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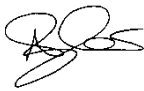
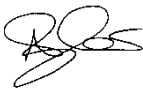




# SOCIAL AND HEALTH BASELINE SURVEY

Teghout CJSC, Armenia

10/08/2012

## Quality Management

Issue/revision	Issue 1	Revision 1	Revision 2	Revision 3
Remarks	Draft	Final		
Date	10/08/2012	1/11/2012		
Prepared by	Stephanie Tyrrell	Stephanie Tyrrell		
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Checked by	Neal Barker	Neal Barker		
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Authorised by	Neal Barker	Neal Barker		
Signature				
Project number	32903	32903		
Report number	1	2		
File reference	K:\E09 - Corporate Services\Projects 12\Armenia Vallex\EMC	K:\E09 - Corporate Services\Projects 12\Armenia Vallex\EMC		

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## Background

This Social and Health Baseline Assessment has been designed by WSP to satisfy the EKF and International Finance Corporation (IFC) requirements with regards to the protection of the environment and local communities for the Teghout Copper-molybdenum mine project (hereafter referred to as the project).

The objective of this report is to prepare and design a social and health baseline survey to be completed for the project as described in the Environmental and Social Action Plan, developed by ERM in 2010 to ensure the project meets the requirements of Performance Standard 4: Community Health, Safety and Security. This PS has the following objectives:

- To anticipate and avoid adverse impacts on the health and safety of the Affected Community during the project life from both routine and non-routine circumstances; and
- To ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimised risks to the Affected Communities.

## The Project

The Teghout copper-molybdenum deposit is located approximately 70 kilometres (km) to the northeast of the administrative centre of the Lori Region – the city of Vanadzor and 32 km to the south-west of the town of Alaverdi – the second largest city in the Region. The site is located in close proximity to the villages of Teghout and Shnogh. Teghout is located approximated 4km from the site, with a population of 781 people. Shnogh has a population of 3,250.

Teghout is the second largest copper-molybdenum deposit in Armenia containing an estimated 454 million tonnes of ore which contains around 1.6 million tonnes of copper.

The project involves a number of components:

- Removal of an estimated 64 million cubic metres of soil and overburden rock materials;
- Creation of an open cast mine with an area of 212ha. The pit area will be around 1.5km long and 1km wide, excavated to a depth of 480m;
- Construction of a mine processing plant with an average production capacity of 52,787 tpa of copper concentrate and 812 tpa of molybdenum concentrate from 7 million tonnes of ore;
- Development of a waste depository for overburden rock and oxidised ores that are not handled through the mine processing plant;
- Development of a tailings depository;
- Development of water treatment lagoons and culverts to divert existing water courses;
- Development of site buildings for administration and welfare functions. Buildings will also be developed for plant and vehicle maintenance; and
- Site access infrastructure, including temporary roads and a bypass around the site

The project will include the construction of a mining and processing plant. The entire complex will include the following core and auxiliary facilities:

### *Core facilities*

- Open-pit mine;

- Open-pit mine support area;
- Dressing mill;
- Tailings storage; and,
- Dumps.

*Auxiliary facilities*

- Explosive storages;
- Storage areas;
- Loading-unloading facility (terminal);
- Water intake from the Debed river;
- Other support facilities; and,
- Motor roads.

It is anticipated that the mining operations will take place over a minimum period of 25 years.

Project related activities could directly and indirectly change community exposures to environmental-based health and social risks; this could be in a positive or negative manner. Teghout cjsc will undertake a social and health baseline survey and identify and evaluate the risks and potential impacts to the health and safety of the affected community during the design, construction, operation and decommissioning stages of the project. Mitigation measures will be implemented in order to address the identified risks and impacts.

## Social Interactions and Priority Areas

It is important to manage social considerations throughout the whole lifetime of the project with an effective social management system that is dynamic and continuous, which involves communications between Teghout cjsc, its employees, the local community and other stakeholders who are directly affected by the project. Teghout cjsc is committed to effective community engagement through disclosure of project related information and consultation with local communities. The project activities are likely to bring benefits to the area, however there are likely to be increased potential for community exposure to risks and impacts. Identification of these potential interactions allows the establishment of preventative measures and plans in order to address them with a manner appropriate with the identified risks and impacts. Key focus areas will include:

- Increased employment opportunities;
- Increased skills within the communities through learning and development opportunities created by the project;
- Opportunities for economic development;
- Relationship with the local community. The site is located in close proximity to the villages of Teghout and Shnogh. Teghout is located approximated 4km from the site, with a population of 781 people. Shnogh has a population of 3,250.
- Water supply network;
- Land acquisition and compensation plans;
- Transportation plans for raw and finished materials; and
- Deforestation and reforestation plans.

## Health Baseline Conditions and Focus

Healthcare in the local area comprises of one Medical clinic in Shnogh and one first aid station in Teghout, which service the two communities. There is also an ambulance service which also facilitates the two communities. Neither settlement has a dental clinic. Medical facilities in the wider areas include the Vanadzor Medical Centre, with a wide profile of aid including; therapeutic, cardiology, surgery, paediatrics, obstetrics and gynaecology. Other facilities include the Vanadzor Infectious Hospital for those with infectious diseases and the Lori Region Pyschoneurologic hospital. There is also a medical centre in Alaverdi, with a wide treatment aid such as an outpatient department, therapeutic, surgery, paediatrics and obstetric.

Common health issues within the local community tend to be respiratory diseases and hypertension. There is little information available regarding occupational health / disease related to the nearby mining and chemical facilities. There is a potential for the project activities to increase community exposure to communicable diseases, identification of these potential interactions allows the establishment of preventative measures and plans in order to address them with a manner appropriate with the identified risks and impacts. It is critical to work with the government authorities who are responsible for public health issues, in the collection of the data. Key focus areas will include:

- Obtaining a demographic profile for the impacted communities (include information such as location of schools, land uses, location of water sources, health care facilities);
- Occupational health monitoring;
- Increased risk of disease transmission. Considerations should include the types of diseases and the ways by which they are transmitted. Risk minimisation should then be considered for the different types diseases;
- Trends in common diseases; and
- Morbidity rates.

## Key Priorities for Social and Health Management

The International Financial Corporation's (IFC) Performance Standard 4 – Community, Health, Safety and Security recognises that projects can increase the community's exposure to risks and impacts. Teghout cjsc is committed to minimising the risks and impacts to community health, safety and security that may arise as a result of the project and the associated activities.

Relevant information will be disclosed to the affected communities and relevant government agencies to understand the risks and impacts and the proposed management of them. Key priorities will include:

- Demographic information and the potential for economic growth in the local communities;
- Structural elements of the projects e.g. the tailings dam. This will be a high risk and may threaten the safety of the community in the event of a failure;
- Prevention or minimisation of community exposure to hazardous materials;
- Safe transportation of raw and finished materials and wastes;
- Prevention or minimisation of potential impacts from natural hazards, this will include flooding / landslides;
- Minimisation of adverse impacts on air, soil, water vegetation and fauna;
- Prevention or minimisation of worker and community exposure to vector-borne and other communicable diseases;

- Exploring opportunities throughout the project to improve environmental conditions that could reduce the incidence of an endemic disease; and
- Security personnel and good practices.

## Baseline Survey Design

Assessment Criteria	Survey Data Collection Method
Social	
<p>Demographic Information – where applicable information should be broken down by gender:</p> <ul style="list-style-type: none"> <li>■ Populations size, birth and death rates</li> <li>■ Age factors of birth rate</li> <li>■ Death rate values and causes</li> <li>■ Estimated life span</li> <li>■ Population trends</li> <li>■ Age demographics</li> <li>■ Religion and beliefs</li> <li>■ Populations Structure (i.e. average family size, household composition)</li> <li>■ Immigration and emigration statistics.</li> <li>■ Vulnerable groups</li> </ul>	<p>Obtain census data from The National Statistical Service of the Republic of Armenia and the Ministry of Health.</p> <p>Information can be obtained from the 2010 Armenia Demographic and Health Survey.</p> <p>Include in a questionnaire to the local communities.</p> <p>Include in an information request to the local authorities for the Teghout and Shnogh communities.</p> <p>Obtain Regional economic development plans.</p>
<p>Labour Market:</p> <ul style="list-style-type: none"> <li>■ Employment statistics</li> <li>■ Age and gender breakdown of employment</li> <li>■ Unemployment rate</li> <li>■ Reasons for unemployment</li> <li>■ Age and gender breakdown of unemployment</li> <li>■ Economically active population</li> <li>■ Detailed breakdown of the employed</li> <li>■ Educational breakdown of employed</li> <li>■ Occupational diseases</li> <li>■ Industry breakdown of employed</li> <li>■ Biggest employers</li> <li>■ Total number of local businesses and services</li> </ul>	<p>Obtain census data from The National Statistical Service of the Republic of Armenia.</p> <p>Include in a questionnaire to the local communities and local employers.</p> <p>Include in an information request to the local authorities for the Teghout and Shnogh communities.</p>



Assessment Criteria	Survey Data Collection Method
<p>Agriculture:</p> <ul style="list-style-type: none"> <li>■ Proportional breakdown of agricultural land types</li> <li>■ Breakdown of land by land users</li> <li>■ Information on cultivated areas</li> <li>■ Gross yield of main agricultural crops</li> <li>■ Population of livestock</li> </ul>	<p>Request information from the Ministry of Agriculture of the Republic of Armenia.</p> <p>Include in an information request to the local authorities for the Teghout and Shnogh communities.</p>
<p>Quality of Life:</p> <ul style="list-style-type: none"> <li>■ Cash income statistics</li> <li>■ Income statistics through non-wage sources (e.g. collecting wood for fuel or informal sale, self-subsistence farming etc.)</li> <li>■ Composition and Utilisation of income</li> <li>■ Breakdown of expenses share in cash income</li> <li>■ Income information at household level</li> <li>■ Breakdown of population by average per capita income</li> <li>■ Percentage of population receiving less than minimum wage</li> <li>■ Minimum wage</li> <li>■ Community use of Ecosystem Services</li> <li>■ Housing standards – details to include: <ul style="list-style-type: none"> <li>● Number of occupants per household</li> <li>● Fuel (for cooking) source and consumption</li> <li>● Heating (availability and source)</li> <li>● Main construction materials</li> <li>● Waste Management</li> </ul> </li> </ul>	<p>Obtain census data from The National Statistical Service of the Republic of Armenia and the Ministry of Health.</p> <p>Include in a questionnaire to the local communities and local employers.</p> <p>Include in an information request to the local authorities for the Teghout and Shnogh communities.</p> <p>Regional social priorities commitments / development plans.</p> <p>Include photos of typical housing and construction styles, if these are representative of economic / social status.</p> <p>Issue a questionnaire to the local community to include questions on who makes the decisions regarding family investments and the administration of income.</p>

Assessment Criteria	Survey Data Collection Method
<p>Utility Services:</p> <ul style="list-style-type: none"> <li>■ Information on the housing fund</li> <li>■ Average housing rate per resident</li> <li>■ Information on utility services e.g. water and gas supply</li> <li>■ Existing facilities (i.e. existing electricity, waste management and sanitation facilities)</li> <li>■ Provision of housing to the population</li> <li>■ Development of infrastructure</li> <li>■ Retrenchment / land acquisition information</li> </ul>	<p>Request information from the Armenia Water Supply and Sewerage company.</p> <p>Issue an information request to the local authorities for the Teghout and Shnogh communities.</p> <p>Request information from the Ministry of Energy and Resources.</p>
<p>Transport:</p> <ul style="list-style-type: none"> <li>■ Modes of transport</li> <li>■ Available transport</li> <li>■ Freight traffic levels</li> <li>■ Passenger traffic levels</li> <li>■ Passenger traffic levels by age and gender</li> <li>■ Transport routes</li> <li>■ Number and type of vehicle related accidents</li> </ul>	<p>Include in an information request to the local authorities for the Teghout and Shnogh communities.</p> <p>Conduct an updated transport assessment as part of the updated ESIA Transport Chapter.</p> <p>Request information from the Ministry of Transport and Communication.</p> <p>Issue a questionnaire to the local communities.</p>
<p>Education and cultural institutions:</p> <ul style="list-style-type: none"> <li>■ Level of education of populations</li> <li>■ Availability of education</li> <li>■ Pre-school institutions</li> <li>■ Number of pupils in education – broken down by gender</li> <li>■ Number of teachers in institutions</li> <li>■ Higher education institutions</li> <li>■ Overview of the quality of educational institutions (i.e. sanitary facilities, ventilation or heating systems)</li> <li>■ Number of cultural institutions</li> </ul>	<p>Include in an information request to the local authorities for the Teghout and Shnogh communities.</p> <p>Survey and question head teachers from local schools.</p> <p>Request information from the Ministry of Education and Science.</p> <p>Request information from the Ministry of Culture.</p>
<p>Crime rates:</p> <ul style="list-style-type: none"> <li>■ Number of recorded crimes / statistics</li> <li>■ Breakdown of offenders e.g. by age, gender,</li> </ul>	<p>Include in an information request to the local authorities for the Teghout and Shnogh communities.</p> <p>Survey the local police force for the Lori Region.</p> <p>Regional crime statistics.</p>

Assessment Criteria	Survey Data Collection Method
Health	
<p>Medical:</p> <ul style="list-style-type: none"> <li>■ Common illnesses and frequency (see Appendix A for details on the key health areas for consideration)</li> <li>■ Female morbidity rates</li> <li>■ Infant morbidity rates</li> <li>■ Child morbidity rates</li> <li>■ Medical examination results of children</li> <li>■ Socially important infections (e.g. TB)</li> <li>■ Number of people registered as disabled</li> <li>■ Details of health institutions</li> <li>■ Existing public health programs and campaigns in the local community</li> <li>■ Occupational health monitoring</li> </ul>	<p>Obtain annual reports from the Ministry of Health.</p> <p>Obtain census data from The National Statistical Service of the Republic of Armenia and the Ministry of Health.</p> <p>Survey local medical professionals.</p> <p>Regional health priorities plans.</p> <p>Obtain information on local health programmes / campaigns. Include details on the organisation and advertisement / promotion and any specific details or outcomes from previous campaigns.</p>
<p>Water Quality:</p> <ul style="list-style-type: none"> <li>■ Main water supply</li> <li>■ Backup water supply</li> <li>■ Water treatment</li> <li>■ Quality of water</li> <li>■ Sources of water pollution</li> </ul>	<p>Request information from the Armenia Water Supply and Sewerage company.</p> <p>Request information from the Ministry of Energy and Natural Resources.</p> <p>Interview staff at the local water company.</p> <p>Undertake water sampling to establish the baseline water quality.</p>
<p>Air Quality:</p> <ul style="list-style-type: none"> <li>■ Main sources of air pollution</li> <li>■ Main pollutants</li> <li>■ Volume of emissions from the main point sources</li> <li>■ Ambient air quality baseline</li> </ul>	<p>Request information from the Ministry of Nature Protection.</p> <p>Appoint a contractor to carry out a programme of ambient air quality baseline studies. Or install ambient air quality equipment in line with the methods proposed in the Teghout mine monitoring plan.</p>
<p>Physical impact sources:</p> <ul style="list-style-type: none"> <li>■ Sources of electromagnetic radiation</li> <li>■ Radiation background</li> </ul>	<p>Include in the information request to the local authorities for the Teghout and Shnogh communities.</p>
<p>Waste management:</p> <ul style="list-style-type: none"> <li>■ Details of landfill sites</li> </ul>	<p>Issue an information request to the Ministry of Nature Protection.</p>
<p>Recreation and leisure:</p> <ul style="list-style-type: none"> <li>■ Main recreational and leisure activities and the location</li> </ul>	<p>Issue an information request to the Ministry of Sport and Youth Affairs.</p> <p>Cover in a questionnaire to the local communities.</p>

## Methodology

In line with recommendations detailed within an ESDD undertaken for the project in 2010 by ERM, and a review of the project and previous assessment work undertaken by EKF in March 2012; a baseline survey has been designed and detailed to establish the social and health baseline of the site and to allow mitigation, enhancement and compensation measures to be implemented where appropriate throughout the lifetime of the project.

It is important to mention the collection of new data should be conducted in a culturally sensitive and ethical manner, with a clear view on how the information obtained will be used in the impact assessment. This will also be a good opportunity to involve key stakeholders in the process.

### Desk Study of Publicly Available Information

A review of literature, health information, demographic information and other publicly available information is recommended for performing baseline data collection. This can include the following:

- A literature search, review and analysis;
- Obtaining and reviewing government data;
- Statistical and qualitative information gathering from documented international information sources.

It is critical to work with government authorities responsible for public health and social issues in the collection and analysis of the data. Teghout cjsc should carry out the following information requests:

- Obtain census data from The National Statistical Service of the Republic of Armenia and the Ministry of Health.
- Information can be obtained from the 2010 Armenia Demographic and Health Survey.
- Request information on agricultural land types, cultivated areas and the gross yield of main agricultural crops, from the Ministry of Agriculture of the Republic of Armenia.
- Request information on the regional water service and the supply and backup supply of water from the Armenia Water Supply and Sewerage Company.
- Request information on the sources of water pollution and data on the quality and treatment of water from the Ministry of Nature Protection.
- Request information on the regional gas supply from the Ministry of Energy and Resources.
- Request information on the sources of air pollution and data on the volume of emissions from the Ministry of Nature Protection.
- Request information on regional traffic levels and transport routes and statistics from the Ministry of Transport and Communication.
- Request information on local education statistics, to include the level of education received in local communities and the availability of education from the Ministry of Education and Science.
- Request information on the number and location of local cultural institutions from the Ministry of Culture.
- Obtain annual reports from the Ministry of Health.
- Issue an information request to the Ministry of Nature Protection for details on landfill sites and statistics.
- Issue an information request to the Ministry of Sport and Youth Affairs for details on recreational activities and resources in the area.

## Field surveys

As part of the Environmental and Social Impact assessment update additional field surveys will have to be conducted in order to gain a greater understanding of baseline conditions. As mentioned this should be conducted in a culturally sensitive and ethical manner.

- Conduct an updated transport assessment.
- Conduct water quality information gathering to establish baseline water quality.

## Interviews

Data collection through stakeholder meetings is a good opportunity to collate tradition and local knowledge.

- Meetings with project personnel;
- Meetings with government / institutional personnel;
- Meetings with community members and focus groups. (It is recommended that women and the elderly are included in the focus group meetings)

In order to gain a better understanding of the local social and health baseline it is recommended that the following interviews are undertaken:

- Survey and question head teachers from local schools.
- Survey the local police force for the Lori Region.
- Survey local medical professionals – to include traditional health providers and those involved in local health campaigns (if any).
- Where larger medical facilities are identified as treating certain health conditions, conduct interview with staff.
- Interview staff at the local water company.

## Appendix A: Health Areas for Consideration

Environmental Health Areas	Description and Key Parameters
Vector Related Diseases	<p>Malaria, schistosomiasis, dengue, onchocerciasis, lymphatic filariasis, yellow fever.</p> <p>Consider whether these are present in the project area and whether there will be an influx from other areas.</p>
Respiratory and related housing issues	<p>Acute respiratory infections (bacterial and viral), pneumonias, tuberculosis, respiratory effects from housing, overcrowding, housing inflation. During the site visit it was reported that respiratory diseases are common within the local communities; therefore particular attention so should be paid.</p> <p>Consider the influx of workers and the development of the work camp.</p>
Veterinary medicine and zoonotic issues	<p>Brucellosis, rabies, bovine TB, bird flu etc.</p> <p>Consider interactions between the project and local livestock.</p>
Sexually transmitted diseases	<p>HIV/AIDS, syphilis, gonorrhoea, chlamydia, hepatitis B etc.</p> <p>Consider the influx of workers into the area and whether the project will require long haul truck trips.</p>
Soil and water sanitation related diseases	<p>Giardiasis, worms, water access and quality, excrement management.</p> <p>Consider whether the project will trigger an influx of such diseases or cause changes to the water or soil quality or distribution in the local community.</p>
Food and nutrition related issues	<p>Stunting, wasting, anemia, micronutrient diseases (including deficiencies of folate, vitamin A, iron, iodine), changes in agricultural and subsistence hunting, fishing and gathering practices, gastroenteritis (bacterial and viral), food inflation.</p> <p>Consider whether the project has the potential to trigger an influx of food and nutrition related issues, or cause changes to agricultural practices or food distribution.</p>
Accidents and injuries	<p>Road traffic related, spills and releases, construction (home and project related)</p> <p>Consider whether the project is likely to cause changes to the existing transport pattern and whether this is likely to trigger an influx of associated accidents or injuries.</p>
Exposure to potentially hazardous materials	<p>Pesticides, fertiliser, road dust, air pollution (indoor and outdoor. Related to cooking, heating or other forms for combustion and incineration), project related solvents, paints, oils, or cleaning agents.</p> <p>Consider the risks associated with hazardous materials (if any) used on site. Also taking into account the transportation risks and the potential for the release to air/water/ground.</p>
Social determinants of health	<p>Resettlement, relocation, violence, gender, education, income, occupation, social class, ethnicity, security concerns, substance misuse (alcohol, smoking drug abuse).</p> <p>Consider whether the project will have effect on equity or equality.</p>

Cultural health practices	<p>Role of traditional health providers, use of medicinal plants and indigenous medicines. Health seeking behaviour: identifying where people go for treating different illnesses.</p> <p>Consider any changes that the project will have on access to or status of traditional health providers.</p>
Health services, infrastructure and capacity	<p>Physical infrastructure, staffing levels and competences technical capabilities health programmes (HIV/AIDS)</p> <p>Consider health service arrangements provided for workers.</p>
Non-communicable diseases	<p>Hypertension, diabetes, strokes, cardiovascular disorders, cancer, mental health chronic diseases typically from the region.</p> <p>Consider the likelihood of the project triggering an influx of such diseases.</p>

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