

# ENVIRONMENTAL SAFETY OF TEGHOUT COPPER-MOLYBDENUM MINING PROJECT

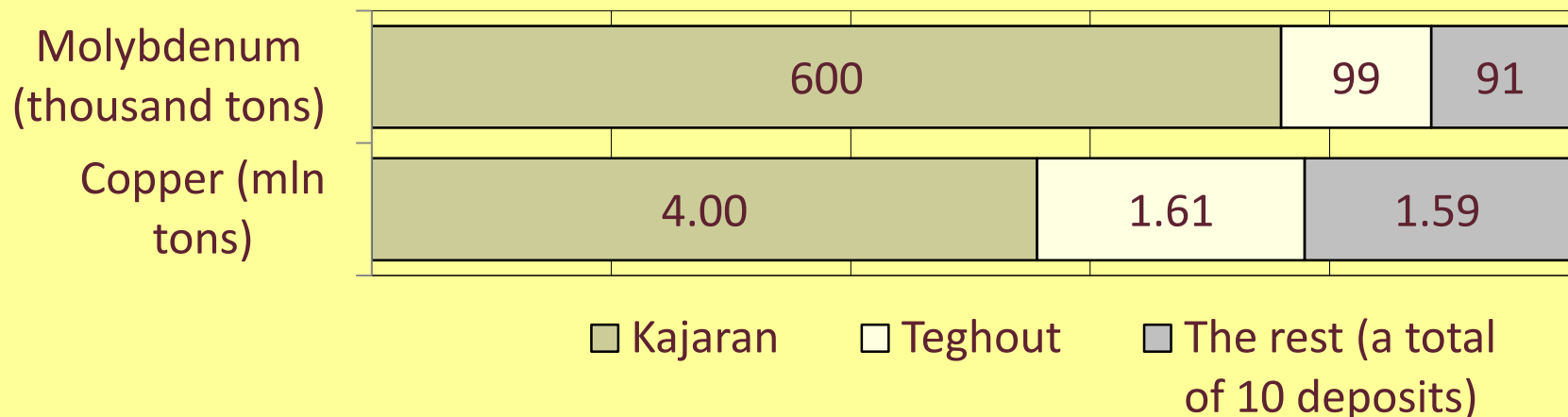
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Yerevan, December 14, 2010

# Teghout Deposit

- Large scale geological exploration was conducted at the deposit during 1972-1991
- Reserves of the deposit were approved by the State Reserve Committee of the Soviet Union in 1991 in the amount of 454 mln tons of ore, with average grades of 0.355% of copper and 0.021% of molybdenum

## Copper and Molybdenum reserves in Armenia



# Preparatory Work

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- Canadian Strathcona Mineral Services Ltd has prepared a Scoping Review for the deposit in 2001, immediately after acquiring the mining license for the deposit through a tender in 2001
- Subsequent interim reports issued by the same company in 2005-2010.
- Substantial efforts towards improvement of sample preparation and assay laboratories
- Implementation of large scale drilling program

# Preparatory Work

cont'd

- In December, 2005 Environmental Impact Assessment was submitted to the Government and general public
- Public hearings for the EIA were held in March, 2006, followed by positive assessment of the EIA by the Ministry of Nature Protection in April, 2006
- Working project of construction and exploitation of Teghout copper-molybdenum combine was prepared and submitted to the Government and general public in August, 2006
- Public hearings of the working project were held in October, 2006

# Preparatory Work

cont'd

- Positive assessment of the working project were received from all relevant Government bodies in November, 2006 (Ministry of Nature Protection for the environmental assessment, Ministry of Trade and Economic Development for technical and technological assessment, and National Center for Technical Safety for technical safety assessment)
- The project was discussed in detail with the Ministry of Health for its potential health impact on the population of the nearby areas, and confirmation was received from the Ministry that health impact of the project, if any, would be entirely within the permissible limits (which in Armenia in many respects are stricter than relevant WB or EU limits)

# Preparatory Work

cont'd

- Environmental Management Plan was developed and submitted for public discussion
- License Agreement was signed with the Ministry of Nature Protection and Ministry of Trade and Economic Development in October, 2007
- Two Governmental decrees adopted in November, 2007 have addressed issues related with deposit development (land allocation, zoning changes, logging permit, forestation program, etc.)

# Preparatory Work

cont'd

- Resource estimate prepared in accordance with international standards (Canadian NI 43.101) jointly by ACP, Strathcona Mineral Services ltd and Micromine Pty Ltd (a leading vendor of geological modeling software) and recently submitted to the Government
- Construction of the main infrastructure elements has commenced
- USD ~50M already invested
- Mining plan for the 1<sup>st</sup> stage assumes mining and processing of 7 mln tons of ore annually, producing about 25,000 tons of copper and up to 700 tons of molybdenum in concentrates

# Environmental Safety: Forests

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- Logging regulations were adopted in February, 2008 by a joint decree of the Minister of Nature Protection and Minister of Agriculture for a total area of 357 hectares
- Forestation program was adopted in August, 2008 by a joint decree of the Minister of Nature Protection and Minister of Agriculture for a total of 715 hectares
- Against ~60 hectares of forests removed during 2008-2010, ~140 hectares were planted in three communities of Lori region (including neighboring Teghout and Shnogh villages)
- Forestation program includes care and maintenance until planted areas are converted into forests

# Environmental Safety: Tailings

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- Water bypass channel being built from reinforced concrete to allow for diversion of nearby rivers
- Tailings dump to be developed with isolating layer to prohibit any ground water pollution
- Full water recycling, thus no water discharge to nearby water basins (including underground).  
Fresh
- Gradual reclamation of tailings dump
- No risk of tailings failure!

# Environmental Safety:

## Air

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- Any dust emission strictly limited to the sanitary zone, thus no impact on nearby residential areas
- Aspiratory systems to be put in place, equipped with gas cleaning devices
- Regular watering of ore and waste transportation roads

# Environmental Safety: Cultural and Historical Monuments

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- Mapping of historical and cultural monuments existing in the project area was conducted parallel to environmental studies, with the involvement of specialists of the Ministry of Culture and known archaeologists
- A program on care and maintenance of historical and cultural monuments in the project area was adopted by the Ministry on July, 2008
- Significant progress towards implementation of the program has been achieved during 2009-2010

# Environmental Safety:

## Other aspects

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- Measures planned to avoid land erosion
- Vegetation soil to be removed and stored for further use during reclamation
- Logging program to be implemented in accordance with strict schedule and only as necessary to allow for easy move of forest animals to neighboring areas
- A number of emergency measures, including fire protective system, lightning protection, trained and well-equipped emergency team, autonomous drainage, etc.
- Always open to consider additional measures

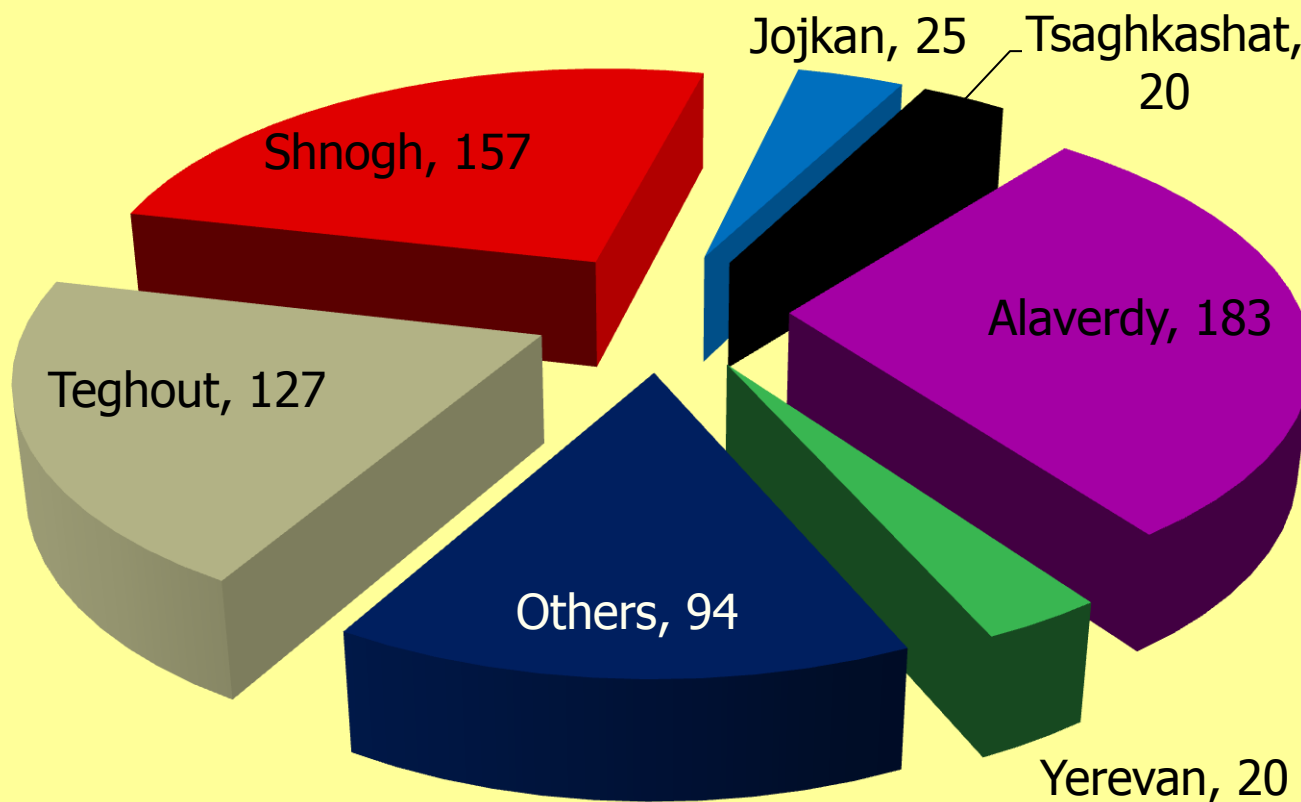
# A few observations: migration/employment

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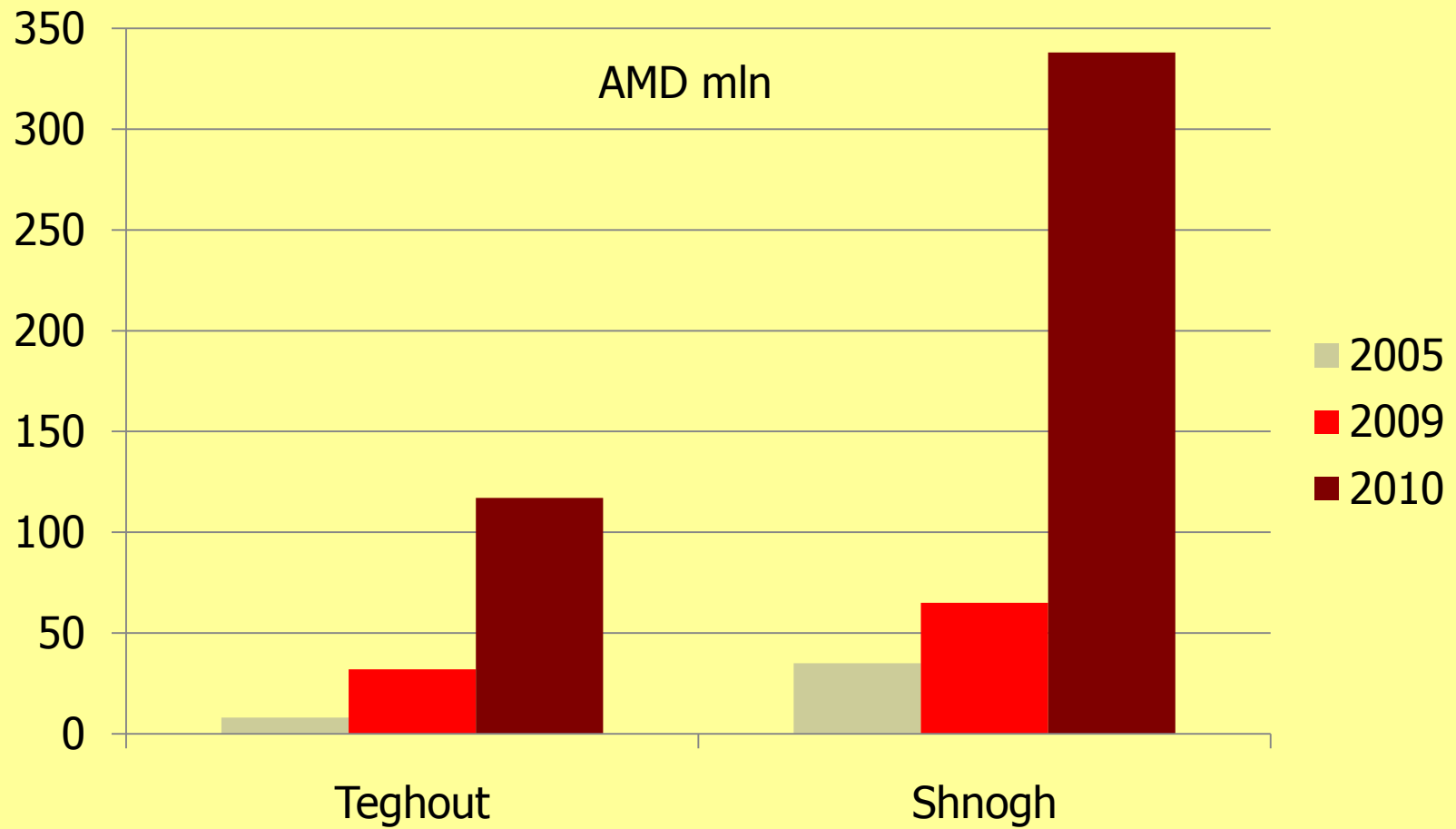
- Some of the nearby communities suffering migration of more than 50% of population
- Migration trends reversed recently. For instance, at Teghout 81 male residents traditionally going abroad for work during summer times have remained at Teghout in 2010 to work for the company
- Number of workplaces during:
  - construction period: ~1700
  - mine exploitation: ~1400

# A few observations: workers

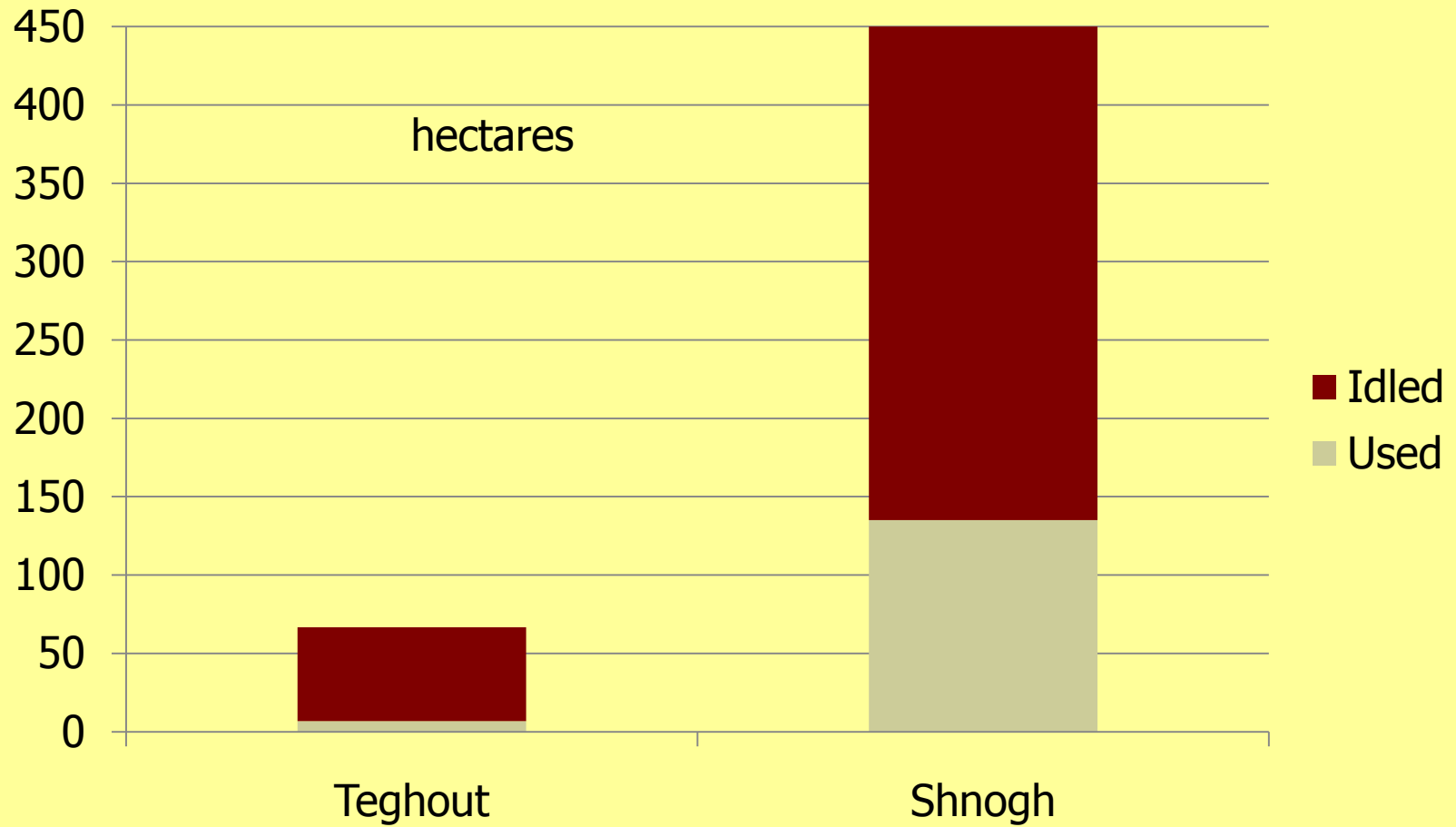
**Number of workers: 626**



# A few observations: Nearby community budgets



# A few observations: use of agricultural land



# A few observations: (in-)adequate compensation?

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- Compensation determined strictly in line with the law
- There has been no case when an owner has come up with an alternative valuation of his/her property. In only one case an owner has requested independent revaluation of property, such revaluation confirming market value being the same
- When claimed that alternative valuation is not being presented due to lack of funding for that, the company has offered to cover all costs for that. No owner used that offer
- Due consideration given to all property in place irrespective of existence of legal rights to such property
- Any property not being used currently is made available for the use of previous owners at no cost
- In all cases when previous owners claimed they do not want to lose the opportunity to use their lands, equivalent land in no worse location was offered in exchange, some used that offer

Thank you