>• Co-Founder and director of Integrity Watch Afghanistan since 2002</li> <li>• Specialist in monitoring methodologies</li> <li>• Fluent in Persian</li> </ul>	<ul style="list-style-type: none"> <li>• Project conception and terms of reference</li> <li>• External interviews</li> <li>• Review of analysis, conclusions and recommendations</li> <li>• Oversight of deliverable outputs</li> </ul>
<b>Project Manager and Author</b>	<ul style="list-style-type: none"> <li>• <b>Emmanuel Huntzinger</b></li> </ul>	<ul style="list-style-type: none"> <li>• MA in Political Sciences (Paris 1 Panthéon Sorbonne) and in International Business Strategy (Institut d'Etudes Politiques, Paris)</li> <li>• International strategy and development consultant (Neovian partners, Paris)</li> <li>• Fluent in Persian</li> </ul>	<ul style="list-style-type: none"> <li>• Project kick-off and definition</li> <li>• Elaborated of interview guides</li> <li>• External interviews</li> <li>• Conducted the analysis</li> <li>• Formulated conclusions and recommendations</li> <li>• Writing of the final report</li> <li>• Completion of the deliverable</li> <li>• Analysis of the available documentation</li> </ul>
<b>Editor</b>	<ul style="list-style-type: none"> <li>• <b>Anna Paterson</b></li> </ul>	<ul style="list-style-type: none"> <li>• PhD Student researching on Russian-Afghan relations at University College London</li> <li>• Researcher on political economy and markets at AREU for 2 years</li> <li>• Writes for Economist Intelligence Unit</li> <li>• Worked as a research analyst for the UK Foreign and Commonwealth Office</li> </ul>	<ul style="list-style-type: none"> <li>• Edition of the final report</li> </ul>

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Assessment of main areas of concern

Recommendations for the operational phase

# Executive Summary

## Issues at Stake

- **The copper industry : important issues at stake**

- Worldwide demand for copper is regularly growing and copper price is stable at a historical high level ;
- In the meanwhile, copper extraction activities can result in very important impacts on local development, both positive and negative. The way the extraction activities are initially organized can have significant consequences for decades: the set up phase is critical.
- Large scale activities normally take 10-15 years to set up, while smaller-scale mining helps establish more information about the deposit. But extensive soviet explorations during the 70s make it possible, in the case of Afghanistan, to begin directly with large-scale operations involving the industry's majors.

- **Opportunities represented by the Aynak project**

- The Aynak copper deposit is exceptional in world perspective : it represents the 2<sup>nd</sup> largest unexploited deposit in the world.
- With the Aynak deposit alone, Afghanistan could become one of the world's top 15 copper producers;
- Mining activities could generate a gross revenue equal to 1,7 time the 2006 Afghan State budget;
- State income generated by mining activities could represent about 47% of the 2006 Afghan State budget;
- 70% of the mining operations' cost potentially be spent on the local market, and an initial investment potentially equal to 35% of all donors' development budget granted to Afghanistan since 2002;
- The social impact is important is interesting as well, as approximately 2,400 jobs could be created and 6,000 jobs indirectly generated;
- The realization of lateral linkages with the local economy is a major issue for local development, with potential benefits at stake roughly at the same scale than State-income generation

- **Main threats related to copper extraction activities**

- Copper extraction creates a variety of toxic waste. Although abatement solutions theoretically exist for all of them, numerous examples of toxic contamination of surrounding areas through wastewater are documented, resulting in environmental and social disasters.
- The area around the Aynak deposit is populated by rural communities and used by Kuchi nomads. Mining best practice encourages the involvement local communities in decision-making and planning, while the Bougainville example (Papua New Guinea) demonstrates that lack of respect for such principles can exacerbate civil strife, and can result in organized armed violence with dramatic consequences.

# Executive Summary

## Analysis of Aynak's set up phase

- **The investor selection process was broadly satisfactory**

- The investor selection process is completed. China Metallurgical Group was chosen. The contract negotiation between the mining company and the Afghan State awaiting finalization and formalization. The World Bank provided technical assistance and Gustavson Associates, a private consulting firm, acted as a transaction advisor;
- Disputes within the Afghan State during the final selection process threatened to contravene the Minerals law and resulted in unexpected delay;
- However the bidding process can be said to be broadly satisfactory, with no major case of a lack of integrity and professionalism.

- **The institutional process is hampered by severe shortcomings**

- A Minerals law has been passed;
- But the institutional process is still at its early stage, and both regulation and regulatory bodies are still lacking: there is no regulatory environment;
- The law itself is too vague in many regards, especially where local communities involvement, land tenure issues and protection of the environment are concerned. These are to be addressed by the yet non-existent regulation;
- But there is concern that the that good progress made in selecting an investor is not being matched by progress in building institutions and a regulatory environment, raising alarms that the institutional process may not be adequately completed. In many instances, developing countries' state apparatus have experienced difficulties in resisting pressure and lobbying from powerful industry majors, once they have been awarded contracts.

## Assessment of main areas of concern

- **Minor concerns and concerns already addressed**

- The mine's economic feasibility has already been fully investigated should meet the requirements of the key actors, including the investor;
- Thanks to the technical assistance provided, the generation of significant State income is realizable. On-going public finance reform will help in maximizing actual benefits to Afghan development from this revenue.

- **Moderate concerns**

- The need for electricity will most probably be met for the extraction and processing operations. But it is unclear yet to what extent the project's potential to contribute to development of Afghanistan's national power supply will be realized;
- Land tenure issue are complex, but limited in this case to a limited population.

- **Important concerns**

- The involvement of local communities and environmental impact have not yet been approached as a major issue, and the next steps will be decisive in addressing these critical issues;
- In particular, water consumption and wastewater management will have to be very carefully dealt with, since mismanaging these can have potentially disastrous consequences.

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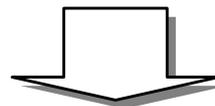
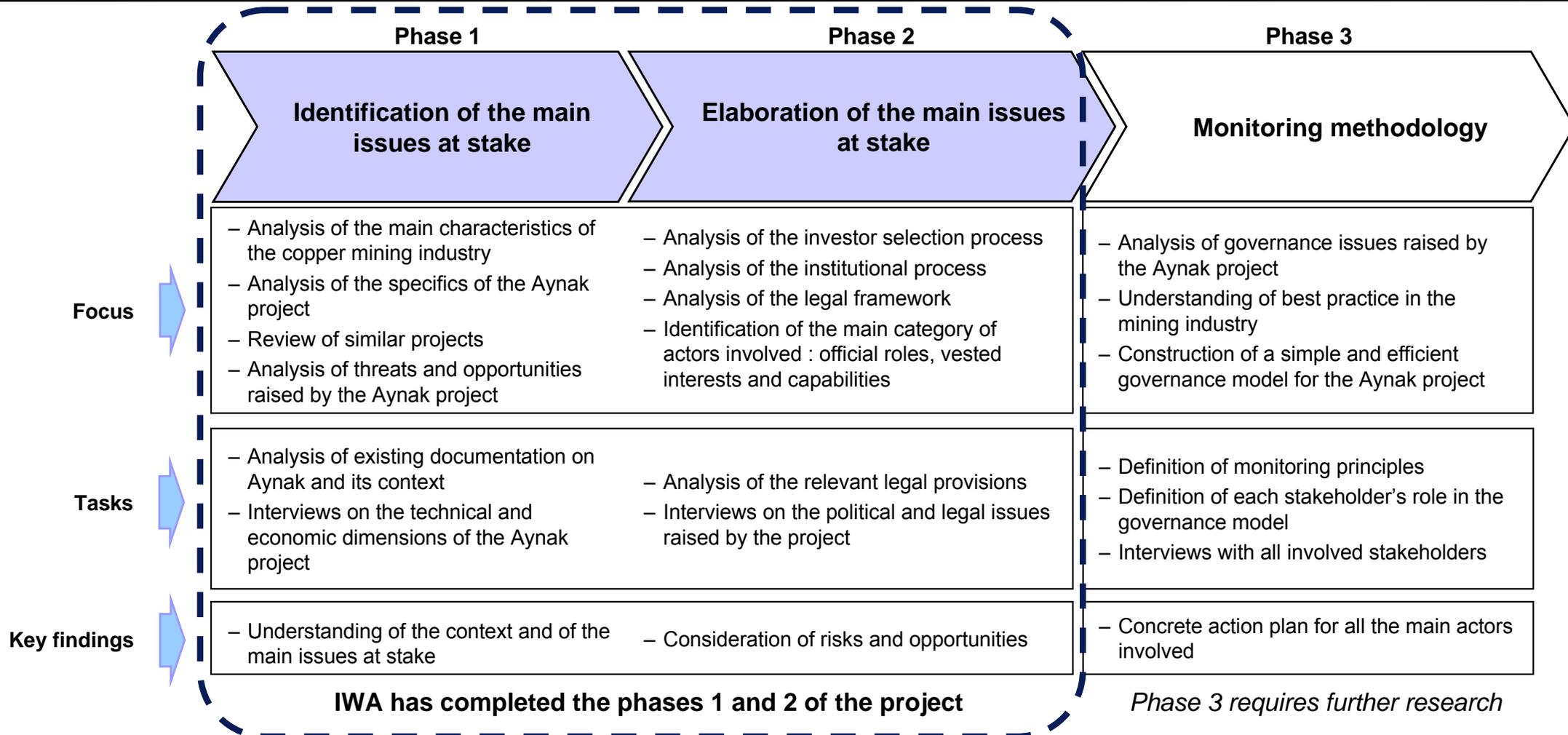
Analysis of the Aynak set-up phase

Assessment of main areas of concern

Recommendations for the operational phase

# Project Methodology

## Three Phase Approach



**Two of the three phases have been completed**

# Project Methodology

## External Interviews Conducted

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- **Adam Smith Institute** – Communication / Outreach Advisor;
- **Islamic Republic of Afghanistan, Ministry of Commerce & Industries** – Senior Advisor to the Minister;
- **Islamic Republic of Afghanistan, Ministry of Mines** – Minister of Mines; Senior Consultant;
- **Afghanistan Research and Evaluation Unit** – Director; Senior Researcher, Political Economy and Governance; Coordinator, Information Resources;
- **Afghanistan International Chamber of Commerce** – ITIPO Director;
- **Afghan Investment Support Agency** – Director;
- **British Geological Survey** – Regional Manager; Senior Librarian;
- **Bureau of the President of the Islamic Republic of Afghanistan** – Senior Advisor;
- **The Kazakhstan Institute of Management Economics and Strategic Research** – Researcher, Associate Professor;
- **United Nations Development Program** – Private Sector Development;
- **Wildlife Conservation Society** – Country Director; Legal Advisor;
- **The World Bank** – Advisor, Poverty Reduction and Economic Management, South Asia Region; Oil, Gas, Mining and Chemicals Department

# Project Methodology

## Documents Reviewed

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*(List non exhaustive)*

- **AIMS:** Population Density, 2002;
- **Afghanistan Geological Survey:** The Aynak Copper Deposit; Geologic and Mineral Resource Map of Afghanistan; The Potential for Copper;
- **Copper Development Association Inc.:** Annual Data 2007;
- **International Copper Study Group:** Forecast 2007-2008
- **International Council on Mining & Metals:** Community Development Toolkit
- **Islamic Republic of Afghanistan:** 1385 and 1386 budget decree (English); Minerals Law (English); 2003 Afghanistan Statistical Yearbook;
- **Islamic Republic of Afghanistan, Ministry of Commerce & Industries:** Strategy for Afghanistan National Development Strategy;
- **Islamic Republic of Afghanistan, Ministry of Energy and Water:** Strategy for Afghanistan National Development Strategy;
- **Islamic Republic of Afghanistan, Ministry of Mines:** Strategy for Afghanistan National Development Strategy;
- **London Metal Stock Exchange Market,** various statistics;
- **The Mining, Minerals and Sustainable Development Project:** Breaking the Ground;
- **Numerous reports of mining companies and case-studies of specific mining operations;**
- **US Geological Survey:** 2005 Mineral Yearbook; 2007 Copper Industry Survey; Mineral Commodity Market, Summary 2007
- **The World Bank:** Extractive Industries in Post Conflict Countries: Afghanistan and DR Congo; Transitional Islamic State of Afghanistan: Mining as a Source of Growth;
- **World Bureau of Metal Statistics,** various statistics;

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**Issues at Stake**

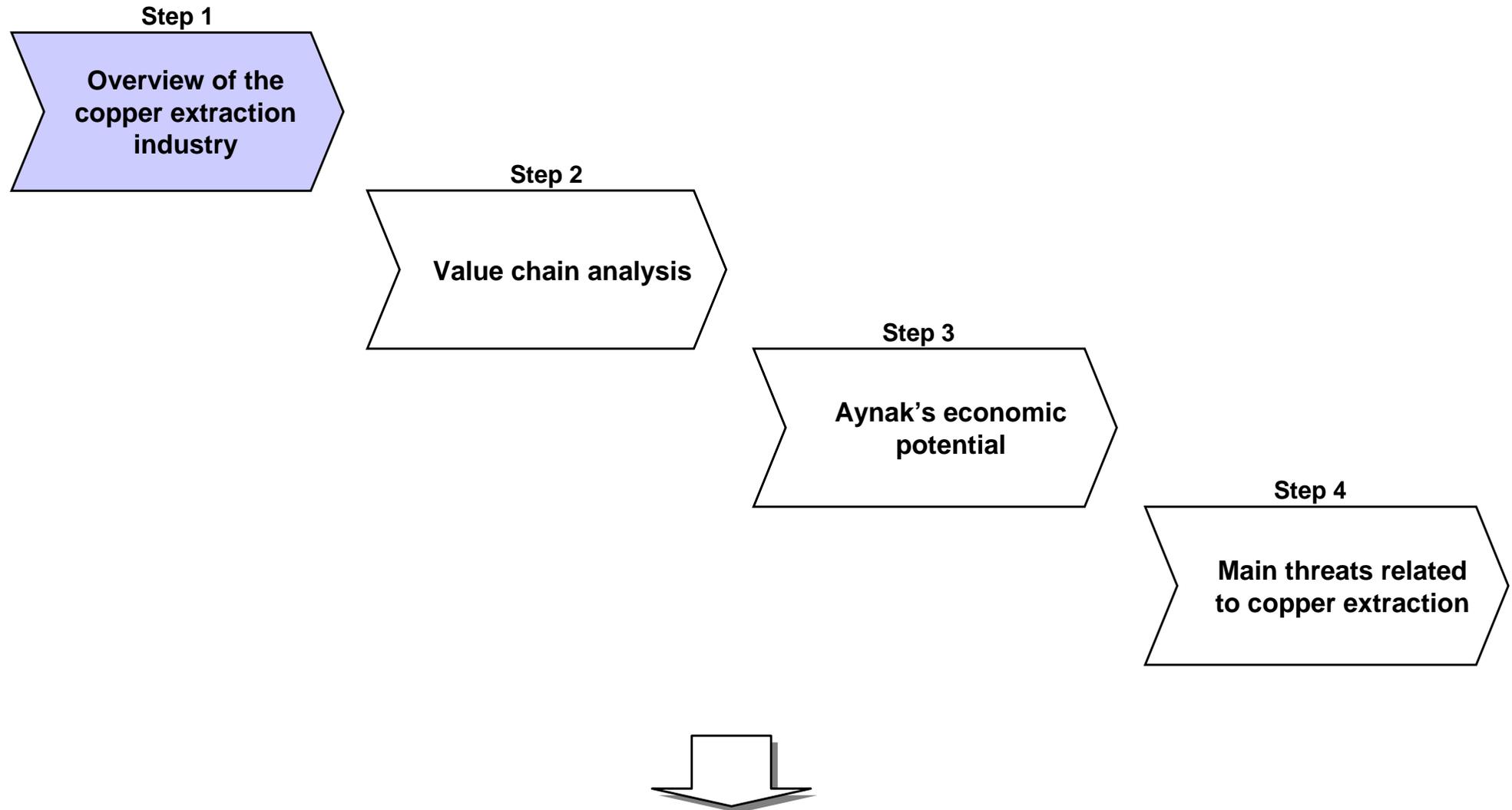
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# Issues at Stake

## Issues at Stake : Stages of Analysis

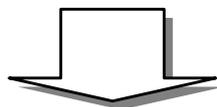
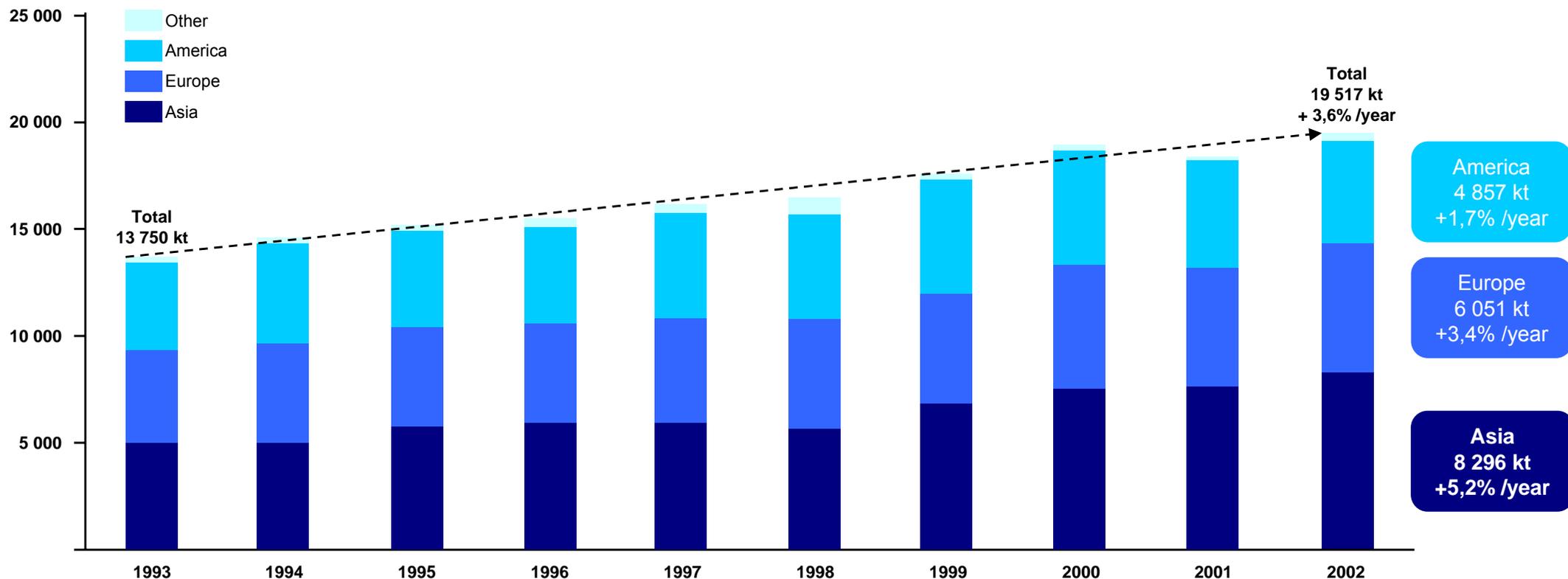


**The analysis of issues at stake will follow a 4-step methodology**

# Issues at Stake

## Market trends : Copper demand

Global Copper Consumption, 1993 - 2002



**The demand trend for refined copper is rising, especially in Asia**

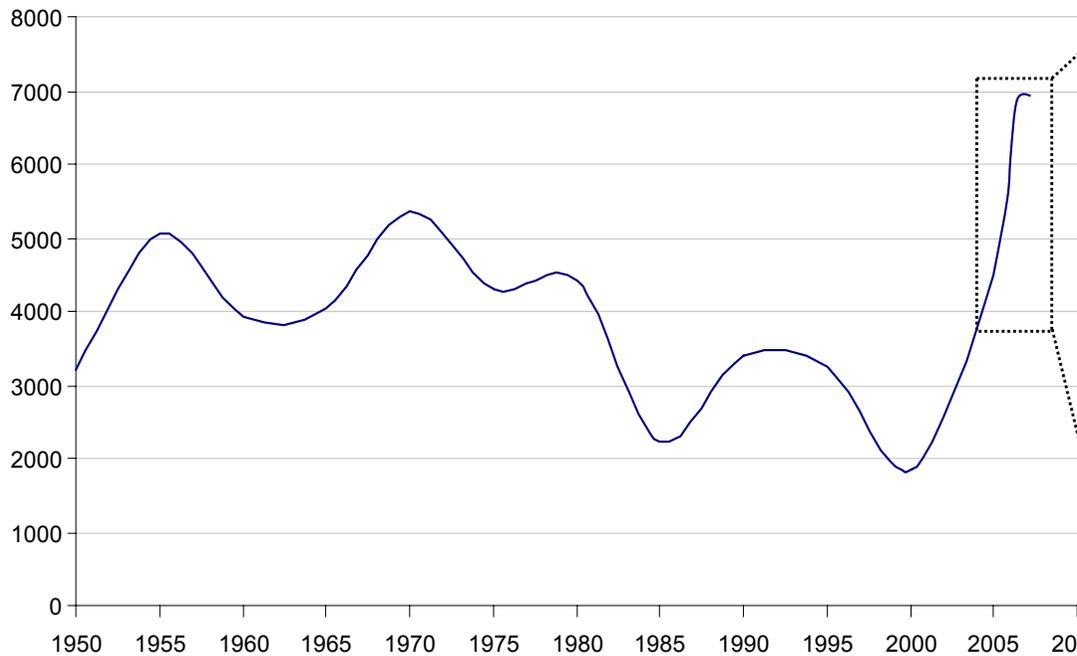
Sources : World Bureau of Metal Statistics

# Issues at Stake

## Market trends : Copper price

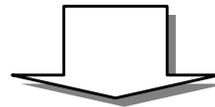
### Long-term perspective, 1950 - 2007

Price trend in the US market, 1950 – July 2007, in US\$ /ton of refined copper



### Recent price evolutions, 2005 - 2007

Price trend on the London Metal Exchange Market, Dec. 2005 – July 2007, in US\$ /ton of refined copper



**Price copper has been quite stable since mid-2006, at a historical high level**

Sources : London Metal Exchange Market, U.S. Geological Survey

# Issues at Stake

## Mining Industry's Economic Constraints

### Constraints

#### High Risks

- Relative to most other industries, the mining industry is characterized by high risk. This risk is present at all stages of the project's life cycle, including the exploration, development, and production stages.

#### Capital intensive

- The mining industry is very capital intensive. Substantial amounts must be spent annually on exploration to discover sufficient ore to replace the ore that is currently consumed.
- The Aynak mine is expected to cost around 1,5 – 2 billion dollars to bring into production.

#### Dependency on world market prices

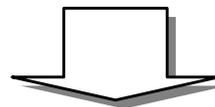
- The prices of most mineral products are established by the interaction of supply and demand in the global marketplace. The mining enterprise does not set the price for its product – the enterprise is a “price-taker”.

#### Cyclical prices

- Most metal prices show considerable fluctuations over the years, and the typical mining enterprise's profits will reflect these price cycles. It is common for even the largest mining companies to record losses for a number of consecutive years as a result of soft metal prices.

#### Finite lifetime of investments

- Unlike a manufacturing plant or a service business, a mining project has a finite life, because its mineral reserves are finite. This means that the enterprise has a limited number of years over which to realize a competitive rate of return on its investment



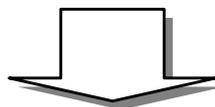
**The copper extraction industry requires high profitability for the activity to be economically sustainable**

Sources : The World Bank, *Transitional Islamic State of Afghanistan Mining as a Source of Growth*

# Issues at Stake

## Mining Industry & Development

Development issue	Details	
<b>Income generation for the State</b>	<ul style="list-style-type: none"> <li>• Since mineral resources belong to a country's nation, a fair amount of the income generated by mineral extraction should be accrued by the State.</li> </ul>	<p><b>Beside economic profitability, a good mining project is expected to handle a wide number of complex issues</b></p>
<b>Natural resources consumption</b>	<ul style="list-style-type: none"> <li>• Mineral activities require large volumes of natural resources, primarily water and energy. This can interfere with or benefice the supply of these resource to neighboring communities.</li> </ul>	
<b>Land tenure management</b>	<ul style="list-style-type: none"> <li>• The area of interest to the mining project may be settled and inhabited by local communities. Legal land users and informal land users must be fairly compensated.</li> </ul>	
<b>Communities involvement</b>	<ul style="list-style-type: none"> <li>• Mining operations can be carried out for the benefit both of the mining company and of the local communities, if both actors are fully involved in the project.</li> </ul>	
<b>Environmental protection</b>	<ul style="list-style-type: none"> <li>• Mining operations involve extensive land use, toxic waste generation and natural resources consumption : all these issues must be carefully taken care of.</li> </ul>	
<b>One-time planning and investment</b>	<ul style="list-style-type: none"> <li>• Unlike investing in most other industries, exploiting a mineral deposit involves choosing a single actor holding a monopoly for decades over very large scale operations. The development plan takes years to draft and its impacts will last for the whole duration of the project.</li> </ul>	<p><b>Careful selection and long term planning is essential</b></p>

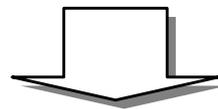
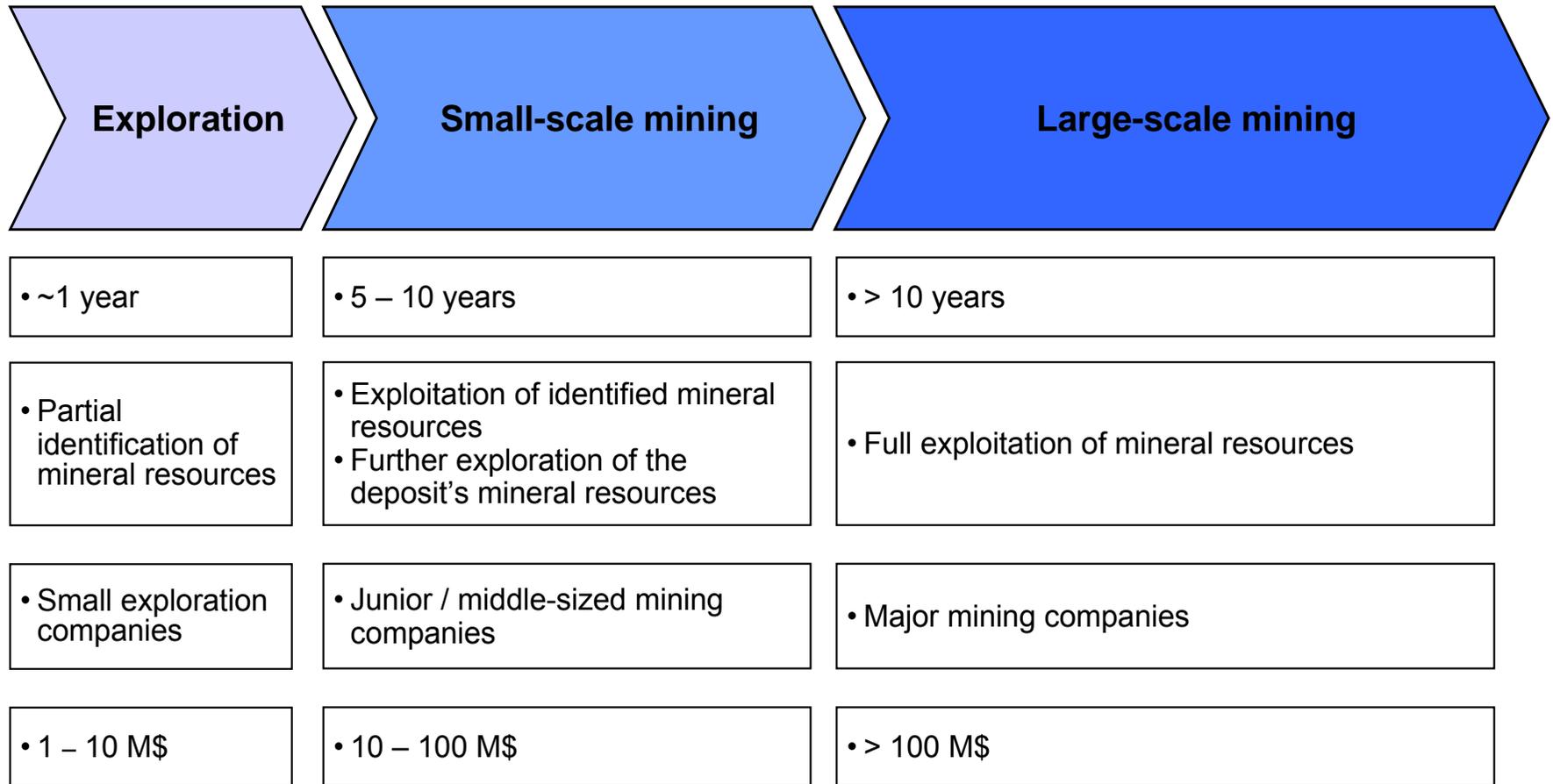


**Extraction must meet developmental and environmental aims as well as economic ones, which require careful and long-term planning**

Sources : External interviews

# Issues at Stake

## Typical Phases of Mining Development

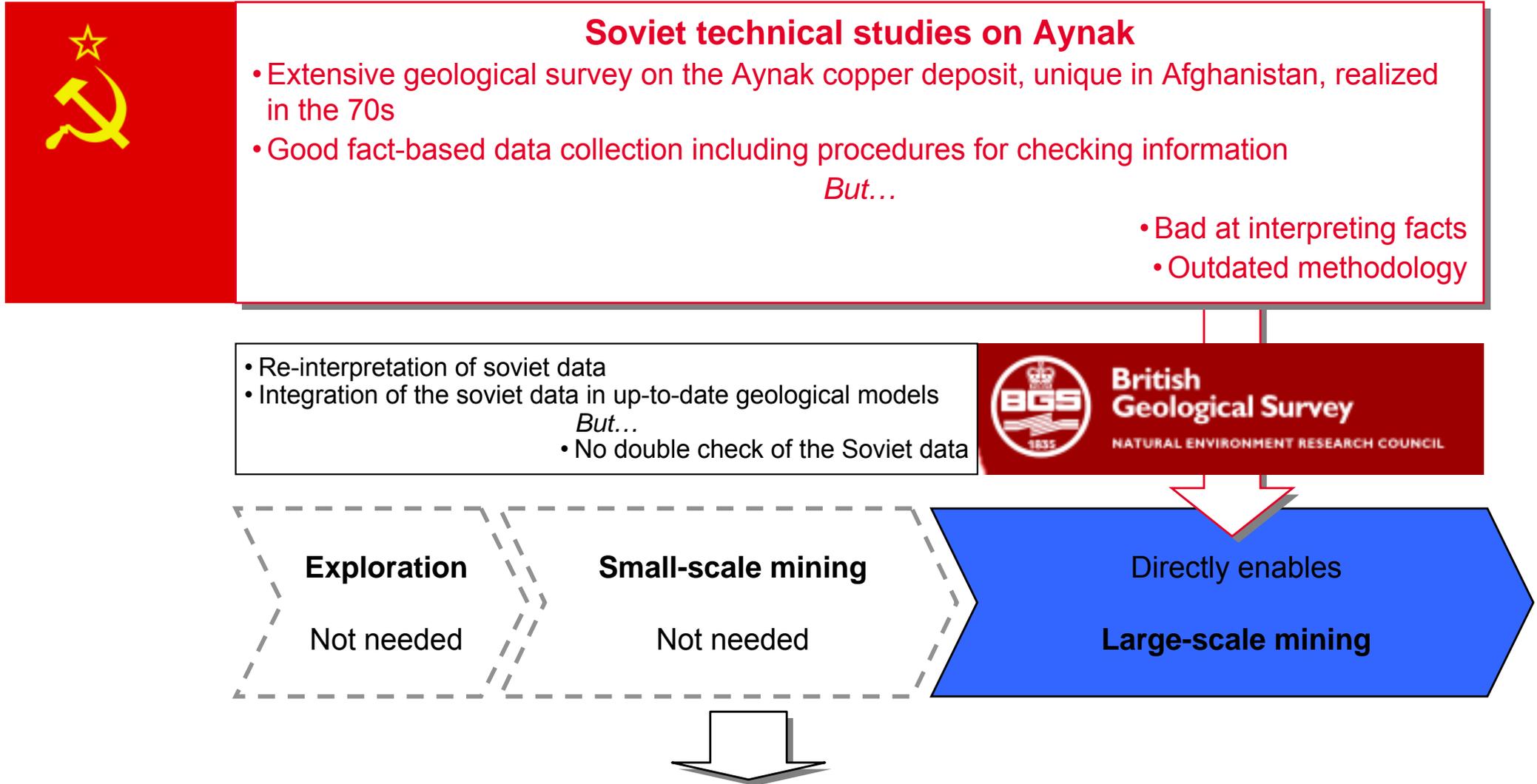


**Typically, unexploited mineral deposits cannot attract the interest of major mining companies until at least 6 years of operations by more junior companies are completed**

Sources : external interviews

# Issues at Stake

## Afghanistan's Specific Position



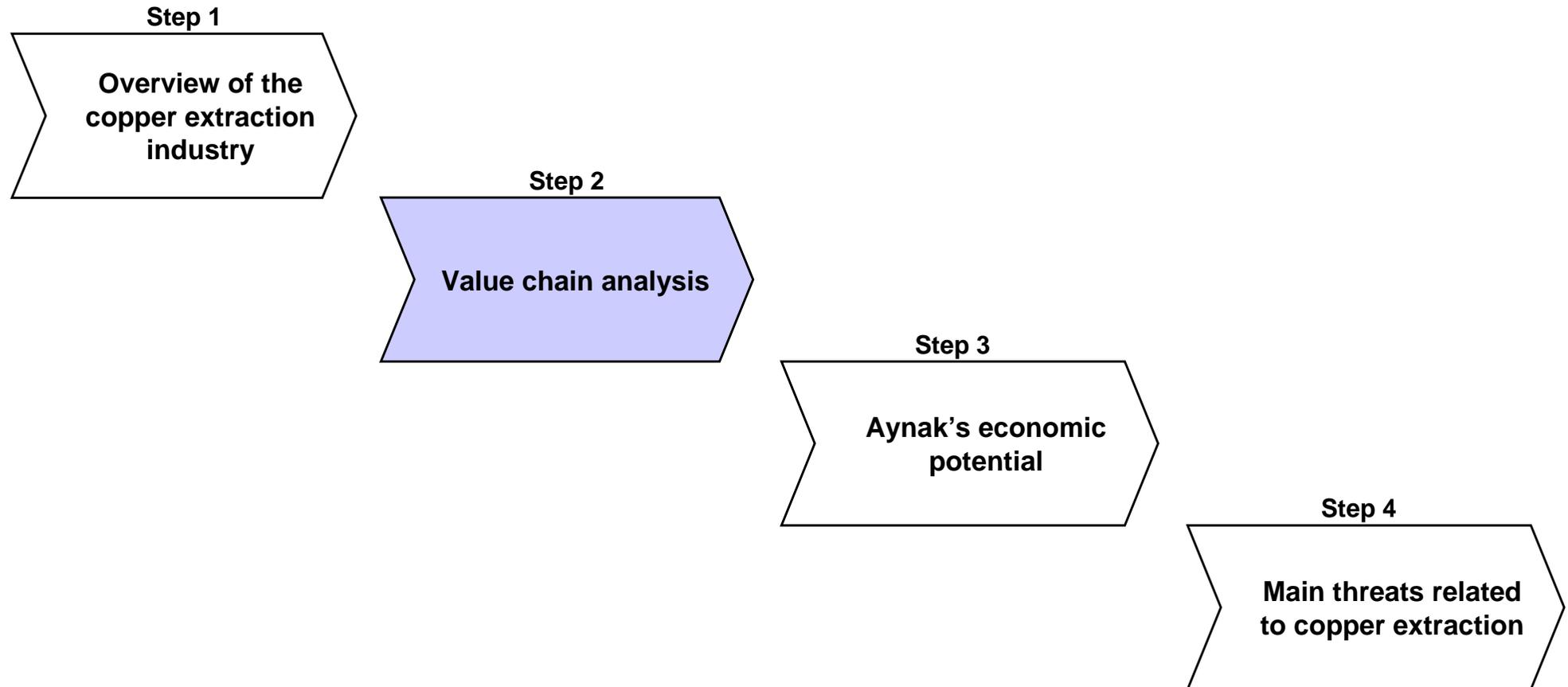
**The availability of detailed Soviet geological studies makes Afghanistan immediately attractive to major mining companies**

Sources : external interviews

# Issues at Stake

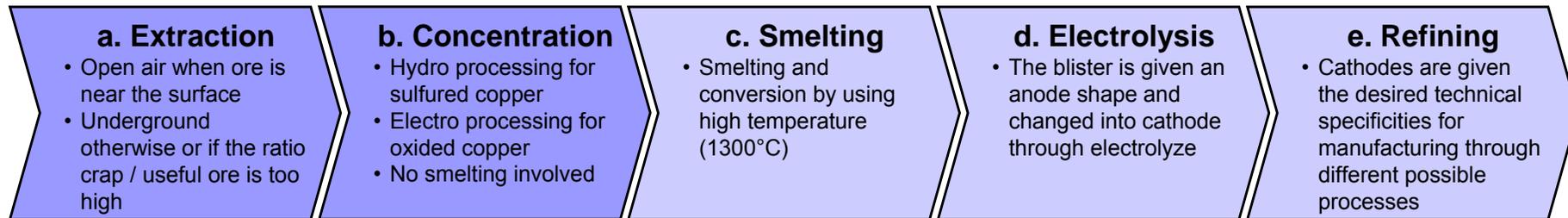
## Issues at Stake : Stages of Analysis

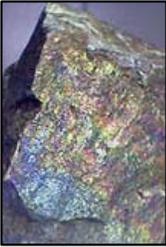
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# Issues at Stake

## Copper Value Chain



<b>Actor handling the process</b>	<b>1. Miner</b>		<b>2. Smelter</b>			
<b>Copper concentration</b>	1 - 3%	25 - 40%	98 – 99,5%	~ 99,9%	> 99,9%	
<b>Product delivered</b>	<b>Copper ore</b> • Either sulfured or oxidized	<b>Copper concentrate</b>	<b>Blister</b>	<b>Cathodes</b>	<b>Refined copper</b> Usable for further manufacturing	
<b>Product Illustration</b>						
	Sulfured copper ore	Oxidized copper ore	Froth flotation during the concentration process	Copper pouring out of the smelting process	Electrolysis of copper blisters	Refined copper

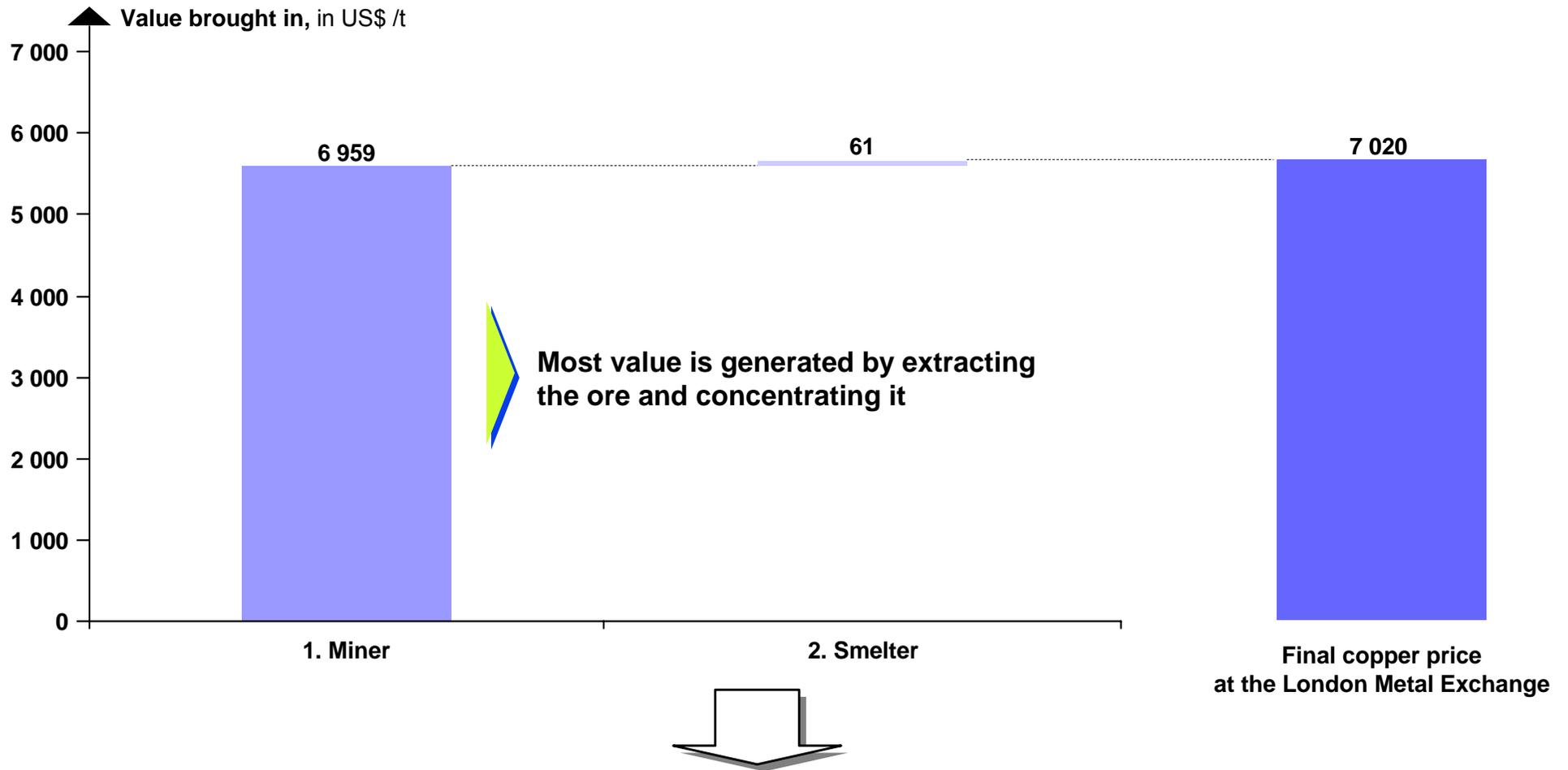
The copper transformation chain can be divided into 5 main steps, generally handled by two main actors : the miner, and the smelter

# Issues at Stake

## Copper Value Chain : Value Creation

Value distributed along the value chain

Figures Jan. 2007

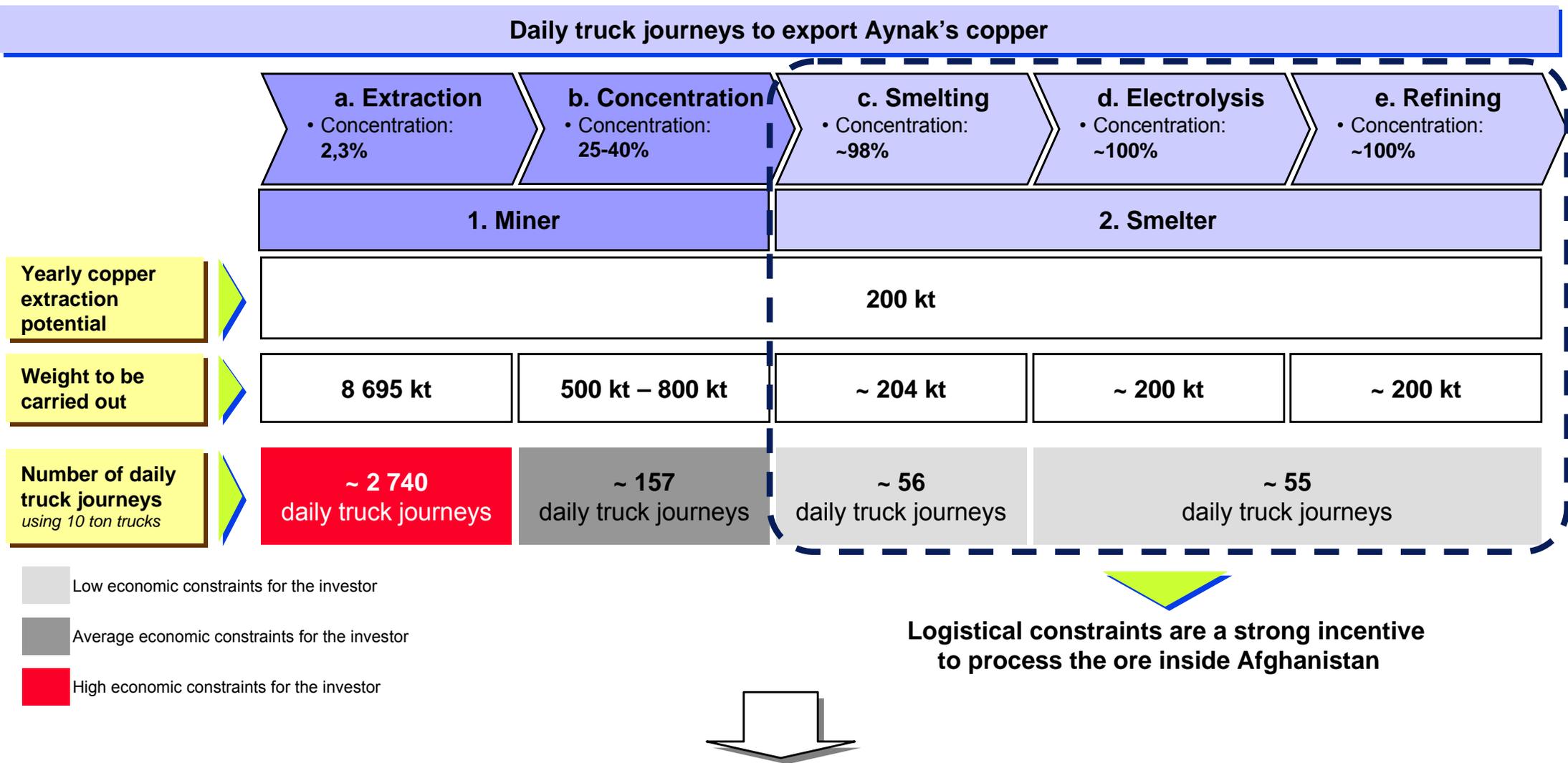


**Keeping smelting and refining activities in Afghanistan would create only marginal additional value**

Sources : Platts Metals Week and American Metal Market, FXTrade

# Issues at Stake

## Copper Value Chain : Logistical Constraints in Afghanistan

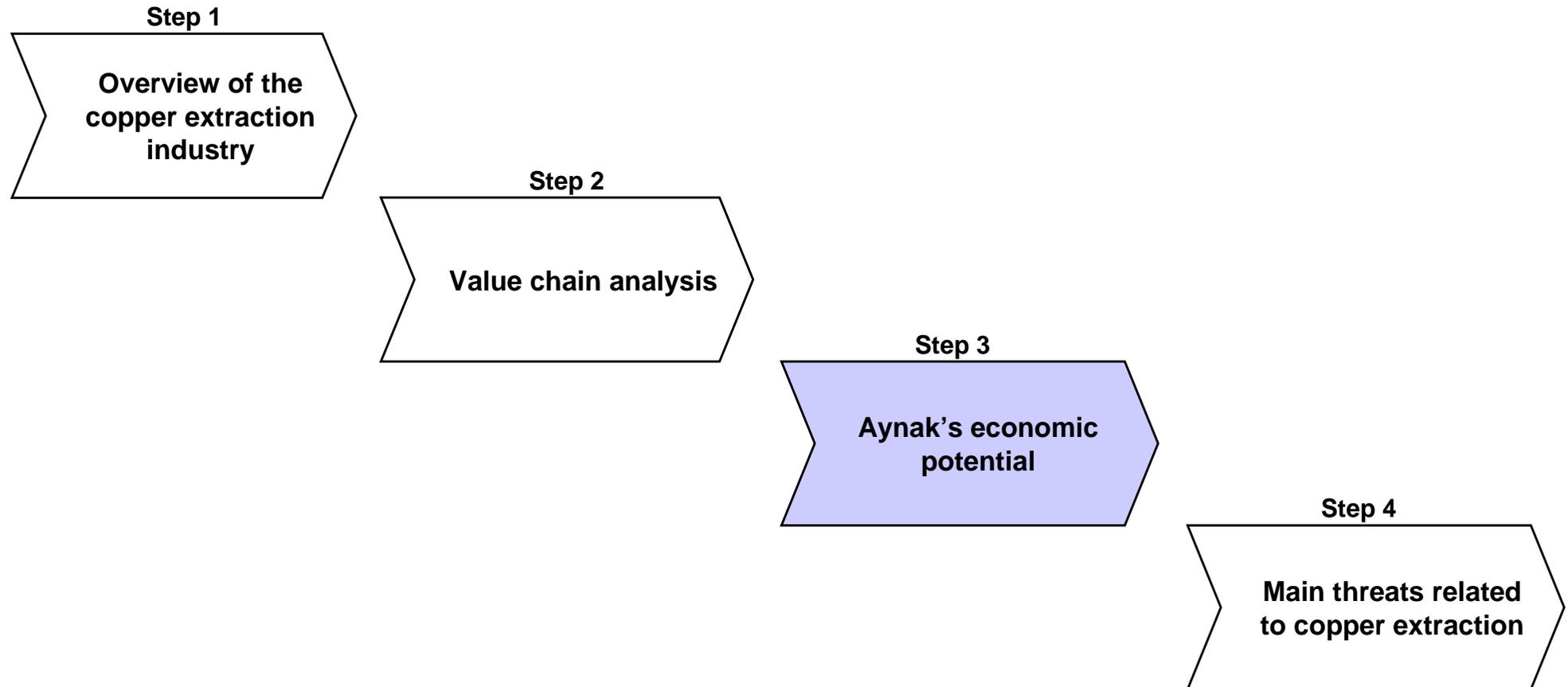


**Exporting extracted copper raises important logistical issues**

# Issues at Stake

## Issues at Stake : Stages of Analysis

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# Issues at Stake

## Aynak's Geological Potential

### Geological potential

Concentration ~2,3 %

- An exceptionally high concentration, unseen in deposits currently exploited on such a large scale.
- A 1,6% concentration ore is already considered as a very good one by the industry.

Estimated reserves at Aynak

Copper reserves

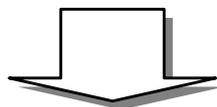
- ~6 Mt copper according to the British Geological Survey (2006)
- ~13 Mt copper, possibly up to 20 Mt according to the Afghan Ministry of Mines (2007)

- The 2<sup>nd</sup> largest known unexploited deposit in the world.

Yearly extraction potential

150 000 – 200 000 t

- Up to 1,3 % of current world production.
- Afghanistan would join the world's Top 15 copper producers.



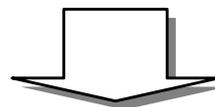
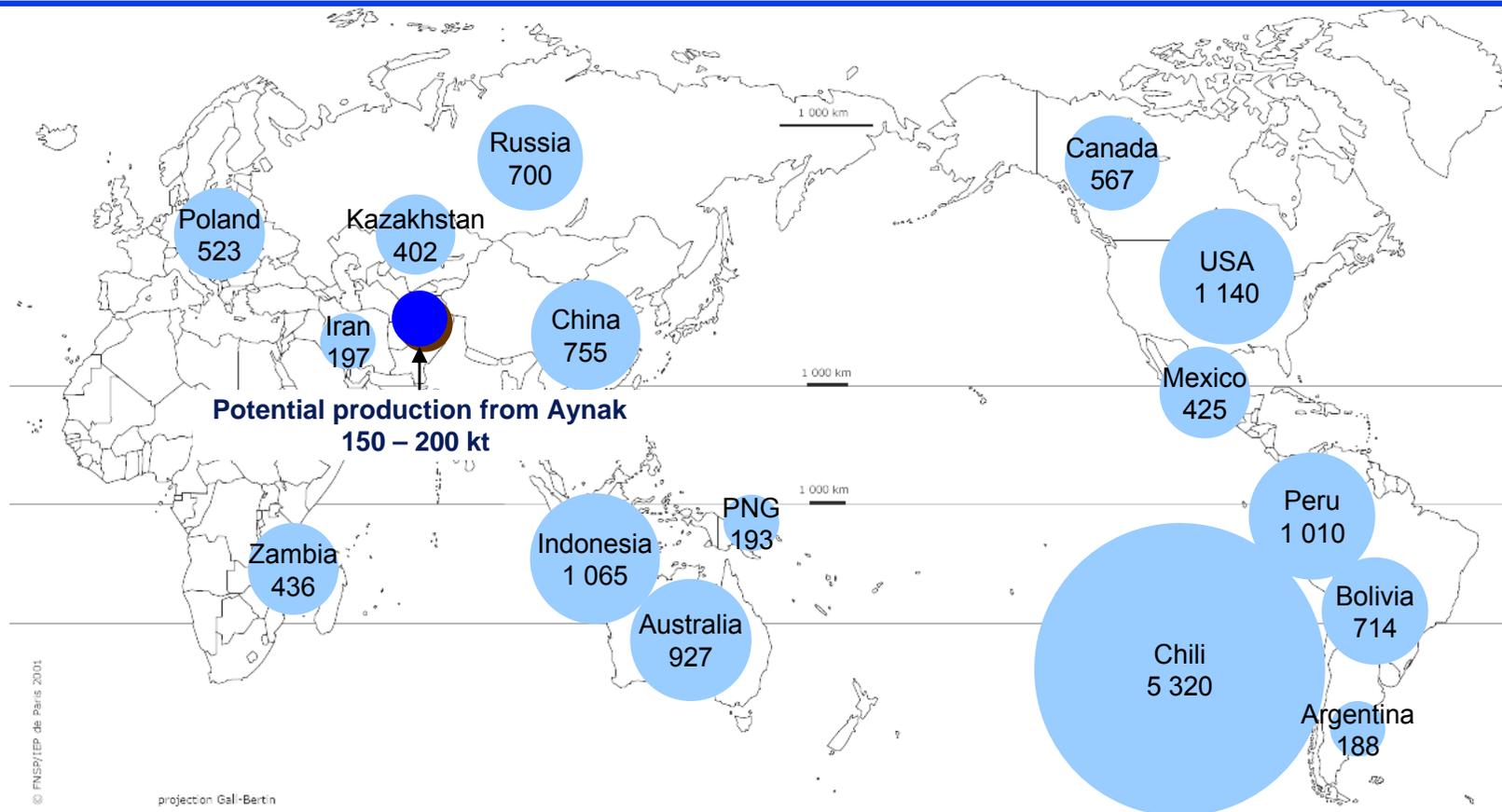
**The Aynak deposit has exceptional geological potential**

Sources : British Geologic Survey, Ministry of Mines, United States Geological Survey 2005 Minerals Yearbook.

# Issues at Stake

## Aynak's Geological Potential in Perspective

Main world copper producers, in yearly kt



**Afghanistan could join the world's top 15 copper producers**

Sources : U.S. Geological Survey Minerals Yearbook

# Issues at Stake

## Aynak's Income Generation Potential

### Profit: income generation potential

#### Expected economic ratio

Based on a refined copper price of US\$7020 /t

Mine's profitability before tax : ~30% of gross revenue

Income tax (2) : ~22% of profit before tax and salaries

Royalty (1) : ~15 % of gross revenue  
Will be annexed on copper price, with the maximum rate amounting to approximately 20%

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#### Compound taxation rate

~28 % of gross revenue as state income

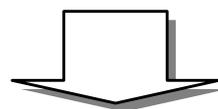
#### Expected direct income generation

Based on a refined copper price of US\$7020 /t

**Gross revenue**  
\$ 1 404 M

**Profit after tax**  
\$ 304 M

**State income**  
\$ 390 M



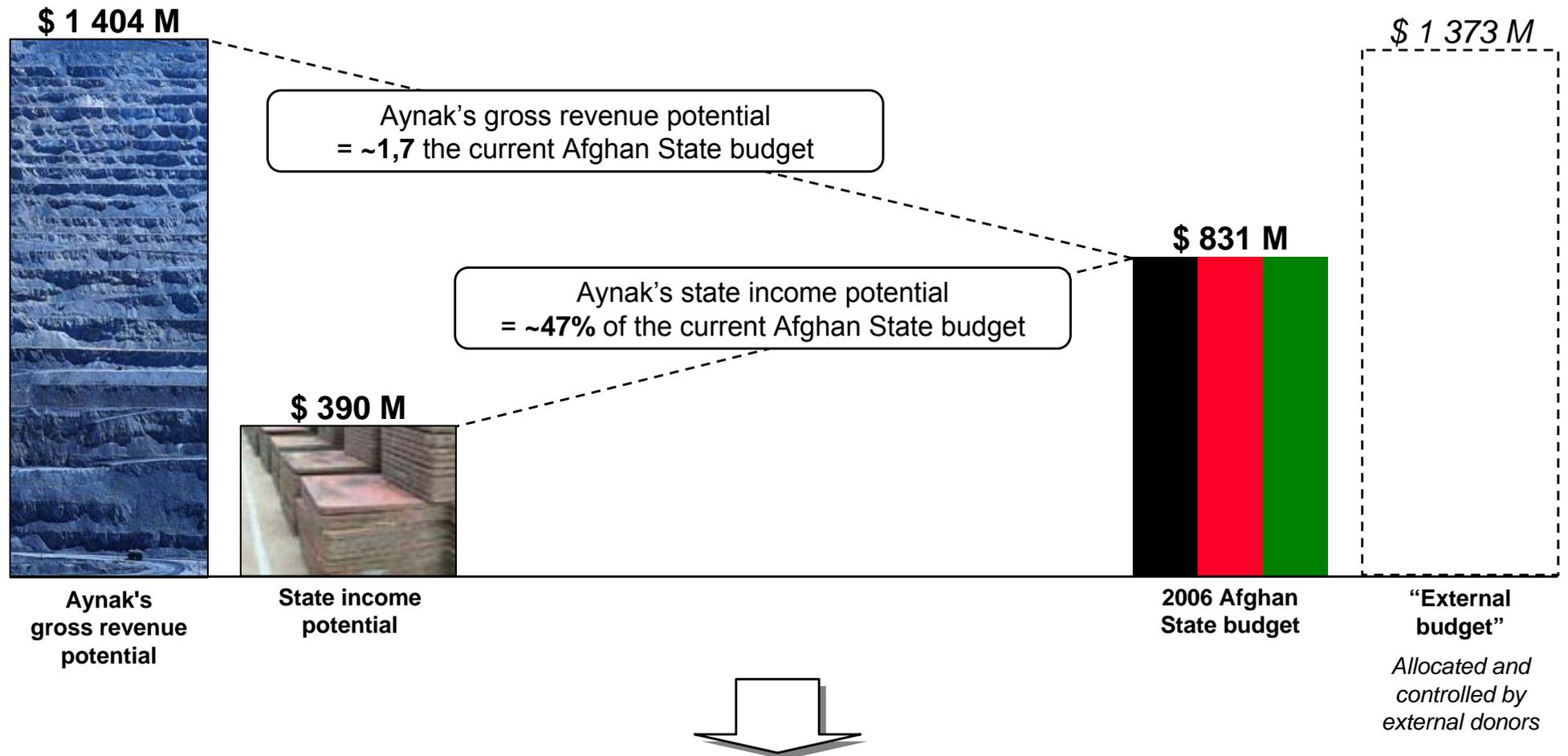
**The Aynak mine could generate up to \$ 390 million yearly for the State**

Sources : Ministry of the Mines, World Bank, Phelps Dodge Annual report 2006, Mamut Copper Mining Sdn. Bhd. Note (1) : estimation based on the current market price of copper. Note(2): based on ratio realized by 4 open-pit mines located in developing countries.

# Issues at Stake

## Aynak's Income Generation Potential in Perspective

Comparison of the revenue and income generated by Aynak and the 2006 Afghan State budget

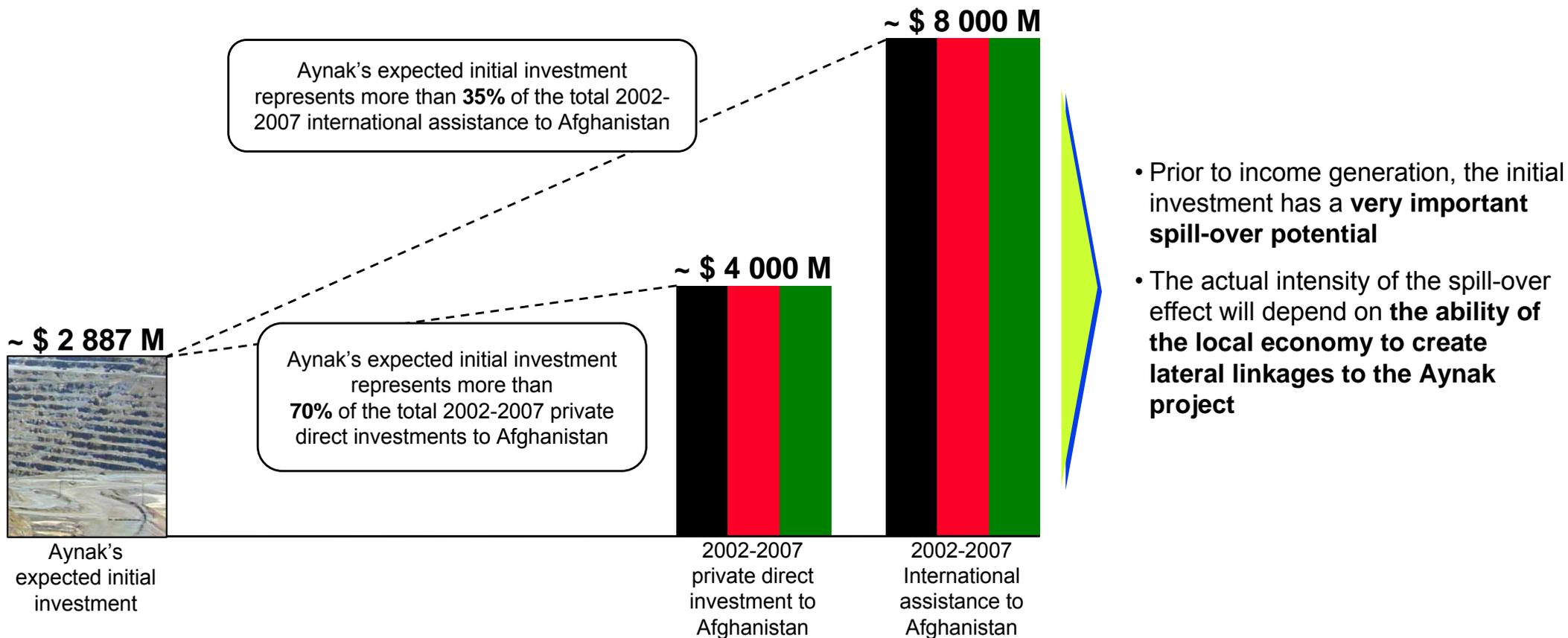


- Aynak's gross revenue is potentially superior to the State budget
- Aynak could increase State income by ~ +47%

# Issues at Stake

## Aynak's Spill-Over Potential on Local Economy : the Initial Investment

Comparison of the expected initial investment required for Aynak and the 2002 – 2007 international assistance to Afghanistan



**The initial investment in itself constitutes a very important spill-over potential, if lateral linkages with the local economy are properly developed**

Sources : China Metallurgical Group, external interviews

# Issues at Stake

## Aynak's Spill-Over Potential on Local Economy : Social Dimension

### Estimation of Aynak's Social Impact

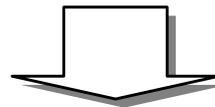
Expected social ratio	Direct job creation (1)	~ 12 workers /yearly kt produced
	Indirect job creation (2)	~ 2,5 jobs /mine worker
	Dependant inactive (3)	~ 1,25 inactive /active Afghan



The Aynak mine could generate livelihoods for :

- 2 400 direct employees
- 6 000 indirect job-holders,  
*depending on lateral linkages between the Aynak mine and the local economy*
- 10 500 dependants inactive,  
*depending on lateral linkages between the Aynak mine and the local economy*

... total 18 900 individuals, depending on lateral linkages between the Aynak mine and the local economy



**Beside the estimated 2 400 workers, the Aynak mine could generate livelihood for 18 900 individuals, if lateral linkages with the local economy are properly developed**

Sources : World Bank, International Labour Organization, Federal Petroleum and Natural Resources Ministry, Pakistan. Note (1): World Bank estimate, in Transitional Islamic State of Afghanistan : Mining as a Source of Growth. Note (2): Extern interviews. Note (3) : IWA estimate based on the ratio active population / inactive population.

# Issues at Stake

## Aynak's Spill-Over Potential on Local Economy : Lateral Linkages Potential

### Estimation of lateral linkages Potential Based

#### Cost Structure for the 30-years lifespan of the Mamut copper mine (Malaysia) :

The Mamut copper mine in Malaysia shares three main characteristics with Aynak : an open-pit mine, location in a development country, roughly similar yearly output (309 kt /year)

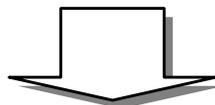
Contributes, together with income tax, to the central state income 27 % of costs not benefiting the local economy



#### Approximately US\$650 per year of operational inputs in the case of Aynak

- Operational costs, part of which will be spent locally, should account for **66% more than state income**
- Given the current lack of modern economic structures, a significant portion of these inputs will likely be imported: chemical products, skilled labor, machinery and equipment, specialized professional services
- **Some of the inputs could realistically be delivered by local actors:**
  - **Construction;**
  - **Logistics** (e.g. food, fuel, accommodation, etc.);
  - **Transportation;**
  - **Valorization of by-products** (e.g. copper scrap, sulphuric acid, etc.);
  - **Some professional services** (marketing and communication, juridical, financial services, etc.).
- Benefits for the local economy depends, to a great extent, **on the capability of local entrepreneurs and SMEs to engage in these activities, supported by the investor, public authorities and development actors**

- **Aynak's spill-over effect on the local economy can be tremendous**
- **It will require favorable circumstances to realize**



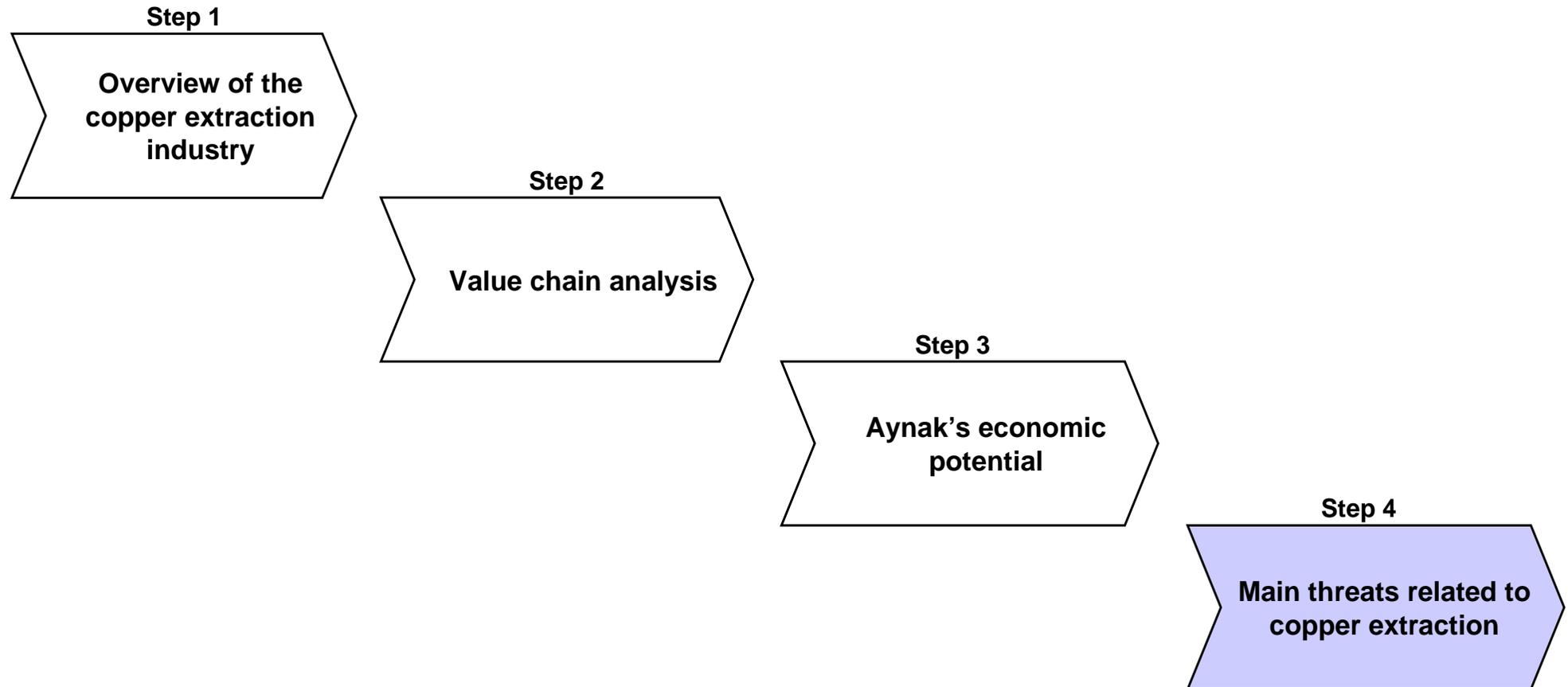
**The realization of lateral linkages with the local economy is a major issue for local development, with potential benefits at stake roughly at the same scale than State-income generation**

Sources : World Bank, Mamut Copper Mining Sdn. Bhd., Ontario Ministry of Northern Development and Mines. Note (1): based on estimations conducted page 26

# Issues at Stake

## Issues at Stake : Stages of Analysis

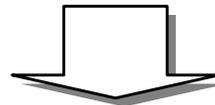
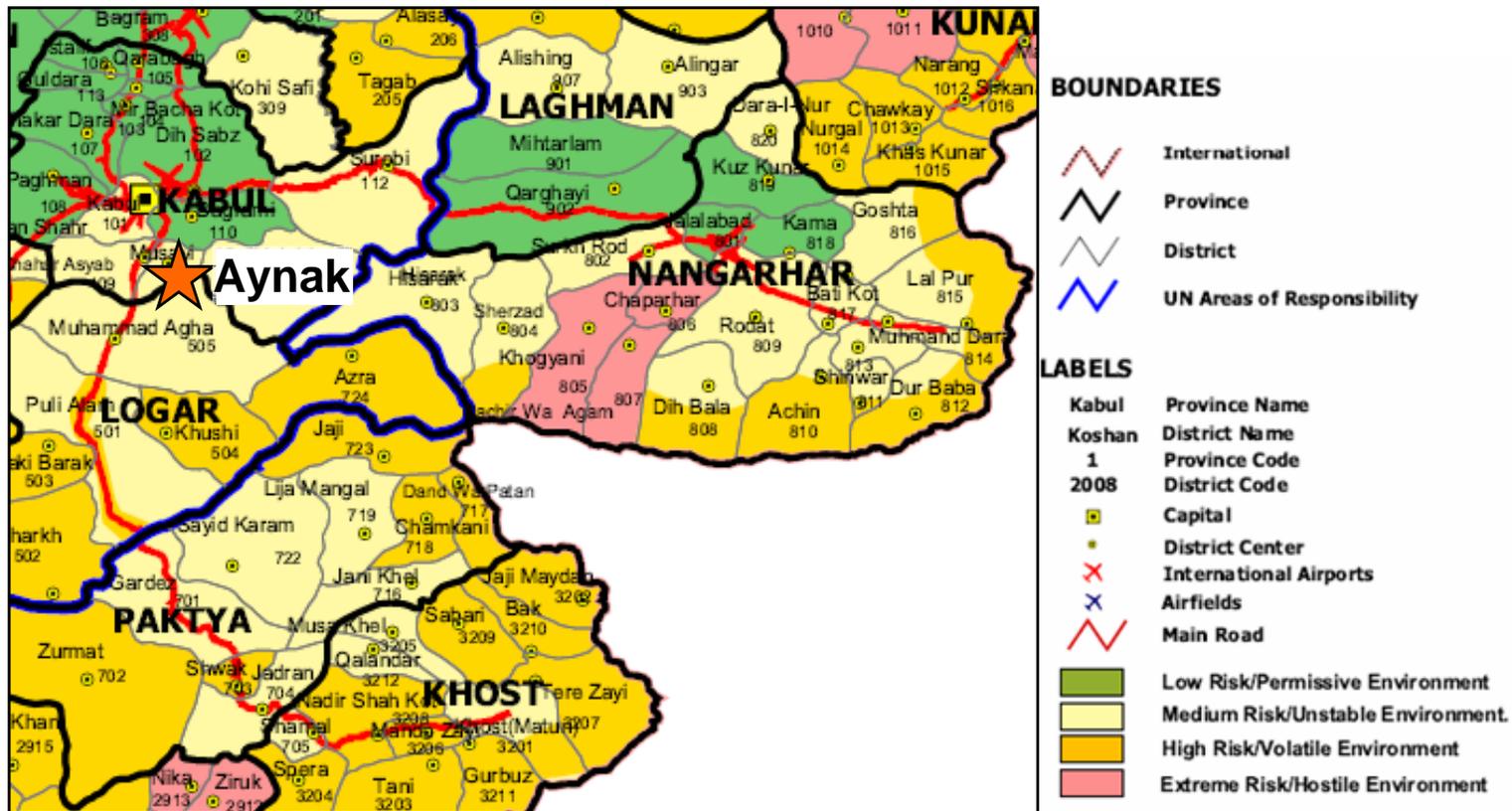
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# Issues at Stake Security

## Assessment of risk in the concerned area

Data from the Afghanistan UN Security Accessibility Map, June 2006



- Mining operations will be conducted in a “low risk/unstable environment”
- Exporting the end-product will require to cross “high risk/volatile environment”

Sources : UNSS

# Issues at Stake

## Environmental Impact

Type of wastes and abatement methods for the two most important technological routes employed in copper mining industry

Copper sulfide ores

Copper oxidized ores

Waste

Abatement

Waste

Abatement

Sterile and low grade ore

Disposal sites

Waste

Abatement

Acid min drainage

SZ-EW plants; lime neutralization

Sterile ores

Disposal sites

Flotation tailings

Tailing dam

Solid leached residues

Disposal sites

Wastewater from thickening and filtering

Recycled water for processes

Acid mist

Ventilation and use of surface active reagents

Smelting slags

Disposal sites

Acid wastewater

Lime neutralization

Sulfuric acid

Hydrometallurgical use

Refine solutions

Recycled; neutralization

SO<sub>2</sub> emission from smelters

Sulfuric acid plant

Lead sulphate sludges

Confinement

Volatile As emissions from smelters

Electrostatic precipitation

SX clarifier sludges

Disposal

As/Sb sludges

Confinement

Acid Wastewaters

Precipitation with lime solar dry

- Copper mining generates a wide range of dangerous wastes
- Abatement solutions can be identified for all of them

Sources : Universidad de Concepción, Department of Metallurgical Engineering

# Issues at Stake

## The Environmental Impact: 'Worst Practice' Case Study

Case	Source of the problem	Impact	Illustration
<p><b>Bor Copper mine</b></p> <p>Yugoslavia</p>	<ul style="list-style-type: none"> <li>• Copper wastewater from the copper processing</li> <li>• Wastewater generated in metallurgy-chemical process from copper electrolysis and sulphuric acid producing factories</li> <li>• <b>Highly toxic wastewater</b></li> </ul>	<ul style="list-style-type: none"> <li>• Over 4000 ha of most fertile agricultural land on the banks of Borska and Veliki Timok rivers in Serbia and Bulgaria were <b>severely contaminated</b></li> <li>• The current privatization process for the mine includes an environmental reclamation plan</li> <li>• <b>Severe damage to the surrounding rural area, repairable at a very high cost</b></li> </ul>	
<p><b>Konkola Copper Mines</b></p> <p>Zambia</p>	<ul style="list-style-type: none"> <li>• On November 6, 2006 the company discharged effluent into the Kafue with large traces of copper, manganese and cobalt which are dangerous heavy metals</li> <li>• <b>Neglect of elementary pollution control</b></li> </ul>	<ul style="list-style-type: none"> <li>• 75 000 persons dependant on piped water from the Kafue River and underground affected: allergic respiratory reaction, restricted pulmonary function,...</li> <li>• Fish, frogs and crocodiles died because of the lack of oxygen in the water</li> <li>• <b>Closure of the Mine by the Zambian government in 2005-06</b></li> </ul>	
<p><b>Marinduque Copper Mines</b></p> <p>Philippines</p>	<ul style="list-style-type: none"> <li>• Placer Dome's partnership with repressive dictator Ferdinand Marcos enabled the company to mine within a protected area and close to the Calancan Bay, the source of livelihood for 12 fishing villages.</li> <li>• <b>Neglect of elementary pollution control</b></li> </ul>	<ul style="list-style-type: none"> <li>• In 1996, 1.5 million cubic metres of toxic spills immediately caused flash floods which isolated five villages, with a population of 4,400 people.</li> <li>• The 27-kilometre Boac river, the main source of livelihoods, has been declared dead by government officials</li> <li>• <b>The Province of Marinduque is currently suing Placer Dome and Barrick in the US</b></li> </ul>	



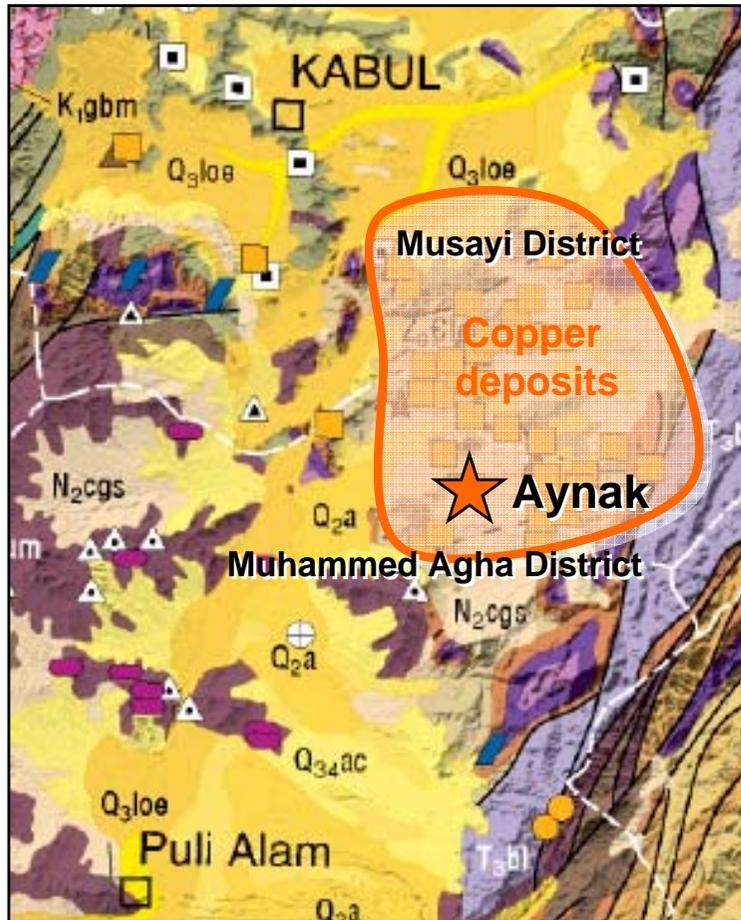
**High standards of environmental protection are needed to avoid major environmental damage**

Sources : Association of Young Researchers of Bor, Mines and Community, United Nations Department of Humanitarian Affairs

# Issues at Stake

## Local Communities involved

### Area concerned



### Nearby settled population

The copper deposits related to Aynak cover a wide area crossing 2 districts :

Musayi District

> 21 000 inh.

Muhammed Agha District

> 67 000 inh.

- 100 % rural
- Density > 50 persons /km<sup>2</sup>

More than 88 000 rural people potentially impacted

### Herding nomadic Kuchi population

The Aynak deposit covers a pasturage area for the Kuchi nomads.

Several aspects are to be taken into consideration concerning this population:

#### Political influence

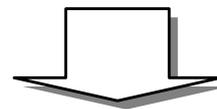
- Total population in Afghanistan: ~4 Million people
- 2 special representatives in the Parliament

#### Moral rights

- Mining best practice acknowledge indigenous people's claims on their traditional lands, even though they may not hold legal titles
- Kuchis are categorised by the United Nations Assistance Mission in Afghanistan as **one of the most vulnerable populations** in the country

#### Legal Protection

- Article 14 of the Afghan Constitution obliges the government to implement effective programs for "improving the economic, social and living conditions" of Kuchis as well as adopting "necessary measures for housing and distribution of public estates to deserving citizens".



**The Aynak mine will operate in a relatively populated area**

# Issues at Stake

## Local Communities Involvement : 'Worst Practice' Case Study

Case	Source of the problem	Impact
<p><b>The Bougainville Mine</b></p> <p><b>Solomon Islands, Papua New Guinea</b></p>	<ul style="list-style-type: none"> <li>• The initial environment plan was not respected by the mining company, causing pollution by waste disposal in surrounding rivers</li> <li>• Illegal operations were not halted by the government</li> <li>• The company reneged on promises to develop remote villages by building roads and establishing hospitals</li> <li>• There were charges the indigenous population has been treated unfairly by both the mining company and the government.</li> <li>• <b>Failures in community involvement combined with environmental mismanagement angered local marginalized populations</b></li> </ul>	<ul style="list-style-type: none"> <li>• Since 1988 many raids from angered local communities took place, forcing closure of the mine.</li> <li>• Rebels have been responsible for ritual killings and the deaths of several provincial officials, among them the Provincial Minister John Biks, killed in his home by masked rebels as his family looked on.</li> <li>• Eventually Papuan Defense Forces attempted to shell the rebels into submission. The rebels had formed an army known as the BRA (Bougainvillea Revolutionary Army) and continued resistance thereafter.</li> <li>• <b>A nine-year secessionist revolt ended in 1997, after claiming some 20 000 lives</b></li> </ul>

### Illustration



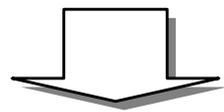
Young freedom fighter from the Bougainville Revolutionary Army looking at the abandoned mine installations



Bougainville Revolutionary Army guerrillas



Francis Ona, leader of the Bougainville Revolutionary Army, with his troops, before his death in 2005



**Mismanaged copper mine projects can have dramatic consequences, far exceeding expected benefits**

Sources : desk research. References: [www.dismalworld.com](http://www.dismalworld.com), The Mandela Project

# Issues at Stake

## The Bulyanhulu Case : Best Practice Case Study (1/2)

### Case

### Bulyanhulu Mine, Kaham District, Tanzania

### Environmental concern

- The Bulyanhulu mine started production under management by Kahama Mining Corporation Limited (a Barrick's subsidiary) in April 2001
- All aspects of the mining operation are now conducted in accordance with international environmental standards
- At the same time, KMCL has taken steps to alleviate potentially negative side effects of mining operations.
- The company uses innovative approaches to dispose of tailings, including paste technology and backfilling in the underground mine.
- **In many cases, KMCL surpasses these standards, playing a leading role in establishing industry best practice**

### Social action

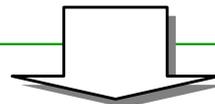
When KMCL arrived, it set up a Social Development Program (SDP) that focused on local development issues. Its outcomes include:

- **A new \$1 million medical center** that serves employees and their families as well as the local community;
- Partnering with the African Medical and Research Foundation to develop, fund, and staff **public health education programs** regionally;
- Sponsoring **the country's first private sector housing program**, with full employee participation in the scheme, so that all could own their own home at the end of seven years;
- Requisite access **roads, storm drainage system, and other necessary infrastructure**, such as schools;
- A **scholarship program** maintained by Barrick-which to date has invested \$6.4 million in the fund globally-will provide financial support to the children of Bulyanhulu employees for post-secondary education;
- A **million-dollar partnership with CARE International**-a humanitarian NGO fighting global poverty-to develop education facilities in the communities around the project site;
- **Tackling the water scarcity** and unreliability problems that plague the region;
- **Construction of a \$15 million power line**, in cooperation with the Tanzania Electricity Supply Company, to bring power to the region.

### Illustration



Providing safe, reliable and affordable water supply to the Kahama District



**Well managed environmental and social programs can enable local development based on mining activities**

Sources : desk research. References: The World bank, Natural Resources Cluster.

# Issues at Stake

## The Tanzania Case : Illustration of Successful Role Distribution (2/2)

### Key Processes

#### Partnership process

The partnership process and application of the subsidiary principle created a collective ownership of the projects, and ensured that sufficient resources and capacities were bought in to implement the SDP.

#### Mobilization and transfer of KMCL's core skills

KMCL's core skills were brought in the SPD, namely: its contract management, quality control and project management skills. Capacity-building enables communities and local government to take over management of community infrastructures.

### Benefits of a partnership approach

#### Business benefits

##### Access to new mineral resources in Tanzania

Enabled KCML to demonstrate its commitment to community development as an integral part of mine operations.

##### Recruiting and retaining high quality employees

Increased the likelihood of the successful integration of mineworkers into the local community, as a consequence of the good relationship between KCML and the local community

##### Management of community expectations

The development plan is understood by all parties to define clearly the scope of KMCL's community development activities.

##### Corporate reputation

Communities, NGOs and government see KMCL as trustworthy and committed to community development

#### Community development impact

##### Improved infrastructure

35 000 people directly benefiting from the better infrastructures.

##### Educational security

Increased rate of enrollment in primary schools, reaching almost 100% (compared to historical levels of 60-80%)

##### Health security

Improved health practices to prevent the spread of malaria and HIV/AIDS.

##### Local economic development

Employment opportunities for local people in the construction of the housing scheme

##### Community capacity

Improved to manage structures and to make decisions on community development

**A collaborative approach towards local communities was key to smooth and successful implementation of a development plan**

Sources : desk research. References: The World bank, Natural Resources Cluster.

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**Analysis of the Aynak set-up phase**

Assessment of main areas of concern

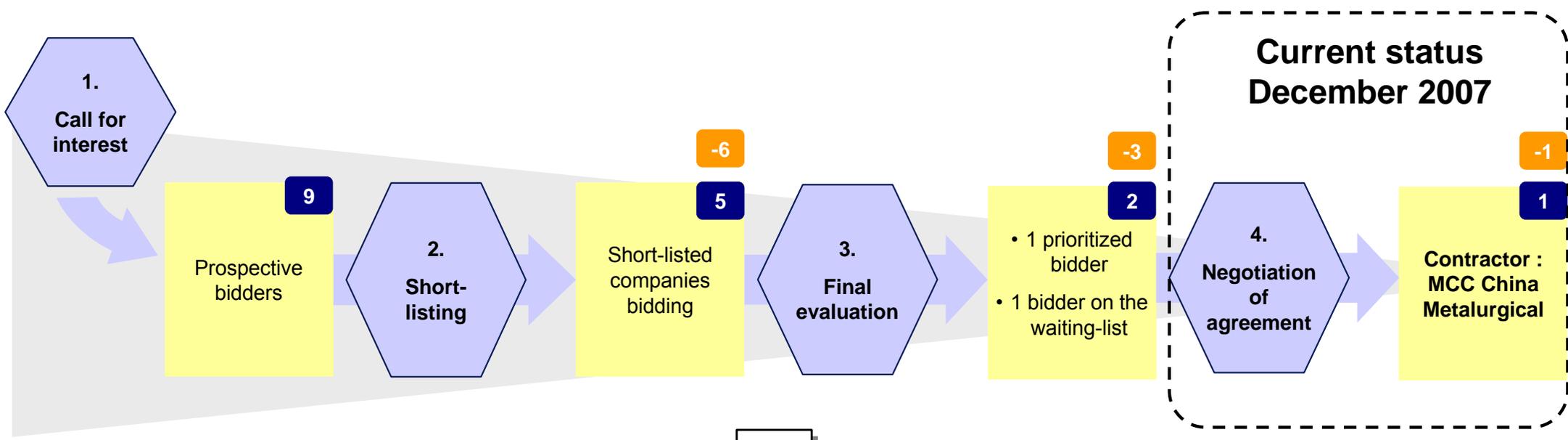
Recommendations for the operational phase

# Analysis of the set-up phase

## Overview of the set-up phase : selection process

Technical Assistance	Transaction advisors	Initial prospective bidders
<p><b>The World Bank</b></p> <p>Funded studies, consultancy and the participation of the transaction advisor</p>	<p><b>Gustavson Associates</b></p> <p>Provided independent technical and methodological support to the selection process</p>	<ul style="list-style-type: none"> <li>• Bahar Consortium (Australia)</li> <li>• Hindalco Industries Ltd. (India)</li> <li>• Hunter Dickinson, Inc. (Canada)</li> <li>• Kazakhmys Co. (Kazakhstan)</li> <li>• MCC China Metallurgical (China)</li> </ul> <ul style="list-style-type: none"> <li>• Phelps Dodge (USA)</li> <li>• Strikeforce Ltd. (Russia)</li> <li>• Tyazhpromexport (Russia)</li> <li>• Zijin Mining Group (China)</li> </ul>

### Investor selection process



The selection process has gone through a 4 steps process

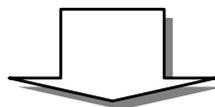
Sources : Afghan Ministry of Mines, external interviews

# Analysis of the set-up phase

## Overview of the set-up phase : selection process

Phase	Decision-maker	Outcome	IWA's evaluation of the process
<b>Call for interest</b> <i>Sept 06 – Jan 07</i>	<ul style="list-style-type: none"> <li>Ministry of Mines (MoM) <i>assisted by the transaction advisor</i></li> </ul>	<ul style="list-style-type: none"> <li>13 companies expressed interest</li> <li>9 were chosen as prospective bidders in January 2007</li> </ul>	<b>Acceptable practice</b> <ul style="list-style-type: none"> <li>Thanks to the clear information provided, major companies expressed interest as hoped for</li> <li>This step was slightly out of schedule, mainly due to capacity-building at the Ministry of Mines</li> </ul>
<b>Short-listing</b> <i>Feb – May 07</i>	<ul style="list-style-type: none"> <li>Tender Committee made up of experts from the Afghan Geological Survey (AGS) and the MoM, assisted by the transaction advisor</li> </ul>	<ul style="list-style-type: none"> <li>5 companies submitted bids by the closing date of May 28 2007</li> </ul>	<b>Good practice</b> <ul style="list-style-type: none"> <li>Transaction advisor provided sound technical assistance</li> <li>The decision was made through a rigorous process based on clear criteria</li> <li>The bidding companies are the desired type of potential investors</li> </ul>
<b>Final evaluation</b> <i>May – Nov 07</i>	<ul style="list-style-type: none"> <li>Inter-Ministerial Committee (IMC)</li> <li>Includes representatives of the Parliament <i>assisted by the transaction advisor</i></li> </ul>	<ul style="list-style-type: none"> <li>In June 07, a first evaluation was made solely by the MoM, that was canceled by the IMC</li> </ul>	<b>Average concern</b> <ul style="list-style-type: none"> <li>The Ministry of Mine initially attempted to conduct the final evaluation without consulting the IMC, disrespecting Minerals Law</li> <li>Political issues and short-term benefices have played an important role, possibly to the expense of technical criteria ensuring the sustainability of the project</li> </ul>
<b>Negotiation of agreement</b> <i>Nov 07 – ...</i>	<ul style="list-style-type: none"> <li>Inter-Ministerial Committee</li> <li>MCC China Metallurgical</li> </ul>	<ul style="list-style-type: none"> <li>...</li> </ul>	

-  No or low concern
-  Medium concern
-  High concern

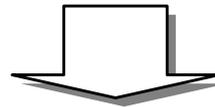
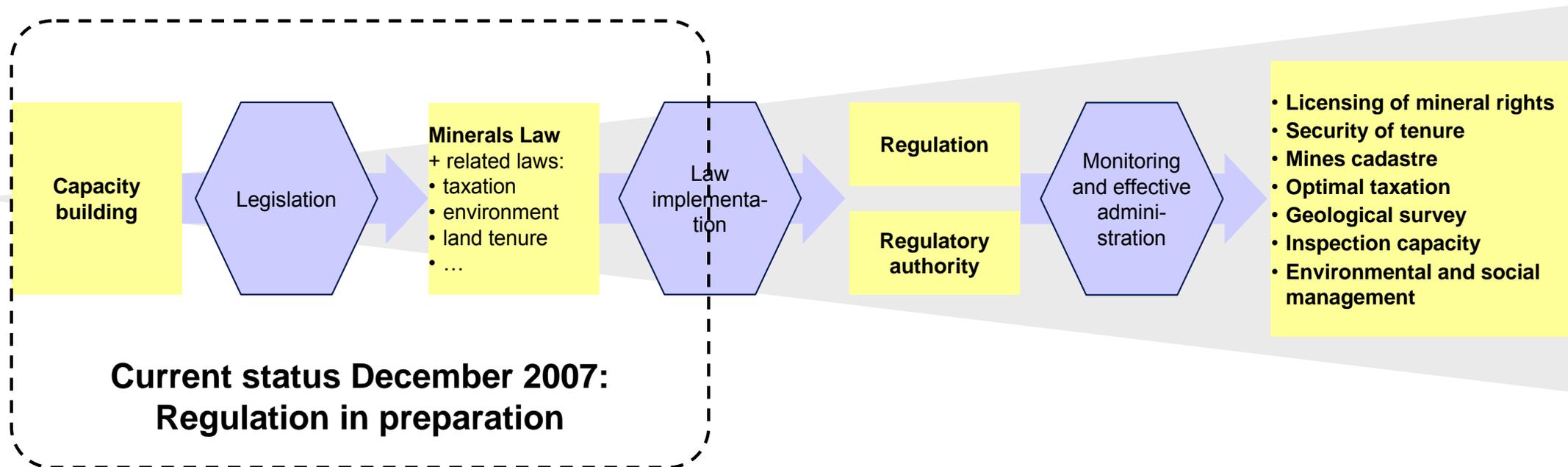


**The selection process, overall, does not raise major concerns**

# Analysis of the set-up phase

## Overview of the set-up phase : institutional process

### Institutional process

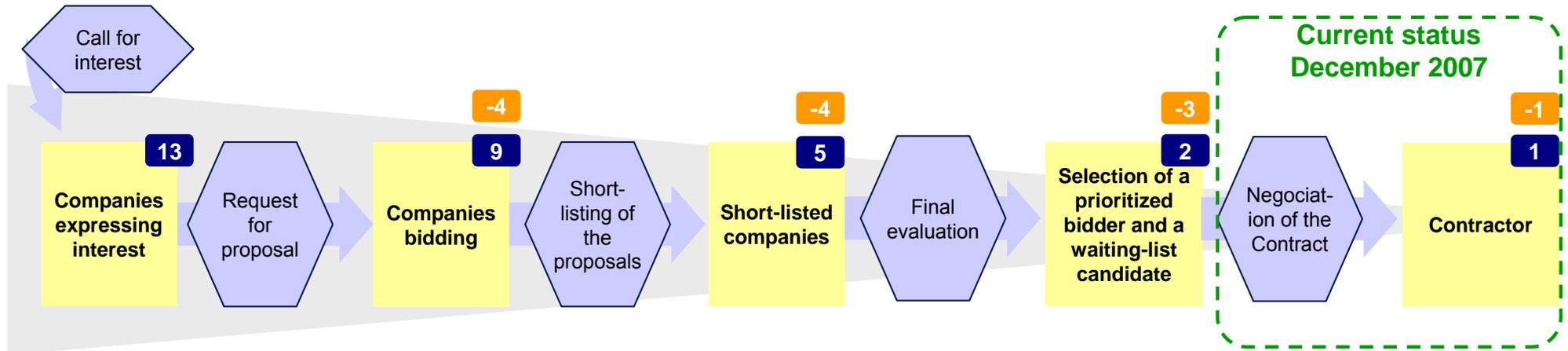


**The institutional process is still at its initial stage**

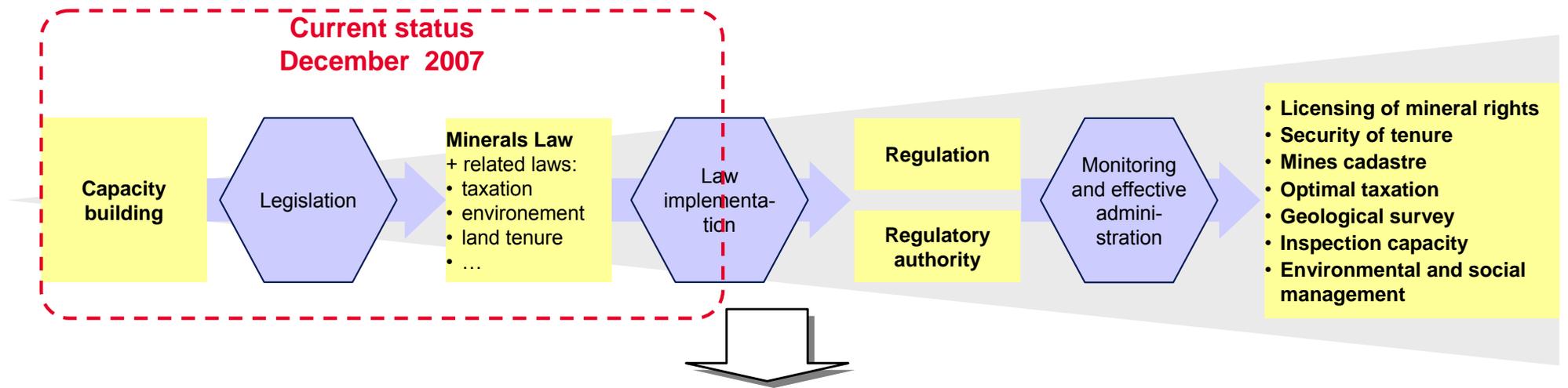
# Analysis of the set-up phase

## Overview of the set-up phase

### Investor selection process



### Institutional process



**The investor selection process has progressed much further than the institutional process**

# Analysis of the set-up phase

## Actors involved in the conclusion of the institutional process

### The Afghan State did not go through the pedagogical steps of exploration and small-scale exploitation

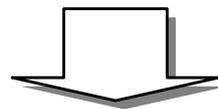
- Most developing countries progressively built-up their administrative capacities during the initial phases of a mine development : the one-year exploration process followed by years of small-scale mining
- In the Afghan case, the opportunity to quickly exploit the Aynak deposit thanks to Soviet studies puts the Afghan State in the delicate situation to administrate large-scale mining activities without any practical learning curve

### The selection of a major mining company may jeopardize the independence of fledging institutional and regulatory processes

- “At this stage, the institutional framework is still very fluid and much is yet to be set up” - *IWA interview*
- “Examples in Africa have shown that states with limited technical and administrative capacity should preferably concede their mineral rights to medium-sized companies. When a major is involved, experience shows that its considerably larger bargaining power negatively impacts, through numerous channels, the State’s ability to regulate effectively the mining process for the general interest.” - *IWA Interview*



**The selection of a major mining company with a considerably larger bargaining power at such an early phase of the institutional and regulatory development is considered as a serious area of concern**

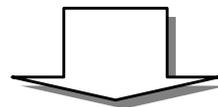


**The slow pace of the institutional and regulatory development is an area of concern**

# Analysis of the set-up phase

## The Minerals Law : Concerns Related to Land Tenure

Art. #	Articles of the Minerals Law	Concerns
67 (4)	<p>“Unless there is consent from the landowner or other legal occupant of the land, no Person may conduct Mineral Activities on following lands: 1 - Houses or buildings situated less than two hundred (200) meters from areas of Mineral Activities [...]”</p>	<ul style="list-style-type: none"> <li>• Consent may be given by the landowner OR a “legal occupant”: the definition of a legal occupant is not clear</li> <li>• This could lead to illegal leasing of land for mining activities by actors other than the legal landowners, exacerbating the already sensitive issue of land rights and land grabbing.</li> </ul>
68	<p>“The Ministry of Mines and Industries shall have the power to nationalize [compulsorily acquire with payment of compensation], private land needed for the conduct of Mineral Activities, in accordance with law.”</p>	<ul style="list-style-type: none"> <li>• Compensation is mentioned in the case of nationalization, but not quantified or elaborated in any manner.</li> </ul>

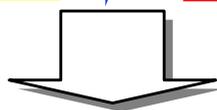


**Provisions on land tenure issues are still too vague to provide effective protection for land users and land owners**

# Analysis of the set-up phase

## The Minerals Law : Concerns Related to Community Involvement

Art. #	Articles of the Minerals Law	Concerns
39	<p>“If the technical conditions characterizing certain Deposits of Mineral Substances do not allow for large-scale Exploitation, the Ministry of Mines and Industries may [...] economically exploit them the basis of Small-scale Exploitation Licenses”</p>	<ul style="list-style-type: none"> <li>• The difference between small and large scale mining is unclear, and remains to be defined in the as yet non-existent regulation.</li> </ul>
69	<p>“(1) A Holder of a Mineral Right is liable to pay compensation [to the occupants of affected lands] for the damages caused by its Mineral Activities. (2) The type and method of calculating such compensation shall be established in the Mining Regulations.”</p>	<ul style="list-style-type: none"> <li>• The method and scale for compensation is not defined.</li> <li>• This refers to as yet non-existent regulation.</li> </ul>
74 (1)	<p>“If roads and other infrastructure is built by a Holder inside or outside the Perimeter of its Mineral Right, it may be used by the neighboring mining, industrial and commercial establishments, subject to the condition that fair compensation for such use is paid to the Holder. Public administrations and the residents of the area shall be an exception to this rule.”</p>	<ul style="list-style-type: none"> <li>• In effect, mining companies are entitled to “fair” compensations for anything it may build outside its right perimeter, without any limitation of any sort.</li> <li>• The nature and application of this “fair” compensation are not elaborated.</li> </ul>
79	<p>“Mineral Activities shall be conducted in accordance with applicable laws and international norms relating to labor, social protection and human rights.”</p>	<ul style="list-style-type: none"> <li>• It is unclear what the “international norms” mentioned in this article constitute in legal terms.</li> </ul>
95-99	<p>“Disputes arising in connection with Mineral Activities shall be resolved through administrative or arbitration authorities provided in this law or judicial authorities in accordance with the applicable laws of the country.” (95)</p>	<ul style="list-style-type: none"> <li>• There is a strong legal push towards having claims arbitrated instead of adjudicated. In effect, such practices may limit the ability of an individual to have his/her case heard by a court, and may instead result in decisions made by an arbitration hearing. These typically demand that all resolution remain private and no fault or actual guilt is actually assigned.</li> </ul>



**Current legal provisions are still too vague to provide effective protection for local communities**

# Analysis of the set-up phase

## The Minerals Law : Concerns Related to Environmental Impact

Art. #	Articles of the Minerals Law	Concerns
10 & 83	<ul style="list-style-type: none"> <li>• “The Environmental Protection Department shall have the following duties and responsibilities: [...]”</li> <li>• “In the event of imminent danger or disaster, the representatives of the Environmental Protection Department [...] may, if needed, require the local authorities, the Holders of Mineral Rights and any employees or local populations to assist.”</li> </ul>	<ul style="list-style-type: none"> <li>• Much of these duties of the EPD are vague - the law does not explain any actual capability of oversight or rejection; the EPD simply, evaluates, monitors, recommends, and cooperates. Guidelines for evaluation, as well as ramifications and repercussions for any found non-compliance should be explained, or at the very least, simply mentioned at all.</li> <li>• The EPD may REQUIRE the assistance of local populations to remove the danger. This could easily be read as mandating that locals go in and help with potentially harmful and dangerous environmental catastrophes, caused by the mining company.</li> </ul>
13	<p>“If the national interest, including the health or safety of the population, [...] the protection of the environment or cultural heritage or other natural values, [...] so requires, the Ministry of Mines and Industries may submit the proposal to declare an area to be off-limits to, [...], Mineral Activities to the Council of Ministers for approval [...]”</p>	<ul style="list-style-type: none"> <li>• Only the Ministry of Mines has the responsibility to submit the proposal to declare an area to be off-limits to mining activities</li> <li>• Mining operations can be conducted at the detriment of health of local population without any other institution to have the legal possibility to question these activities</li> </ul>
32 (4)	<p>“The Holder of an Exploitation License shall exploit the Deposits within the Perimeter in accordance with the feasibility study, the development plan, and the Environmental Management Plan. Any deviation of the work from such studies and plans shall require the approval of the Ministry of Mines and Industry, in accordance with the Mining Regulations. [...]”</p>	<ul style="list-style-type: none"> <li>• An exploitation process may legally deviate from environmental management plans with the approval of the Ministry.</li> <li>• The regulation that should limit such deviations is still non-existent.</li> <li>• Under current conditions, the feasibility study, the development plan, and the Environmental Management Plan are in effect non-binding.</li> </ul>

**So far, no concrete provisions protect the environment from the harmful impact of mining activities**

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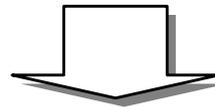
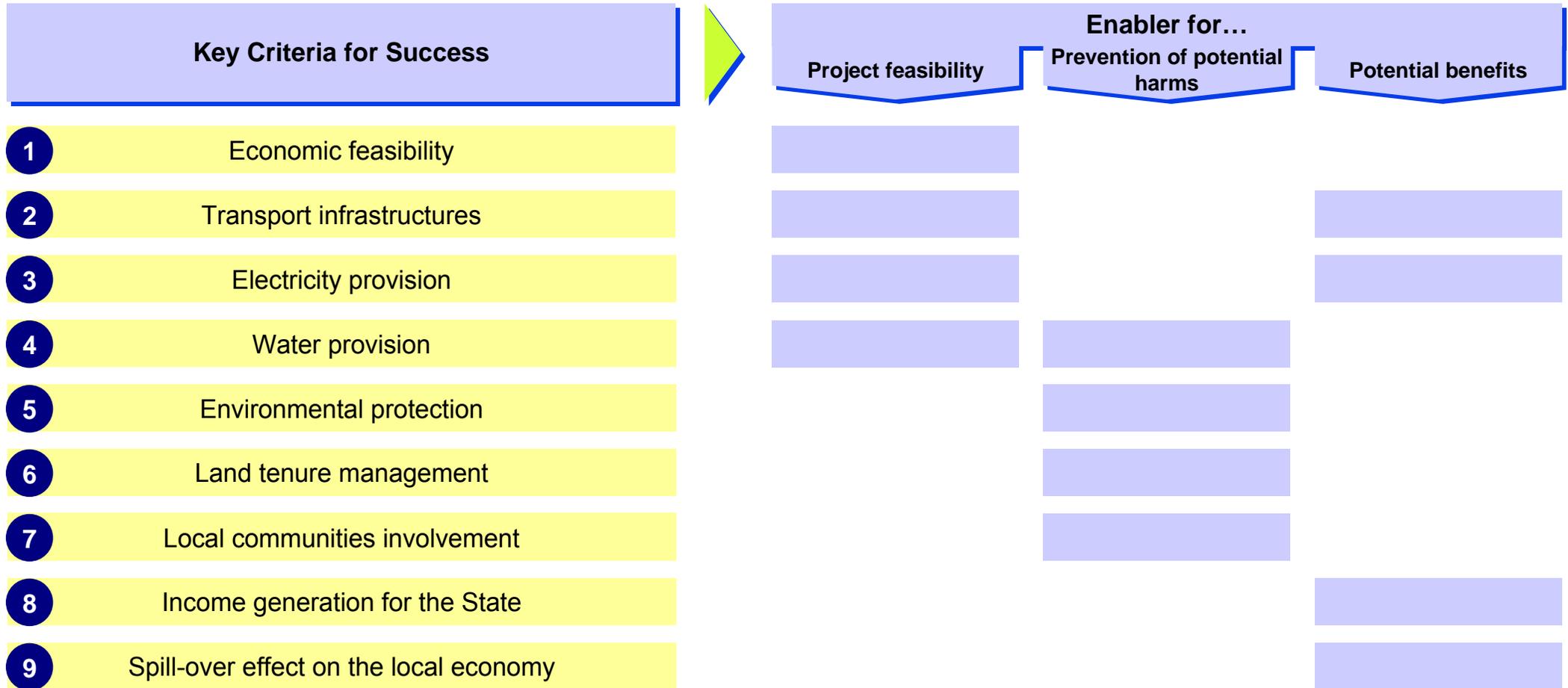
Analysis of the Aynak set-up phase

**Assessment of main areas of concern**

Recommendations for the operational phase

# Assessment of Main Areas of Concern

## Key Criteria for Success at Aynak



**Nine key criteria were identified for ensuring project feasibility, preventing potential harms and realizing development benefits for Afghanistan**

# Assessment of Main Areas of Concern

## 1 Economic Feasibility

### Issues at stake

Economic success is the key for realizing all positive impacts of the project

- The mine's economic success determines:
- Its income-generation potential
  - The long-term involvement of the mining company

The main challenge is security

- The deposit is located 60 km south of Kabul: as such, it is in a rather safe area
- Security threats exist on any long-term involvement in Afghanistan. Nonetheless, security will remain a significant challenge not only directly for the mine but also for key infrastructure (power and transport) and security of supplies and exports of products

Other Afghanistan-specific economic risks exist

- Poor condition of transport infrastructure
- Lack of adequate power supply

Other risks are generic to all mining projects

- The technical characteristics of the operation are not known before a thorough feasibility study is conducted
- Copper prices may change

### Assessment of concerns

#### Legal process

- The legal process has made progress in creating trustable guarantees for investors
- However the legal process is not over yet
- Beside legislation, the Afghan State needs to reinforce and prove its capacity to ensure consistent implementation

#### Experience and know-how of the bidding companies

- A 2-year long feasibility study will determine the parameters for a profitable operations
- Bidding companies have the experience and know-how of copper mine operation in a development context, including in troubled areas with challenging security conditions

#### Technical advisors' support

- The World Bank has identified the mine's economic success as a major challenge and is well placed to support the state on this issue
- Gustavson Associates, as a transaction advisor, has proven itself efficient in providing assistance on economic feasibility

No or low concern

Medium concern

High concern

**The mine's economic feasibility has already been assessed**

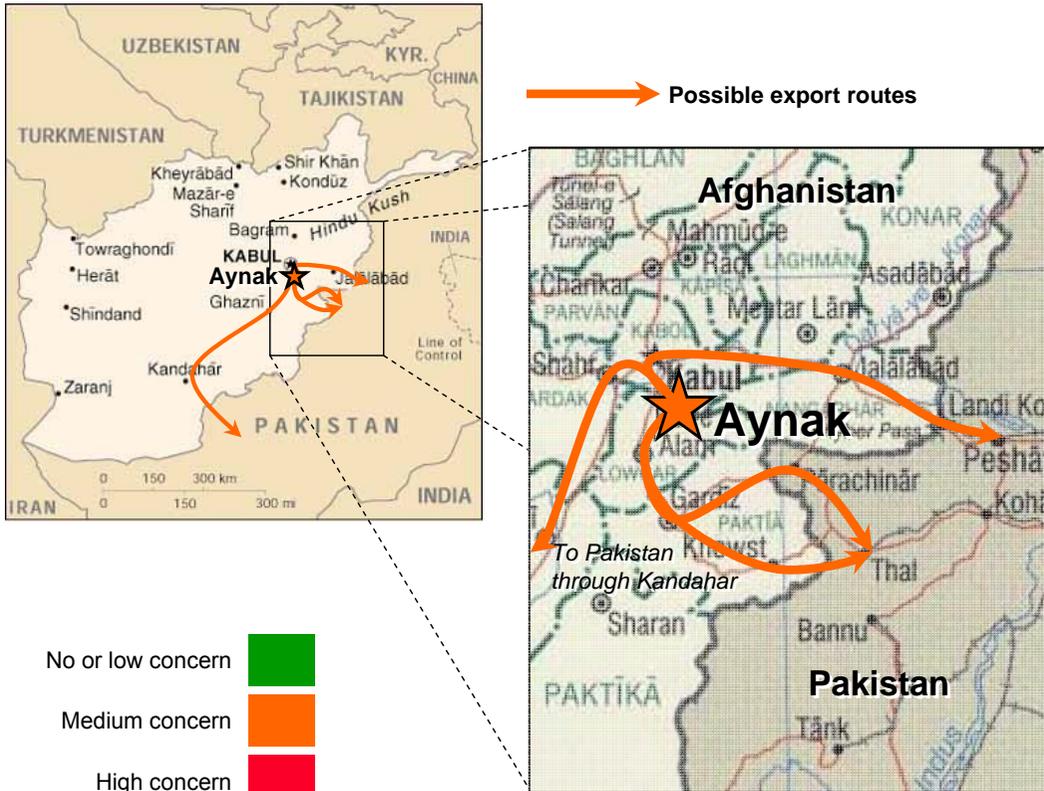
# Assessment of Main Areas of Concern

## 2 Transport Infrastructures

### Issues at stake

Carry out copper to export countries

### Assessment of concerns



Heavy investments on transport infrastructures

- The MCC China Metallurgical announced that heavy investments would allow to build a railway that will cross Afghanistan from North to South, linking it to both Tajikistan and Pakistan
- Prospective railway scheme :



Security concern

- All possible export routes cross territories considered by the United Nations as “high risk/volatile environment”
- Securing transport infrastructures may prove a tougher challenge than the single extraction and processing sites

**The Aynak project will contribute to improve Afghanistan’s transport infrastructures, but those will be vulnerable to security issues**

Sources : The World Bank: *Managing Public Finances for Development, Mining as a source of growth*; external interviews

# Assessment of Main Areas of Concern

## 3 Electricity Provision

### Issues at stake

Strong need for electricity for the mine's operation

- Extracting yearly 200 kt of copper and processing it to concentrate should consume an estimated **50-80 MW**.
- Processing the same quantity to refined copper should consume an estimated **200 MW**.

General context of electricity shortage in Afghanistan and in the Kabul area

- It is estimated that the Kabul area currently suffers from a power shortage of about **200 MW**.

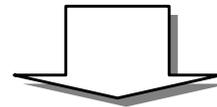
### Assessment of concerns

**Strong political will to resolve the issue**

- This issue has been prioritized by the Afghan State, the technical advisors and the mining companies.
- Technical solutions have been identified, either by exploiting coal deposits found nearby Aynak, or by exploiting natural gas found in Northern Afghanistan.

**Potential impact on development may be missed**

- MCC China Metallurgical publicly announced that it plans to build a 400 MW power plant, that could be enough for both the mine, transformation facilities, and selling surplus to the Kabul area.
- This plan needs to be formalized and implemented.



• **The need for electricity will certainly be met by the mining company**

• **It is unclear yet to which extent the project will develop power infrastructures for the country**

No or low concern

Medium concern

High concern



Sources : External interviews

# Assessment of Main Areas of Concern

## 4 Water Consumption

### Issues at stake

Strong need for water for the mine's consumption

- The whole copper process consumes large volumes of water. In particular:
- Concentrating sulfuric copper is made by a process using large volume of water (Aynak's copper is mixed sulfuric and oxide copper);
  - The electrolyze process requires copper anodes to be electrolyzed in large water basins.

Possible interaction with Kabul water supply

- The Aynak alluvial basin may have interactions with the Kabul water supply

### Assessment of concern

**The Aynak area has good hydraulic resources**

- The Aynak area is located near mountains receiving a fair amount of snowfall.
- The alluvia basin has good hydraulic reserves

**Possibly important risk of negative impact on Kabul water supply**

- The nature and the extant of this interrelation will have to be carefully studied during the feasibility study
- Mining companies can technically recycle a large part of the water they use
- This matter must be further investigated and effectively managed.

No or low concern

Medium concern

High concern

- **The Aynak area offers good hydraulic resources**
- **The possible interactions between the Aynak water basin and Kabul water supply will require a very careful attention to avoid negative side effects**

# Assessment of Main Areas of Concern

## 5 Environmental Protection

### Issues at stake

#### Huge volume of waste

- Modern open-pit mining has a very high waste-to-product ratio (roughly 99 tones of waste to each tone of copper), making waste the major product of mining.
- The storage of this waste poses significant engineering challenges
- Recent environmental and social disasters in Romania, Guyana, Spain, and the Philippines — caused by burst tailings-dams — have served to focus public attention on this problem

#### Highly toxic waste

- Mine tailings commonly contain sulfides as well as metals.
- When sulfides in the tailings are exposed to air they oxidize.
- If oxidized tailings come into contact with water, environmentally toxic sulfuric acid is produced : this process is known as Acid Mine Drainage (AMD). The sulfuric acid also accelerates metal leaching in tailings.
- Acid Mine Drainage can have a toxic impact on ground and surface water around mines.

### Assessment of concern

#### Environmental aspects are left to be worked out during the feasibility study

- Consistently with regular mining practices, environmental aspects are to be addressed during the feasibility study.
- No guidelines exist yet that guarantees the proper management of environmental impact.

#### Legal provisions are very weak

- The Minerals Law contains a number of shortcomings regarding environmental protection.
- Weakness of legal provisions is exacerbated by the absence of mining regulation to date
- Large-scale operations will not begin before at least two years: legal provisions should be strengthened by then.

#### Numerous documented cases of environmental disasters due to poor wastewater management

- Even though abatement solutions exist, a wide number of copper mines in the world have generated toxic wastewater and subsequently intoxicated the surrounding area.
- The relative density of rural population and proximity of Kabul creates conditions for an environmental and social disaster if the environmental impact is not well managed.

**At this stage, the environment impact has been identified but not yet approached as a major issue**

No or low concern

Medium concern

High concern



# Assessment of Main Areas of Concern

## 6 Land Tenure Management

### Issues at stake

#### Compensating current users of the land

- Land owners who lose their land must receive fair compensation.
- Displaced population must be offered fair resettlement solutions.
- Communities traditionally using the land (nomads, herders,...) should be taken into account

### Assessment of concern

#### Legal provisions are unclear

- Land tenure in Afghanistan generally occupies a very unclear legal situation, due to the absence of public registration and the many population displacements during the wars.
- The Minerals law itself contributes to the imprecision through a number of shortcomings in its provisions on land tenure.

#### But the problem is not large scale

- The mine area itself is only occupied by a village inhabited by ~20 people
- The land tenure issue may be complicated by the fact that the legal land owners are believed to be distinct from the current inhabitants, as a result of war and population transfers.
- Some infrastructures outside the mine itself, notably transport infrastructures, may also raise land tenure issues.

No or low concern

Medium concern

High concern

**The land tenure issue is complex but is not large scale in Aynak's case**

# Assessment of Main Areas of Concern

## 7 Local Communities Involvement

### Issues at stake

Generating an economic spill-over effect on the local communities

- Mining activities can have a very important spill-over effect on the regional economy by requiring upstream downstream goods and services.
- It is estimated that for each direct employee at the mine, between 2 and 3 individuals can be employed by induced activities
- However, a spill-over effect is not automatic. It should be encouraged and supported by the Mining Company and political authorities.

Securing “social acceptance” for the mine’s operation

- Local communities must be convinced that mining activities effectively improve their quality of life so that mining operations are socially accepted.
- Beside providing purely economic benefices, getting the “social license” to operate requires good communicate with local communities to understand and manage their expectations, and involve them in a local development plan.

### Assessment of concern

**Social aspects are left to be worked out during the feasibility study**

- Consistently with regular mining practices, social aspects are to be addressed during the feasibility study.
- No element exists yet that guarantees that local communities’ involvement will be properly managed.

**Legal provisions are very weak**

- The Minerals Law encompasses a number of shortcomings regarding the protection of local communities.
- Weakness of legal provisions is exacerbated by the absence of mining regulation to date
- Large-scale operations will not begin before at least two years: legal provisions should be strengthened by then.

**Physical violence is now a strong element of Afghan political culture**

- Decades of war in Afghanistan have made physical violence a strong element of the political culture.
- Local communities have reportedly already been mobilized by some bidders to demonstrate against their competitors.

No or low concern



Medium concern



High concern



**At this stage, the involvement of local communities has not yet been addressed seriously**

# Assessment of Main Areas of Concern

## 8 Income Generation for the State

### Issues at stake

The formal agreement between the mining company and the state must ensure the state a fair revenue

- The mineral resources belong to the country Afghanistan, therefore the mining company exploiting them needs to remunerate the State for having access to them
- The tax and royalty formula agreed upon must be reasonable to guarantee a comfortable profit for the Mining company

### Assessment of concerns

Anticipation and capacity-building from technical advisors

- A fair royalty / tax formula is being worked out by the Afghan State, under the technical assistance of the World Bank
- The royalty formula will be based on the price of copper: this ensures a fair share of risks and profit between the mining company and the State.
- Copper prices are currently very high: if the trend is confirmed on the long-term, the royalty model will be very beneficial to the State

The income received by the State should be used for promoting development

- The income for the State will promote development as long as public finances are well-managed, which requires:
- A policy-based, well-prioritized budget with strong political support;
  - The ability to conduct effective budget execution;
  - Good quality of public service delivery

Public Finance Management

- Public Finance Management faces important issues, notably of prioritization and quality of public services
- Public finance management reform is on-going, and there have been noticeable improvements in public financial management during the past five years
- Large revenues from Aynak may weaken the Government's incentives to further improve the tax system and generate substantial amounts of revenue from other sources

Addressing public finance management is beyond the scope of the Aynak project

- **The potential for a strong State-income generation will probably be realized**
- **The link between income surplus and development is not automatic**

No or low concern

Medium concern

High concern



Sources : The World Bank: *Managing Public Finances for Development, Mining as a source of growth*; external interviews

# Assessment of Main Areas of Concern

## 9 Spill-Over Effect on the Local Economy

### Issues at stake

Empowering local SMEs and entrepreneurs in relevant fields of activity

- Operational costs for open-pit mining are very important, creating a potential source of income for the local income that we estimate may be greater even state income.
- Local SMEs and entrepreneurs must have the ability to offer technically efficient and economically competitive products and services for the spill-over effect to realize
- Current economic conditions in Afghanistan mean that a focused effort on the relevant industries must be made to empower them according to the mine's needs.

Supporting a long-term mining industry cluster development strategy

- The example of South Africa demonstrates that a consistent cluster development policy, aimed at fostering links between the mining sector and related activities, maximizes positive impact on local development
- Such long-term cluster development strategy requires economic support to relevant sectors, but also the set-up of a governance system in order to ensure that resource allocation is optimized for local economy

### Assessment of concerns

Concerned actors did not express interest in developing a consistent cluster development strategy

- Neither the Afghan Government, nor the investor, expressed interest for supporting linkages between future mining operations and local SMEs and entrepreneurs
- The general lack of public information on the Aynak project, while it may be understandable at this early stage, does not allow economic actors to anticipate the potential demand induced by the initial investment and mining operations.

Documented case in neighboring Pakistan with the same investor of no local benefit for the local economy

- China Metallurgical Construction Corporation was awarded the right to exploit the Sandaik copper mine in Pakistan (in the Baluchistan region, near the Iranian border) in 2003.
- In spite of higher than expected volume of ore extraction, mining operations have realized no lateral linkage and have had virtually no spill-over effect on the local economy to date.

No or low concern

Medium concern

High concern

**Realizing lateral linkages with related activity sectors will require a pro-active cluster development policy**

# Assessment of Main Areas of Concern

## Assessment of concerns on key success criteria

	Analysis conclusion	Level of concern
1 Economic feasibility	The mine's economic feasibility has already been assessed	low
2 Transport infrastructures	The Aynak project will contribute to improve Afghanistan's transport infrastructures, but those will be vulnerable to security issues	low
3 Electricity provision	The need for electricity will certainly be met , but it is unclear yet to which extent the project will develop power infrastructures for the country	medium
4 Water provision	The possible interactions between the Aynak water basin and Kabul water supply will require a very careful attention to avoid negative side effects	high
5 Environmental protection	At this stage, the environment impact has been identified but not yet approached as a major issue	high
6 Land tenure management	The land tenure issue is complex but is not large scale in Aynak's case	medium
7 Local communities involvement	At this stage, the involvement of local communities has not yet been addressed seriously	high
8 Income generation for the State	The potential for a strong State-income generation will probably be realized	low
9 Spill-over effect on the local economy	Realizing lateral linkages with related activity sectors will require a pro-active policy and the set up of a collaborative governance system	high



- Land tenure and electricity consumption are of medium concern
- Community involvement, water consumption, environmental protection and the spill-over effects are key concerns

# Contents

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Executive Summary

Project methodology

Issues at Stake

Analysis of the Aynak set-up phase

Assessment of main areas of concern

**Recommendations for the operational phase**

# Agenda

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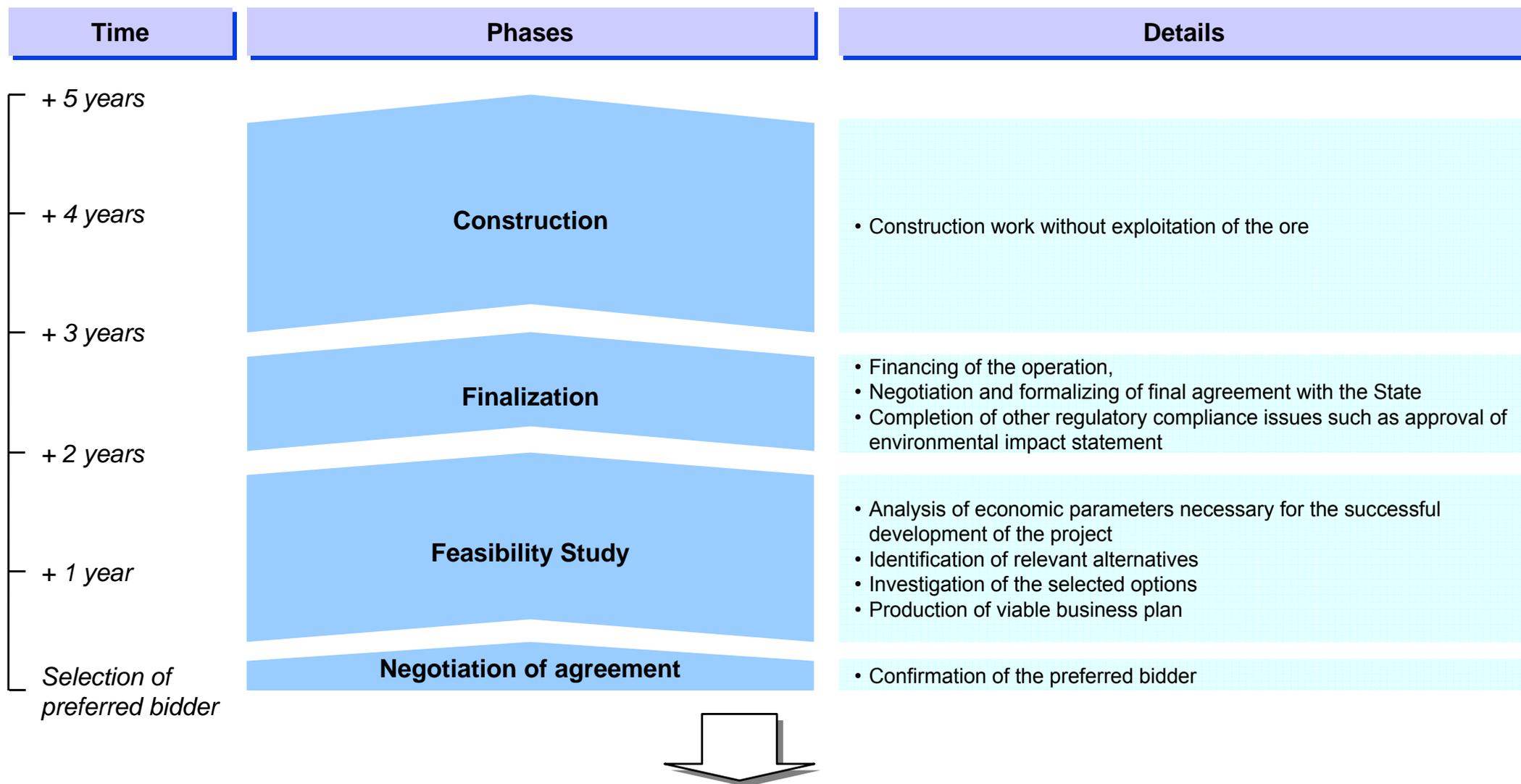
## Caveat

Further inquiries and interviews with the main project stakeholders are required to build a sustainable governance model and define each actor's responsibilities.

Therefore, the following analysis cannot be considered as complete and definitive. This section is rather intended to provide elements for discussion and further researches.

# Next Steps

## Time Frame for Next Steps

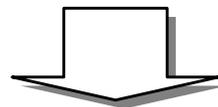
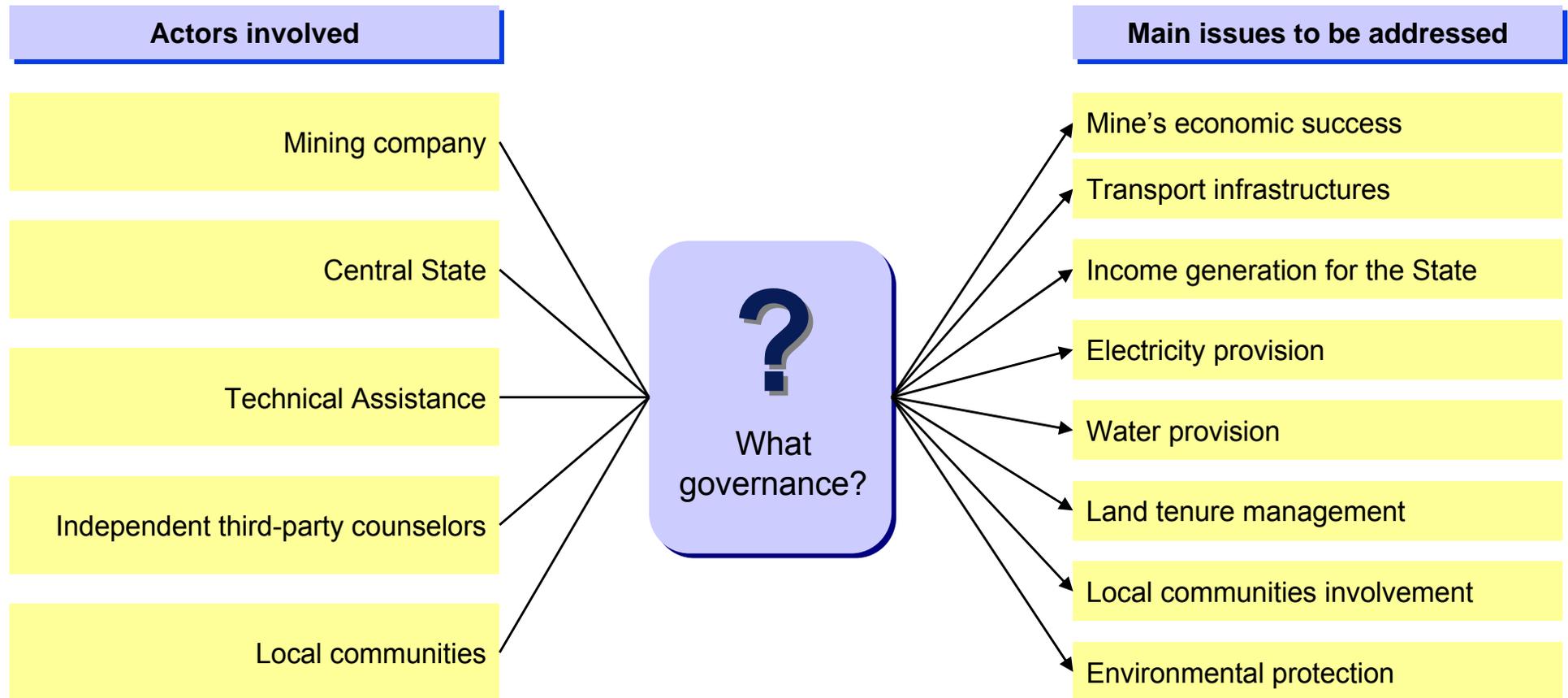


**The mine will be operational at the earliest in about 5 years time**

Sources : Gustavson Associates, external interviews

# Next Steps

## Identification of Actors Involved and Issues at Stake



**Four main types of actors must work together to address the main issues at stake, using procedures that are yet to be defined**

# Next Steps

## Basic Governance Principles for Sustainable Development

**MMSD**

### The Mining, Minerals and Sustainable Development Project

Managed by



World Business Council for Sustainable Development

and



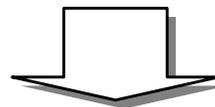
International Institute for Environment and Development

### highlights best practice for the Mining industry

Based on a collective work involving more than 5000 individuals, 175 individual pieces of research, 23 global workshops attended by 700 individuals



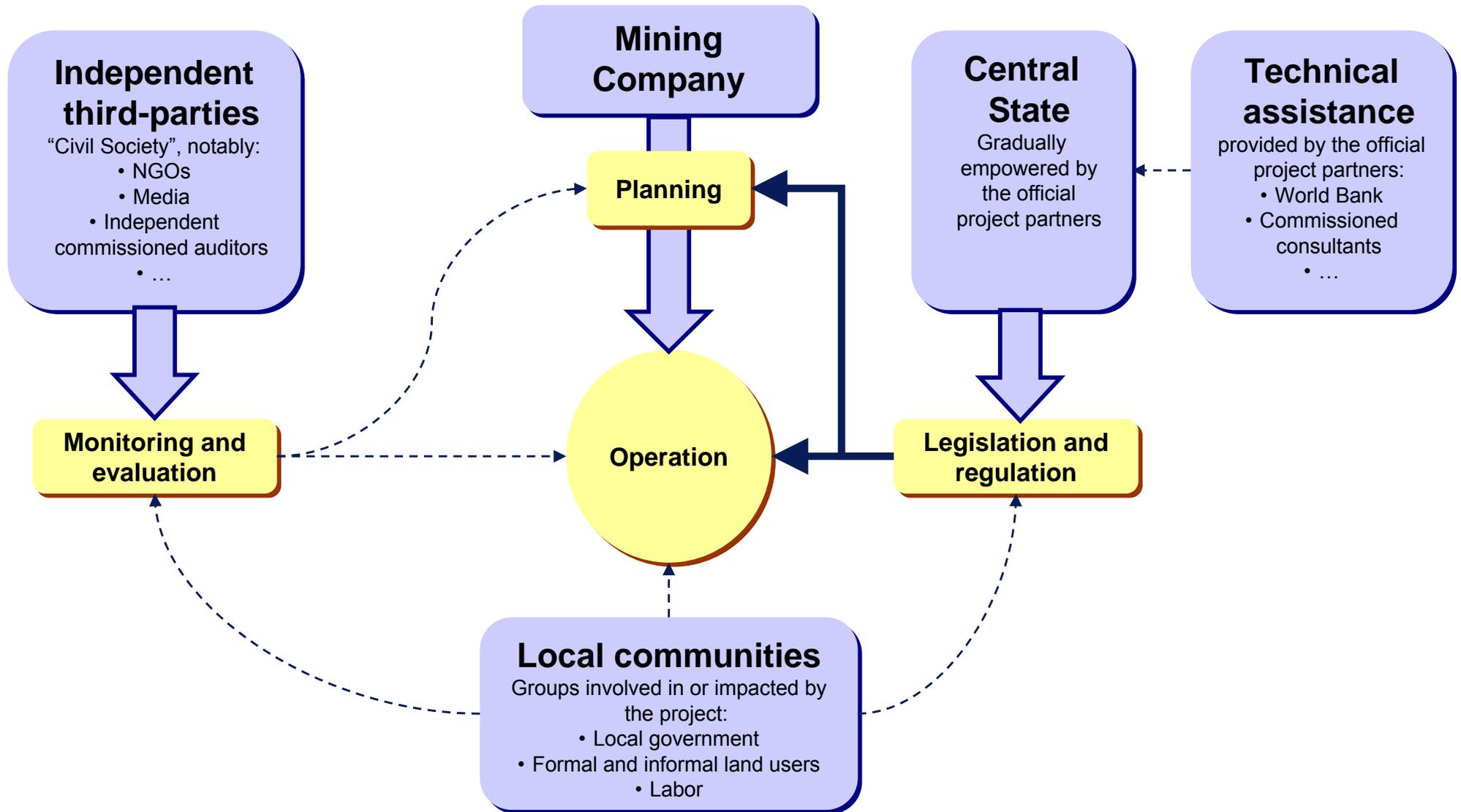
Principles	Details
Transparency	<ul style="list-style-type: none"> <li>• Regulations must be formalized and public</li> <li>• Relevant and accurate information must be systematically publicized</li> </ul>
Checks and balances	<ul style="list-style-type: none"> <li>• It is important to implement and respect appropriate checks and balances</li> </ul>
Accountability	<ul style="list-style-type: none"> <li>• Involved actors ought to acknowledge their responsibility for their actions, decisions, and policies. They must report, explain and be answerable for resulting consequences.</li> </ul>
Pragmatism	<ul style="list-style-type: none"> <li>• For each decision and action, good governance requires a case-by-case approach</li> </ul>
Subsidiarity	<ul style="list-style-type: none"> <li>• Matters ought to be handled by the competent authority closest to the ground</li> </ul>



**Basic best practice have already been defined by mining industry experts**

# Next Steps

## Governance Model for Aynak operation



# Next Steps

## Towards Effective Action : Central Government

Actions	Participants	Accountable for	Details
Legislation & regulation	<ul style="list-style-type: none"> <li>Government, National Assembly</li> <li>Independent 3rd parties</li> </ul>	<ul style="list-style-type: none"> <li>Mining Company</li> <li>Local communities</li> <li>Regulatory authority</li> </ul>	<ul style="list-style-type: none"> <li>The current shortcomings of the legal framework must be corrected.</li> </ul>
Consistent application of the legislation & regulation	<ul style="list-style-type: none"> <li>Independent 3rd parties</li> <li>Local communities</li> </ul>	<ul style="list-style-type: none"> <li>Mining Company</li> <li>Regulatory authorities</li> </ul>	<ul style="list-style-type: none"> <li>The legal framework can be effective on the ground only when regulatory authorities exist and are able to apply the regulation in a consistent manner.</li> </ul>
Registration of payments	<ul style="list-style-type: none"> <li>Independent 3rd parts</li> <li>Local communities</li> </ul>	<ul style="list-style-type: none"> <li>Mining Company</li> <li>All actors receiving income</li> </ul>	<ul style="list-style-type: none"> <li>Registration of payments generated by revenue distribution is key to preventing and tracking down corruption</li> </ul>
Regular exchanges between the involved actors	<ul style="list-style-type: none"> <li>Mining Company</li> <li>Independent 3rd parties</li> <li>Local communities</li> </ul>		<ul style="list-style-type: none"> <li>The Central State should ensure that all project stakeholders communicate on a regular and institutionalized basis.</li> </ul>
Revenue distribution	<ul style="list-style-type: none"> <li>Independent 3rd parties</li> <li>Local communities</li> </ul>	<ul style="list-style-type: none"> <li>Mining Company</li> </ul>	<ul style="list-style-type: none"> <li>The Central State should redistribute some of the revenue generated to relevant actors, notably to an agency responsible for protecting the environment and to local authorities.</li> </ul>
Promotion of the pro-poor spill-over effect	<ul style="list-style-type: none"> <li>Independent 3rd parties</li> <li>Local communities</li> </ul>	<ul style="list-style-type: none"> <li>Mining Company</li> </ul>	<ul style="list-style-type: none"> <li>The Central State has a responsibility to encourage and support local entrepreneurs to meet the mine's demand for upstream and downstream goods and services.</li> </ul>

Critical action

Recommended action



**The Central State has the responsibility to create the proper legal and administrative framework for the mining activities**

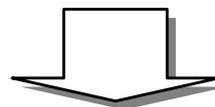
# Next Steps

## Towards Effective Action : Local Community

Actions	Participants	Accountable for	Details
Identification of local communities and their representatives	<ul style="list-style-type: none"> <li>Independent 3rd parts</li> <li>Local communities</li> <li>National Assembly/ Provincial Councils</li> </ul>	<ul style="list-style-type: none"> <li>Mining Company</li> <li>Government</li> <li>Regulation authorities</li> </ul>	<ul style="list-style-type: none"> <li>Relevant partners for local development must be identified.</li> </ul>
Formalization of a development plan	<ul style="list-style-type: none"> <li>Mining company</li> <li>Afghan State</li> <li>Independent 3rd parts</li> </ul>	<ul style="list-style-type: none"> <li>Mining Company</li> <li>Afghan State</li> </ul>	<ul style="list-style-type: none"> <li>The development plan for involving local communities must be created and formalized in a transparent and collaborative manner to maximize positive impact and social acceptance.</li> </ul>
Implementation of the development plan	<ul style="list-style-type: none"> <li>Mining company</li> <li>Afghan State</li> </ul>		<ul style="list-style-type: none"> <li>The development plan must be effectively implemented, with regular evaluations and public reports of its progress.</li> </ul>
Dispute resolution mechanism	<ul style="list-style-type: none"> <li>Mining company</li> <li>Afghan State</li> <li>Independent 3rd parts</li> </ul>	<ul style="list-style-type: none"> <li>Mining company</li> <li>Afghan State</li> </ul>	<ul style="list-style-type: none"> <li>Disputes between the mining company and local communities should be subject to a non-binding, informal dispute resolution mechanism. This should not act as a substitute to legal protection.</li> </ul>
Support to small entrepreneurship	<ul style="list-style-type: none"> <li>Mining company</li> <li>Afghan State</li> <li>Independent 3rd parts</li> <li>Local entrepreneurs</li> </ul>	<ul style="list-style-type: none"> <li>Mining company</li> <li>Afghan State</li> <li>Local entrepreneurs</li> </ul>	<ul style="list-style-type: none"> <li>Local communities must receive support for local entrepreneurship related in order to meet the mine's demand for upstream and downstream goods and services</li> </ul>

Critical action

Recommended action



**Local communities need to organize themselves in order to identify their rights and to gain development opportunities**

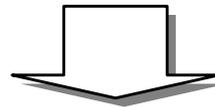
# Next Steps

## Towards Effective Action : Independent Third-Parties

Actions	Participants	Accountable for	Details
Identification of monitoring tasks	<ul style="list-style-type: none"> <li>Independent 3rd parties</li> <li>Local communities</li> <li>Media</li> </ul>	<ul style="list-style-type: none"> <li>Mining Company</li> <li>Afghan State</li> </ul>	<ul style="list-style-type: none"> <li>Relevant monitoring procedures must be defined and allocated to competent, effective and independent third parties.</li> </ul>
Implementation of the monitoring	<ul style="list-style-type: none"> <li>Independent 3rd parties</li> <li>Local communities</li> <li>Media</li> </ul>	<ul style="list-style-type: none"> <li>Nat. Ass./ Prov. C.</li> <li>Mining Company</li> <li>Afghan State</li> </ul>	<ul style="list-style-type: none"> <li>The monitoring procedures must be regularly and consistently implemented during the whole lifespan of the mine.</li> </ul>
Measuring the efficiency of the monitoring	<ul style="list-style-type: none"> <li>Independent 3rd parties</li> <li>Local communities</li> <li>Media</li> </ul>	<ul style="list-style-type: none"> <li>Independent 3rd parts</li> </ul>	<ul style="list-style-type: none"> <li>The monitoring process must be double-checked and validated by relevant authorities</li> </ul>
Lobbying for more sustainable development	<ul style="list-style-type: none"> <li>Independent 3rd parties</li> <li>Local communities</li> <li>Media</li> </ul>	<ul style="list-style-type: none"> <li>Nat. Ass./ Prov. C.</li> <li>Mining Company</li> <li>Afghan State</li> </ul>	<ul style="list-style-type: none"> <li>Independent third parties, local communities and media should scrutinize the mine's operations to focus attention on sustainable development.</li> </ul>
Public information on the mine	<ul style="list-style-type: none"> <li>Mining company</li> <li>Local communities</li> <li>Independent 3rd parties</li> <li>Media</li> </ul>	<ul style="list-style-type: none"> <li>Mining Company</li> <li>Afghan State</li> </ul>	<ul style="list-style-type: none"> <li>Afghanistan's general public should be informed of the main issues at stake, positive impacts and, if applicable, of potential threats posed by mining activities.</li> </ul>

Critical action

Recommended action



**Precise monitoring activities must be conducted with collaboration by three main actors: the mining company, the Afghan state and independent 3rd parties**

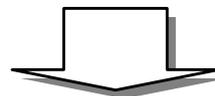
# Next Steps

## Towards Effective Action : Mining Company

Actions	Participants	Accountable for	Details
In-depth feasibility study considering environmental and social issues	<ul style="list-style-type: none"> <li>• Mining company</li> <li>• Afghan State</li> <li>• Local communities</li> <li>• Independent 3rd parts</li> </ul>	<ul style="list-style-type: none"> <li>• Mining company</li> <li>• Afghan State</li> </ul>	<ul style="list-style-type: none"> <li>• The Mining company must conduct an in-depth feasibility study the basis of which a precise development plan will be defined that will address environmental and social issues.</li> </ul>
Publication of the main findings of the feasibility study	<ul style="list-style-type: none"> <li>• Mining company</li> </ul>		<ul style="list-style-type: none"> <li>• The main findings of the feasibility study must be shared as widely as possible, and at least with the main stakeholders and monitoring.</li> </ul>
Ensuring environmentally friendly and social best practices during operation	<ul style="list-style-type: none"> <li>• Mining company</li> </ul>		<ul style="list-style-type: none"> <li>• The mining company must consistently apply all provisions defined in the mining contract and the development plan during the whole lifespan of the mine.</li> </ul>
Transparent finance and publicly available exploitation reports	<ul style="list-style-type: none"> <li>• Mining company</li> <li>• Afghan State</li> </ul>	<ul style="list-style-type: none"> <li>• Mining company</li> </ul>	<ul style="list-style-type: none"> <li>• The exploitation must be clearly and accurately documented, and the reports must be regularly published.</li> </ul>
Establishment and publication of development goals	<ul style="list-style-type: none"> <li>• Mining company</li> <li>• Afghan State</li> <li>• Local communities</li> <li>• Media</li> </ul>	<ul style="list-style-type: none"> <li>• Mining company</li> <li>• Afghan State</li> </ul>	<ul style="list-style-type: none"> <li>• The mining company should define the development goals it wishes to achieve through mining operations.</li> </ul>
Regular communication on development results	<ul style="list-style-type: none"> <li>• Mining company</li> <li>• Afghan State</li> <li>• Local communities</li> <li>• Media</li> </ul>		<ul style="list-style-type: none"> <li>• The mining company should take the initiative to regularly evaluate the development impact of its operations and communicate these impacts to the public.</li> </ul>

Critical action

Recommended action



**The mining company should set development targets and make available its operational and financial reports for independent scrutiny**

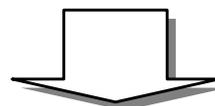
# Next Steps

## Towards Effective Action : Technical Assistance

Actions	Participants	Accountable for	Details
<b>Guide the State in setting up development prone laws and regulations</b>	<ul style="list-style-type: none"> <li>• Afghan State</li> <li>• Regulatory authorities</li> </ul>		<ul style="list-style-type: none"> <li>• Creating the legal and administrative framework for sustainable mining operations is a priority while the Afghan State still lacks capability.</li> </ul>
<b>Assist the State in overseeing the results of the mining company's feasibility study</b>	<ul style="list-style-type: none"> <li>• Afghan State</li> <li>• Mining company</li> </ul>	<ul style="list-style-type: none"> <li>• Mining company</li> </ul>	<ul style="list-style-type: none"> <li>• The feasibility study and corresponding development plan will have a deep impact on Afghanistan's development for decades, and the Afghan State still lacks capability to adequately oversee them.</li> </ul>
<b>Empower local communities</b>	<ul style="list-style-type: none"> <li>• Local communities</li> <li>• Mining company</li> <li>• Private sector representatives</li> </ul>	<ul style="list-style-type: none"> <li>• Mining company</li> </ul>	<ul style="list-style-type: none"> <li>• Technical assistance should participate in the process of empowering local communities so that they can effectively benefit from opportunities provided by mining activities.</li> </ul>
<b>Train state officials and independent 3rd parties to address environmental risks</b>	<ul style="list-style-type: none"> <li>• Afghan State</li> <li>• Regulatory authorities</li> </ul>		<ul style="list-style-type: none"> <li>• Case-studies show that mismanagement of the environmental impact of mining activities can have disastrous consequences</li> </ul>
<b>Technical assistance to local communities and 3rd parties</b>	<ul style="list-style-type: none"> <li>• Afghan State</li> <li>• Regulatory authorities</li> <li>• Independent 3rd parts</li> <li>• Local communities</li> </ul>		<ul style="list-style-type: none"> <li>• Although technical assistance is first and foremost aimed at empowering the Central State, technical assistants should collaborate closely and in an institutionalized manner with independent 3rd parties and local communities as well.</li> </ul>

Critical action

Recommended action



**Technical assistance should provide tools for the state but also for other independent actors to identify risks and independently measure the mine's impact on development**