

## SECTION B: BASELINE ASSESSMENT

### CHAPTER B13: COMMUNITY HEALTH, SAFETY AND SECURITY

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## 13. COMMUNITY HEALTH, SAFETY AND SECURITY

### 13.1 INTRODUCTION

This Chapter of the ESIA describes the community health, safety and security baseline for Mongolia, Omnogovi *aimag* and Khanbogd *soum*. The Chapter provides key health data including patterns of morbidity and mortality, the incidence of communicable and non-communicable diseases, maternal and child health, nutrition and diet, health services provision, health insurance, and community security and safety.

Information on worker health and safety is included in *Chapter D19: Worker Health & Safety Management Plan*. Oyu Tolgoi and Rio Tinto as the manager of the Oyu Tolgoi Project have taken account of the Voluntary Principles on Security and Human Rights. The Rio Tinto Communities Standard includes a requirement for all operations to ensure that the Voluntary Principles are implemented when and where appropriate and applicable<sup>1</sup>. The Oyu Tolgoi Project has implemented the Voluntary Principles are implemented through the Oyu Tolgoi Site Security Response Plan.

### 13.2 METHDOLOGY

#### 13.2.1 Primary Data Collection

In order to establish a health baseline, Oyu Tolgoi commissioned a number studies of the regional and local health profile. In 2010, Oyu Tolgoi engaged the Mongolian research consortium Khukh Tenger Khugjil Konsortium (KTKK) to conduct a *Community Health Safety and Security Impact Assessment (HIA)*. The Consortium included: the PACT Institute, JTA International, the Mongolian Public Health Institute, the Foundation for Health Policy Promotion, and the Mongolian Centre for Development Studies. The methodology for the field studies was approved by the Scientific Committee of the Public Health Institute and by the Ethics Committees of the Ministry of Health. Fieldwork was undertaken in all four *soums* of the Indirect Project Area of Influence and in Khanbogd *soum* during October 2010.

As part of the HIA, KTKK conducted a *Health Resources Review (HRR)* of Omnogovi *aimag*. This review, completed in 2010, contains a description of 21 health facilities (10 Government and 11 private) within the *aimag*. The Review discusses the capacity of the facilities to service current population levels together with a view of service provision in relation to the expected influx to Omnogovi. The Review included a field survey of health facilities, interviews with the heads of the facilities (using a standard questionnaire and checklist), an analysis of secondary data and 60 in-depth interviews with key informants. Key informants included 27 health managers, 16 health experts and 17 local government officers. Nine of these interviews were with health professionals from Khanbogd *soum*.

#### 13.2.2 Data Limitations

Health statistical reporting is not available over a long enough period for Oyu Tolgoi to establish trends in some communicable and non-communicable diseases. In addition, some data are only available to 2007. Very little of the data available is disaggregated by gender.

Although the recent Health Impact Assessment (HIA)<sup>2</sup> and Health Resources Review (HRR)<sup>3</sup> provide some baseline data, further work will need to be undertaken by Oyu Tolgoi to fully understand the health profile of the Khanbogd *soum* population. Without this work, there is an insufficient baseline in order to assess the potential health impacts of mining operations in the *soum*.

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<sup>1</sup> Rio Tinto Communities Standard. Section 1.12.c

The Oyu Tolgoi Site Security Response Plan, January 2011 (internal document)

<sup>2</sup> Oyu Tolgoi Community Health Safety and Security Impact Assessment (2011)

<sup>3</sup> Health Resources Review (2010) Khukh Tenger Khugjil Konsortium

### 13.2.3 Secondary Data Review

Data have also been obtained from publicly-available information sources such as the Mongolian Ministry of Health (MOH) – particularly the *Health Indicator* tables, as well as the *soum* hospitals, the *soum* Cultural Centre, the Labour & Social Welfare Office and the *aimag* Nature & Environment Office and Professional Inspection Department. *Stakeholder Engagement*

Extensive stakeholder engagement was undertaken for the Health Impact Assessment (HIA) which informs this baseline study. Three groups of stakeholders in the process were identified through a stakeholder mapping exercise at an early stage of the HIA. These groups were:

- The communities in the defined Oyu Tolgoi impact areas, and their formal and informal leaders;
- Government and non-government agencies, with applicable knowledge and experience, who were potential sounding boards or actual partners during the design and implementation of the HIA. A group of these agencies became Resources Partners of KTKK; and
- A selection of Oyu Tolgoi managers, many of whom provided information and feedback during the HIA, who will have an influential if not decisive role with respect to the health care planning, or who may be managing related Oyu Tolgoi initiatives which address the social and environmental determinants of community HSS.

Key informant interviews were held with 51 people in the four impact *soums*, including local professionals, government officials and respected NGO and private sector representatives. In addition 172 participants attended 20 Focus Group Discussions. Focus group participants included employees, women, *soum* centre residents, herders, new migrants, contract workers and private sector workers in order to incorporate the views of these groups into the study.

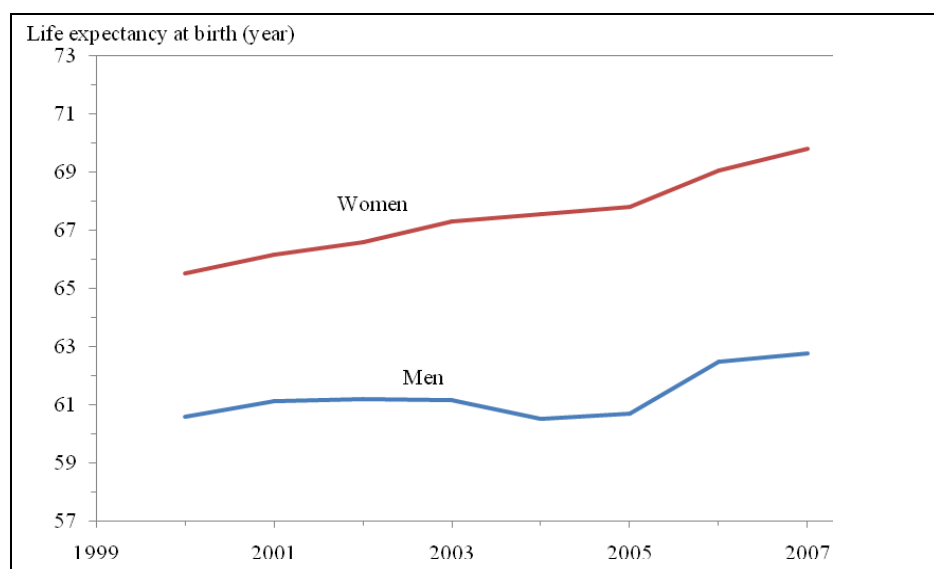
## 13.3 NATIONAL HEALTH PROFILE

### 13.3.1 Mortality and Morbidity

#### *Mortality*

Life expectancy at birth increased in Mongolia from 62.8 in 1992 to 67.2 in 2008, but with a clear gender gap. In 2008, for example, life expectancy at birth was 71.0 for women but 63.7 for men. Data for 2009 indicated life expectancy at 67.9 years although this figure is not disaggregated by gender.

**Figure 13.1: Life expectancy at birth, by sex, Mongolia, 2000-2007**



Source: HIA, KTKK, 2011

Since 2000, non-infectious diseases of the respiratory system, circulatory system, cancer and accidents have remained the leading causes of *mortality* (death) in Mongolia (although this may be at least partially due to the better recording of disease incidence).<sup>4</sup>

Each year, between 5,500-6,000 deaths (one in three of all deaths) are attributable to diseases of the circulatory system (heart and blood vessels).<sup>5</sup> Cancer is the second leading cause of mortality. In 2009, diseases of the circulatory system accounted for 38%, cancer 21%, and injury and intoxication 15% of all deaths (MOH 2010). To date, immunisation programmes have successfully controlled polio, tetanus, whooping cough and measles. However, communicable diseases which remain of concern include tuberculosis, sexually transmitted infections (STIs) and brucellosis. Diseases and injury related to changes in lifestyle (trauma, violence-related, traffic accidents and alcohol-related disease) have also shown a marked increase.<sup>6</sup>

### **Morbidity**

The most common causes of morbidity (illness) at the national level in 2009 were:<sup>7</sup>

- respiratory system diseases (31%);
- digestive system diseases (18%);
- genital-urinary system diseases (12%);
- circulatory system diseases (10%); and
- injuries caused by accidents and intoxication (7%).<sup>8</sup>

Viral hepatitis and STIs remain the most common infectious diseases in Mongolia. In 2009, Mongolia registered nearly 39,000 cases of infectious disease (MOH 2010), of which over 40% were STIs, though the actual percentage is undoubtedly higher as STI testing is not common, particularly for HIV. Viral hepatitis (18%), tuberculosis (11%) and respiratory infections (10%) were also prevalent.<sup>9</sup> Some of the same factors that contribute to the spread of disease in other low-income countries (such as lack of facilities and capacity to monitor the spread of disease) are also present in Mongolia; particularly in areas of higher population density and economic impoverishment, with limited access to health facilities.

Nationwide, the estimated HIV infection rate for adults has been increasing since 2002, although Mongolia is still classified as '*low-prevalence*' by the World Health Organisation (WHO). However, Mongolia is at risk of an HIV increase due to factors such as the high proportion of young people in the population, increased use and decreasing age of sex workers, and a rise in migration and population movements between countries (Russia and China have both shown rapid increases in HIV infection rates in recent years).<sup>10</sup> Alcohol consumption and alcohol-related illness is reported to be high, particularly for males. Drug use is not widespread in Mongolia, but is not officially monitored.<sup>11</sup>

### **Occupational Disease**

Dust-induced chronic bronchitis and pneumoconiosis currently account for the largest relative share (61.9%) of occupational diseases in Mongolia, and the number of cases is increasing annually.<sup>12</sup> Between 1967 and 2007, there were 8,900 medically-diagnosed cases of occupational diseases in Mongolia. Of these, 5,527 were confirmed cases of dust-induced chronic bronchitis and pneumoconiosis. Of the nearly

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<sup>4</sup> Health indicators, 2007, 2008, page 31, National Centre for Health Development, Ulaanbaatar.

<sup>5</sup> World Health Organisation (WHO), Mongolia: Country Health Profile, 2008.

<sup>6</sup> World Health Organisation, Country Cooperation Strategy, Mongolia 2006.

<sup>7</sup> Oyu Tolgoi Community Health Safety and Security Impact Assessment 2011.

<sup>8</sup> Intoxication refers to alcohol-related disease.

<sup>9</sup> Oyu Tolgoi Community Health Safety and Security Impact Assessment 2011.

<sup>10</sup> Government of Mongolia, Mongolia Needs Assessment Report, 2007.

<sup>11</sup> United Nations Programme on HIV/AIDS: Mongolia UNGASS 2010 Country Progress Report.

<sup>12</sup> Source: International Conference: Contemporary Mongolia - Transitions, Development and Social Transformations. November 14-17, 2008, Vancouver, Canada. Conference presentation abstracts. <http://www.iar.ubc.ca/programs/innerasia/contemporarymongoliaconferencenov2008/conferenceabstracts.aspx>

1,000 cases of pneumoconiosis in Mongolia in 2007, the majority were attributed to anthracic-silicosis (47.6%) and silicosis (47.9%).

Since 2000, 82% of the diagnosed cases of occupational lung disease in Mongolia have come from **coal mines and power plants**; a further 11% came from construction and industries producing construction materials, 3% from manufacturing, 0.7% from social services, and 0.8% from agriculture. Moreover, it is likely that many cases go unreported, especially in informal economy occupations such as the small-scale informal mining (artisanal) sector.

In Mongolia, between 2000 and 2007, the occupational accident rate was 37.6 per 100,000 workers and the occupational accident rate in the mining sector was 297.14 per 100,000 workers. The average fatality rate in the mining sector was 78.6 per 100,000 miners.

Many informal miners are diagnosed with work-related illnesses, including musculoskeletal disorders (37.7%), respiratory illnesses (16.1%), and eye diseases (10.4%).<sup>13</sup> There are currently no data available on the prevalence of occupational lung diseases within the informal gold mining sector, nor are work-related illnesses or industrial accidents officially reported to local authorities or health authorities.

### 13.3.2 Maternal and Child Health

At the end of the 1980s the total fertility rate<sup>14</sup> (TFR) was approximately 4.5 children per woman, and by 1993 this figure had dropped to 2.5 children per woman, with a further decrease during the period from 2000-2003 to a level of around 2. From 2003-2009, the total fertility rate remained largely stable at the level of circa 2.2.

Mongolia has made substantial progress in reproductive health in the last 10 years. With some fluctuation, the maternal mortality ratio (MMR) has fallen from 158 per 100,000 live births in 2000 to 49 per 100,000 live births in 2008. In 2009, the MMR again rose to 81 per 100,000; the rate increased because of 17 maternal deaths from **H1N1 influenza** (out of total 56 maternal deaths that year).

Access to maternal care remains difficult in remote areas, and it has been shown that over 60% of maternal deaths occur among herdswomen and the unemployed (UNFPA 2009). In an earlier survey in 2000, women from herding families accounted for 30% of all deliveries but 50% of maternal deaths. A follow up study in 2001 attributed those deaths to low quality of care (36%), delay in emergency response (28%) and distance from a medical facility. The Government of Mongolia encourages mothers from remote areas to come and wait near the health facility before the expected delivery date (World Bank 2003).

According to WHO, the Mongolian under-five mortality rate has decreased by 75% in the last 10 years, from 87.5 per 1,000 live births in 1990 to 23.6 per 1,000 in 2009 (WHO 2009). The infant mortality rate (IMR) decreased to 20.2 per 1,000 live births in 2009 from 63.4 per 1,000 live births in 1990. The three leading causes of infant death are: perinatal disorders (52.4%), respiratory conditions (19.2%), and congenital/chromosome disorders (11.2%). The proportion of child deaths from respiratory infection and diarrhoea has fallen, whilst the shares of neonatal deaths and injury have increased. Neonatal deaths (in the first month of life) represent 62% of all deaths in the first year (infant deaths) and 80% of neonatal deaths occur in the first week of life. Reduction of these deaths requires good pregnancy and antenatal care, but particularly urgent is the need to decrease delays in reaching skilled delivery care and the availability of adequate equipment during and after delivery.

The *Health Sector Strategic Master Plan*,<sup>15</sup> a long-term policy framework and plan for 2006-2015, was developed by the Mongolian Ministry of Health (MOH). This Plan represents the Ministry's comprehensive documentation of its future direction and incorporates the Government's commitment to the Millennium Development Goals (MDG). One of the top priorities of the Master Plan is to improve the health of mothers. A key outcome, to be achieved by 2015, includes meeting the Millennium Goal of reducing the maternal mortality rate from 158 in 2000 to 50 in 2015.

<sup>13</sup> Mining Health in Mongolia" (2008) Oyuntogos Lkhasuren, Preventative Medicine, Health Sciences University of Mongolia.

<sup>14</sup> Average number of children that would be born to each woman if she had the current fertility rates throughout her childbearing years.

<sup>15</sup> Source: Health Sector Strategic Master Plan 2006-2015 Ministry of Health Government of Mongolia (2005).

### 13.3.3 Nutrition and Diet

Problems of both over and under-nutrition exist. Due to unemployment and poverty, malnutrition threatens the health of mothers and children. Prevalence rates for child malnutrition, including wasting, stunting and underweight children, have generally fallen since 2000, but over a quarter of children were stunted (below expected height for age) in 2004. Prevalence rates for iodine and iron deficiency have fallen in the last two to three years, but remain a problem, with 22% of children under five years of age being anaemic (WHO, 2009).

A decrease in the net income level of the population has reduced food security and the intake of micronutrients among vulnerable groups, particularly children aged 0-5 years. In addition, 24% of children under 5 years old have two or more symptoms of Vitamin D deficiency (UNICEF website). The Third National Nutrition Survey, conducted in 2004, found that the prevalence of underweight children had declined by 50% (from 12.4% in 2000 to 6.2% in 2004) and stunting by 28% (from 27.4% in 1999 to 19.6% in 2004). However, there are still some micronutrient deficiency disorders among children. For herders, the transition from a nomadic to an urban sedentary lifestyle, and inappropriate nutritional intake, are factors influencing the appearance of non-communicable disease and metabolic illnesses.

### 13.3.4 Health Services

The health care system in Mongolia is characterised by three levels of care: primary, secondary and tertiary. Primary health care is provided mainly by family group practices (FGPs), also known as family doctor practices (FDPs), in Ulaanbaatar, *aimag* centres, and in *soum* and inter-*soum* hospitals within the *aimags*. Secondary care takes place in district general hospitals in Ulaanbaatar and in *aimag* general hospitals. Tertiary care is provided only in the major hospitals and specialised centres in Ulaanbaatar.<sup>16</sup>

The health care system is a statutory system organised according to administrative divisions. Public health responsibilities are shared between:

- Ministry of Health (MOH) - responsible for planning, policy, regulation, monitoring, and for specialist hospitals (in Ulaanbaatar);
- Health Insurance Fund - receives income-related contributions and subsidies from the State Social Insurance General Office (SSIGO), the implementing agency of the Ministry of Social Welfare and Labour (MoSWL), and makes payments to hospitals based on a predetermined level of care; and
- Provincial and rural district authorities - manage local public hospitals and allocate funds from central government and the Health Insurance Fund.

Private sector involvement in the provision of health care services is growing in Mongolia. Private hospitals, outpatient clinics, traditional medicine hospitals and clinics, and laboratories are being established.<sup>17</sup>

### 13.3.5 Health Care Financing<sup>18</sup>

#### **Health Expenditure**

Health expenditure as a share of GDP has dropped from 4.9% in 2001 to 3.2% in 2008. According to the WHO Global Health Database this puts Mongolia in the **bottom fifth** of all countries. Data from the National Statistical Office of Mongolia show that per capita health expenditure increased from 33.2 thousand MNT (US\$ 23.00) to 80.0 thousand MNT (US\$ 55.40) between 2005 and 2008 in real terms.

A predominant share of the health expenditure is assigned to secondary and tertiary care, leaving only 32.2% to primary health care. In 2002, only 4.7% of the total health expenditure was spent on prevention and public health services, and 77% of the total expenditure on public health was mobilized through international loans and grant aid. A review of the health sector budget for the period 2000-2008 revealed

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<sup>16</sup> World Health Organisation (WHO), Mongolia: Country Health Profile, 2008.

<sup>17</sup> World Health Organisation, Country Cooperation Strategy for Mongolia 2010-2015 (2010).

<sup>18</sup> World Health Organisation, *Ibid*, p. 14-15.

the main contributors to be the Government (79%) and the Health Insurance Fund (18%), followed by revenues from fees for services and supplementary activities (3%).

### **Health Insurance**

Health insurance in Mongolia is regulated under the *Social Health Insurance Law* of 2003. Insurance is provided, free of charge, to certain groups of people classified as 'vulnerable': children under the age of 16, pensioners and persons without other sources of income, workers on paternity or maternity leave looking after children under the age of two (under the age of three in the case of twins), military personnel on active duty, and people specified in Article 18 of the *Social Welfare Law*. In addition, insurance is provided to employed personnel on joining a company – employees receive a stamp in their Employee Handbook confirming insurance coverage. For all others, the Social Insurance National Council (SINC) sets the rates as follows:

- vulnerable people MNT 500/month from the Human Development Fund;
- prisoners MNT 300/month;
- students MNT 500/month;
- herders MNT 500/month; and
- unemployed MNT 500/month.

Health insurance coverage at the national level (introduced in 1994) reached 78% of the population in 2007, an increase from 74% in the previous year. Although around three quarters of the population are covered by the Mongolian Social Health Insurance (SHI), a number of problems with the system have been identified:<sup>19</sup>

- a lack of understanding and information about SHI;
- people do not see the benefits of SHI;
- no insurance incentives exist;
- benefits emphasize in-patient care;
- subscribers do not benefit from discounted drug prices offered;
- civil registration does not capture the migrant population on a timely basis;
- there is a growing dissatisfaction with health services and care among the population;
- there is a lack of qualified doctors in rural areas; and
- inadequate access to services.

According to the *Social Health Insurance Law* of 2003, the Health Insurance Fund is financed from payments from employees and from employers, State subsidies for vulnerable persons, bank interest on deposit in SHI accounts, and fines imposed for late payment of SHI contributions by all parties. The Government of Mongolia sets the premium rate for health insurance for the formal sector (no more than 4% of salary, of which 2% is paid by the employee and 2% by the employer). SINC sets rates for other population groups except owners of business entities and the self-employed as specified in Article 6.1.2 of the HI Law; SSIGO sets the premium rate (3% monthly) for this group based on income reported by them to the taxation office. Voluntary health insurance is open only to foreign residents and persons without citizenship. The monthly premium rate is MNT 4,000.<sup>20</sup> As of 2008, around 82% of health insurance fund expenditure was on inpatient care, 14% on outpatient care, and the remaining 4% on discounted drugs, sanatoriums and other costs.

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<sup>19</sup> From a survey of 1,900 clients of health providers in UB cited in *Mongolia: Promoting Sustainable Financing and Universal Coverage through Social Health Insurance (2009)*

<sup>20</sup> <http://www.ndaatgal.mn>

### 13.3.6 Community Safety & Security

#### **Crime**

The Criminal Code of Mongolia has defined around 300 crime categories. Most recorded crimes, both in urban and rural areas, are related to crimes against human rights, freedom and ownership rights.<sup>21</sup>

#### **Policing**

Policing in Mongolia is governed by the Law on Police, the Law on Prevention against Crime and the Law on Administrative Responsibility. There is a network of police stations across Mongolia at the regional and local level. According to the Law on Administrative Responsibility, community inspectors are responsible for keeping social order. A Community Inspector is a person authorised to prevent or stop administrative offences, such as assaults, illegally owning firearms and knives, littering in inappropriate areas, etc. According to the laws, police officers from the Social Order Department, as well as citizens, are permitted to work as Community Inspectors.

#### **Injury and Accidents**

At the national level, motor vehicle accidents ranked first, suicide second and interpersonal violence and homicide the third leading cause of death from injury. Death from interpersonal violence is also a major cause of hospital admission in Mongolia.

Injuries associated with accidents are also increasing. The World Health Organisation (WHO) recorded 507 road traffic deaths in Mongolia in 2007, a rate of 19.3 per 100,000 people. This rate was 3.3 times greater for males than for females. This is higher than China with a rate of 16.5, but lower than for neighbouring Russian Federation (25.2) and Kazakhstan (30.6). The increase in injuries associated with accidents may be attributable in part to increasing vehicle traffic associated with mining and other activities and also due to the lack of a driving safety culture (e.g. seatbelts are not commonly worn). Interviews with medical experts confirmed that injuries from traffic-related accidents are becoming one of the most common reasons for seeking medical assistance.

#### **Human trafficking**

Mongolia prohibits all forms of human trafficking through Article 113 of Mongolia's Criminal Code. Mongolia is a source country, and to a much lesser extent, a destination for men, women, and children who are subjected to trafficking, specifically forced prostitution and forced labour. Trafficking within Mongolia often involves women and girls forced to work in saunas or massage parlours where they are subjected to forced prostitution.<sup>22</sup> The trafficking of women and children is a new phenomenon that emerged during the transition period. The Mongolian Gender Equality Centre surveyed women and children who had been trafficked to learn their perspectives on the contributing factors. They listed the following: high levels of poverty in the countryside, higher salaries offered abroad, the desire to live in other cultural environments, and the desire to become independent. False advertising has been an effective recruitment tactic. Ulaanbaatar and other major urban centres, including Darkhan and Erdenet in Mongolia and Erlian in Inner Mongolia, are the main recruitment centres for traffickers. China and Macau are the most common destinations.<sup>23</sup>

#### **Domestic violence**

The incidence of domestic violence is reported as being very high in Mongolia. A UNIFEM study estimated that one in ten Mongolian women suffered from some sort of violence.<sup>24</sup> The Mongolian Government adopted a Law on Domestic Violence in 2005. The United Nations Committee on the Elimination of Discrimination Against Women (CEDAW) has raised concerns about the implementation of aspects of the legislation, including services provided to victims. It states that although public and media

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<sup>21</sup> Oyu Tolgoi Project Social, Economic and Environmental Subset, Centre for Policy Research, Population Training and Research Centre, 2009

<sup>22</sup> Trafficking in persons report 2010 US Dept of State

<sup>23</sup> Situation Analysis of Children and Women in Mongolia. UNICEF 2009

<sup>24</sup> Violence Against Women and Legal Framework in Mongolia, Centre for Human Rights and Development et al. UNIFEM. 2002

discussion has increased, the incidence of domestic violence remains high. Social and cultural norms also reportedly discourage victims to report domestic violence. Also, in the four years after the Law came into force only around 20 prosecutions had been taken to court.<sup>25</sup> A National Programme on Domestic Violence was formulated in 2007 to work to reduce the level of domestic violence.

### **Prostitution**

While Mongolian law does not outlaw prostitution, it does prohibit pornography, and the Mongolian Code outlaws the organisation and recruitment of sex workers under Article 124.

UNICEF reports that the number of sex workers in Mongolia is growing with more younger entrants into the sex business in the capital city, other large cities and border areas. There has been an increase in commercial sexual exploitation of young girls, and the number of young girls engaged in sex business is increasing. For example, there is estimated to be more than 4,000 commercialised sex workers in Ulaanbaatar.<sup>26</sup>

The Second Generation Sentinel Surveillance (SGSS) in 2007 revealed that the percentage of young men who had sex with female sex workers in the previous 12 months was 5.8 per cent,<sup>27</sup> An NGO survey of 91 female sex workers aged between 12 and 18 years reported the main factors contributing to their engagement in the sex trade were such family crises as domestic violence, harsh economic conditions (“income poverty”), “quality of life” poverty, a lack of knowledge, a demand for underage girls because of their virginity and the low probability of their having STIs/HIV, and other social and cultural factors. Almost all of the girls worked with intermediaries, pointing to the development of an organised sex trade.<sup>28</sup>

## **13.4 REGIONAL HEALTH PROFILE**

### **13.4.1 Mortality and Morbidity**

#### **Mortality**

In 2009, the five leading causes of mortality in Omnogovi *aimag*<sup>29</sup> were circulatory system disease (20.8%), cancer (12.3%), external causes, including accidental injury and poisoning (10.3%), digestive system disease (5.3%), and respiratory system disease (2.7%) (see *Table 13.1*). Whilst circulatory system disease and digestive system disease incidence appears to decrease over time, mortality rates can fluctuate from year to year therefore a longer time series would be needed to confirm this.

**Table 13.1: Mortality Rates, 2005-2009 (Omnogovi Aimag)**

Condition	Omnogovi 2005		Omnogovi 2007		Omnogovi 2009		Mongolia 2009	
	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate
Circulatory system	1	25.9	1	21.8	1	20.8	1	21.7
Cancer	2	10.6	3	7.5	2	12.3	2	11.9
Injury/ poisoning	4	8.4	2	10.9	3	10.3	3	8.7
Digestive system	3	9.5	4	7.0	4	5.3	4	4.8
Respiratory System	5	4.3	5	1.9	5	2.7	5	2.8

Source: National Centre for Health Development, *Health indicators, 2005-2009*

<sup>25</sup> Implementation of the CEDAW in Mongolia: Concluding observations of the UN Committee on the Elimination of Discrimination against women 2008 Swiss Development Corporation

<sup>26</sup> UNICEF Country Report: Mongolia (2006) Consultation on Children and HIV/AIDS

<sup>27</sup> Second Generation HIV / STI Surveillance report, 2007 Mongolia. Ministry of Health/WHO/Global Fund (2008)

<sup>28</sup> Situation Analysis of children and women in Mongolia. UNICEF 2009.

<sup>29</sup> Oyu Tolgoi Community Health Safety and Security Impact Assessment 2011

## Morbidity

The five leading causes of morbidity (illness) in Omnogovi *aimag*, as measured by use of or admission to the health care system, were diseases of the respiratory system, digestive system, genito-urinary tract and circulatory systems, cancers of the lung and liver and external causes (injury, accidents and intoxication) (see *Table 13.2*). Illness due to respiratory, digestive and genito-urinary disease was slightly higher in rural areas while the incidence of injury and cardio-vascular disease was higher in urban areas (i.e. *soum* centres). In Omnogovi *aimag*, all the rates of the top five causes of illness increased between 2007 and 2009.

**Table 13.2: Outpatient Morbidity Omnogovi, 2009**

Health Condition	Omnogovi 2007		Omnogovi 2009	
	Rank	Rate/10,000 People	Rank	Rate/10,000 People
Respiratory system	1	1513.4	1	2033.3
Digestive system	2	953.2	2	991.8
Genito-urinary system	3	683.7	4	746.7
Circulatory system	4	726.6	3	837.2
Injury/ Intoxication	5	364.8	5	380.3

Source: *Health Indicators 2010, KTKK*.

Morbidity causes within the *aimag* are closely correlated with those at the national level with the exception of respiratory disease which is notably higher in the *aimag*. Medical experts interviewed under the HIA raised two additional concerns for the area: a rise in asthma and bronchitis cases associated with increasing dust and digestive system complaints associated with diminishing water quality. Interviews with local herders also attributed many of their health concerns to dusty conditions and poor water quality<sup>30</sup>.

## Communicable Diseases

In Omnogovi *aimag*, the rate of reported infectious disease per 10,000 population increased from 41.3% in 2005 to 58.8% in 2009<sup>31</sup> (*Table 13.3*). There are several possible explanations for the increases, for example, better reporting of disease incidence and migration of outsiders to the *aimag*. Reported cases of syphilis, gonorrhoea, shigella, hepatitis and tuberculosis in particular increased over the five year period from 2005-2009. The 2007 and 2008 hepatitis figures represent an outbreak – as this disease is transmitted through contaminated water or food, this figure demonstrates the susceptibility of the *aimag* populations to sanitary and hygiene conditions.

**Table 13.3: Reported Infectious Disease Rates for Omnogovi Aimag, 2005-2009**

Infectious Disease	Description	Total Cases per 10,000 population				
		2005	2006	2007	2008	2009
Syphilis	Syphilis and Gonorrhoea are caused by bacterial infections, whilst trichomoniasis is caused by a parasite. Syphilis and gonorrhoea can also be transmitted from mother to child during pregnancy and childbirth, and through blood products and tissue transfer.	5.0	1.5	4.2	5.9	11.8
Gonorrhoea		3.2	2.4	3.8	5.2	5.9
Trichomoniasis		9.1	8.0	9.3	3.6	6.3
Shigellosis	Shigella is a genus of bacteria that are a major cause of diarrhoea and dysentery. The bacteria are transmitted by ingestion of contaminated food or water, or through person-to-person contact. Shigellosis can be treated with	4.2	7.8	1.7	4.4	8.9

<sup>30</sup> Ukhaa Khudag (UHG) Project, Draft Social and Environmental Impact Assessment, UHG Phase II, Energy Resources LLC, September 2009.

<sup>31</sup> Oyu Tolgoi Community Health Safety and Security Impact Assessment 2011

Infectious Disease	Description	Total Cases per 10,000 population				
		2005	2006	2007	2008	2009
	antibiotics, although some strains have developed drug resistance.					
Hepatitis	Hepatitis is an inflammation of the liver, caused by a viral infection. Hepatitis A and E are typically caused by ingestion of contaminated food or water. An outbreak of Hepatitis A in 2007, involving more than 370 people, was probably caused by water, soil or food contamination. The symptoms of hepatitis include jaundice, dark urine, extreme fatigue, nausea, vomiting and abdominal pain.	7.0	11.9	134.1	73.0	8.0
Meningococcal infection	Meningococcal meningitis is a bacterial infection that can be serious, or even fatal, if not treated quickly. It is spread through contact with droplets from the coughs and sneezes of people with the condition.	0	0.4	0.4	0	0.6
Tuberculosis	Tuberculosis is an infectious bacterial disease caused by Mycobacterium tuberculosis, which most commonly affects the lungs. It is transmitted from person to person via droplets from the throat and lungs of people with the active respiratory disease. The symptoms are coughing, sometimes with sputum or blood, chest pains, weakness, weight loss, fever and night sweats. Tuberculosis is treatable with antibiotics.	4.1	6.5	5.7	5.7	6.7
Brucellosis	Brucellosis is a bacterial disease which mainly infects cattle, goats, sheep, camels and dogs. Humans generally acquire the disease through direct contact with infected animals, by eating or drinking contaminated animal products, or by inhaling airborne agents. The majority of cases are caused by ingesting unpasteurized milk or cheese from infected goats or sheep. Person-to-person transmission is rare. The disease causes flu-like symptoms, including fever, weakness and weight loss.	1.6	0.2	1.1	1.0	-
Hand, foot and mouth disease	Hand, foot and mouth disease is a common infectious disease whose main clinical symptoms include mouth ulcers and vesicles on the hands, feet and mouth. The infection occurs most often in children, but can occur in adolescents and occasionally in adults. In most cases, the disease is mild and self limiting, but more severe clinical presentation with neurological symptoms such as meningitis, encephalitis and polio-like paralysis may occur.	-	-	1.1	2.1	0.2

Source: Health Department Omnogovi aimag, 2005-2009, cited in Health Impact Assessment 2010.

No case of HIV/AIDS has yet been reported in the *aimag*. Testing is available, but is reportedly not commonly done. Government officials, health staff and community leaders report an increasing level of commercial sex workers and incidence of other STIs. Out of the 42 persons surveyed in the Subset survey from selected *soums* as part of the target group population at risk of STIs/HIV/AIDS, 86% reported using medicines and injecting drugs without doctors' supervision or prescriptions.

### **Alcohol and Drug Use**

Alcohol use is considered to be one of the major social health problems in Mongolia. The Health Department of Omnogovi *aimag* holds some data on tobacco and alcohol use, and a targeted study of Omnogovi *aimag* 2008 also provided some data. Oyu Tolgoi undertook a survey of lifestyle concerns including alcohol and drug use in June 2008 for all Omnogovi *aimag soums*. The study indicated that one-third of survey participants use tobacco, and two-thirds of them drink alcoholic beverages.

The rates of alcohol-related disease incidence are much higher for men than women.

Alcohol is estimated to be directly responsible for about 42% of all trauma cases in the population aged 18 years and above.<sup>32</sup> Reported cases of intoxication in Mongolia are generally due to alcohol<sup>33</sup> and consumption is generally higher among males. Health staff interviewed for the Health Impact Assessment (HIA) also stated that admissions for alcohol-related injury and accidents, as well as for acute alcohol intoxication, have been increasing at all the *soum* hospitals. Other substance abuse is not well monitored in the *aimag* (or at the national level); therefore no reliable statistics are available on other drug issues.

In 2007 in Omnogovi *aimag* alone, 3,076 people were treated in alcohol rehabilitation centres. This was a 16% increase compared to the previous year.<sup>34</sup> The increase in alcohol consumption in the local area mirrors a major social problem for many other parts of Mongolia. For example, alcohol has become such a social problem in the *aimag* that every Wednesday is designated an “alcohol free” day when there is a ban on buying or selling alcohol anywhere. No recreational drug use was reported amongst young people in the HIA survey.

### 13.4.2 Maternal and Child Health

#### **Maternal Health**

Around 82% of pregnant women within Omnogovi *aimag* receive early antenatal care through the *soum* hospital and midwives service (HIA, 2011). However, maternal mortality remains high at 170 deaths per 100,000 live births in 2010. Maternal deaths have been attributed to a combination of low quality pre-natal care (36%), delay in emergency response by medical professionals (28%) and distance from a medical facility.

Access to maternal care remains difficult in remote areas with over 60% of maternal deaths occurring among herdswomen and the unemployed (UNFPA 2009). As maternity services are provided in the regional hospital, pregnant women may have to travel long distances and, in some cases, then experience a long wait until delivery (World Bank 2003). For Omnogovi, mothers close to delivery would have to travel to and wait at the health facility in Dalanzadgad (the *aimag* capital). The policy of delivering in the regional hospital is intended to ensure skilled care during delivery for both mother and child, but is not without its difficulties in terms of travel distances, waiting times and disruption to family life.

#### **Child Health/Child Nutrition**

In the *aimag*, the infant mortality rate decreased between 2005 and 2007 from 29 to 22 per 1,000 live births and has continued to decrease since then.<sup>35</sup> The main causes of infant mortality are stillbirth, prenatal pathology, and congenital malformation. APGAR scores (the physical condition scoring system for newborns) have remained at the same low level for years. Whilst the child mortality rate (deaths under the age of 5 years) has been declining for the past few years, the issue of health for rural children in *soums* is still a subject of concern to the authorities.<sup>36</sup>

Child immunisation coverage in Omnogovi *aimag* and its *soums* is high, as it is throughout Mongolia. This includes BCG, Penta vaccine, BCO and coverage for poliomyelitis and measles.

### 13.4.3 Nutrition and Diet

Prevalence rates for child malnutrition, including wasting, stunting and underweight children, have generally fallen since 2000, nonetheless, over a quarter of children in the *aimag* were below the expected height for their age in 2004 (HIA). Prevalence rates for iodine and iron deficiency in children also fell during this period, but 22% of children under five years of age are still reported to be anaemic (WHO, 2009). In addition, 24% of children under 5 years old have two or more symptoms of Vitamin D deficiency (UNICEF website).

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<sup>32</sup> Ukhaa Khudag (UHG) Project, Draft Social and Environmental Impact Assessment, UHG Phase II, Energy Resources LLC, September 2009.

<sup>33</sup> Oyu Tolgoi Community Health Safety and Security Impact Assessment 2011.

<sup>34</sup> Oyu Tolgoi Project South Gobi Social Economic and Environmental Baseline Study 2009

<sup>35</sup> Oyu Tolgoi Community Health Safety and Security Impact Assessment 2011.

<sup>36</sup> Ministry of Health, Soum hospital development, 2004, page 13, Ulaanbaatar. Cited in USEBS.

### 13.4.4 Health Services

#### Hospitals and Clinics

There is a state-owned hospital in each *soum* within the *aimag* which provides basic health care to local residents at no cost (all government facilities provide free health care in Mongolia). *Soum* hospitals are classified into three levels according to the catchment population, with a planned number of positions for medical staff as described below:

- Level 1: catchment population of 4,500 and above; should have at least 7 doctors;
- Level 2: catchment population 3,001-4,500; should have at least 3 doctors (this is the appropriate level for Khanbogd *soum*); and
- Level 3: catchment population under 3,000; should have at least 1 doctor.

A summary of the health facilities in Dalanzadgad, Khanbogd, Manlai and Bayan Ovoo is shown in *Table 13.4*.

**Table 13.4: Health Facilities in Omnogovi Aimag**

Health service providers	Health Care Level (Primary, Secondary, Tertiary)	No. of Beds (Capacity)
<b>Dalanzadgad <i>soum</i> (DZ is the <i>aimag</i> capital)</b>		
Dalanzadgad Hospital	Secondary health care provider	125
FGPs	Primary health care provider	-
Border hospital	Primary health care provider for border security officers	6
Army hospital	Primary health care provider for army officers	7
Centre for infectious diseases	Provides management support to other health care facilities on infectious diseases. Also runs prevention programmes.	n/a
<b>Khanbogd <i>soum</i></b>		
<i>Soum</i> hospital	Primary health care provider	9
“Amin bulag”	Clinic for gynaecology	n/a
SOS medica centre	Emergency response team	n/a
<b>Manlai <i>soum</i></b>		
<i>Soum</i> hospital	Primary health care provider	9
<b>Bayan-Ovoo <i>soum</i></b>		
<i>Soum</i> hospital	Primary health care provider	9
<b>Private hospitals</b>		
“Khatan zayat gobi”	Secondary health care provider for gynaecology	9
“Khunleg gobi”	Ultrasound, coagulation machine and contraception for women	n/a
“Ninj achlal”	Secondary health care provider for children	5
“Buten jargal”	Hospital for dentistry and neurology	5
“Jargaliin ekh bulag”	Dentist – primary level	n/a
“Frodent”	Dentist – primary level	n/a

Overall, Omnogovi *aimag*'s government health facilities are reported to be in relatively poor condition as most were built in the late 1970s to early 80s. Feedback from healthcare specialists via the HIA highlighted the limitations of the local health care system, such as overcrowding of medical facilities, in particular in the *aimag* capital Dalanzadgad. There was also the perception that health care remained inaccessible to the rural population - either financially or in terms of distance and the opportunity cost of travel. For treatment beyond the capabilities of the local hospitals, patients are referred to the Dalanzadgad (DZ) General Hospital, the Ulaanbaatar Regional Hospital or other specialised centres in UB (usually at cost if not covered by their insurance or if not a medical emergency).

### Personnel, Equipment and Supplies

Staffing in Omnogovi's government health facilities in 2009 reached 87% of the national standard<sup>37</sup> i.e. 87% of allocated health staff positions were filled. The *aimag* general hospital and inter-*soum* hospital both had 90% of their positions filled; the FGPs had 85% and *soum* hospitals 82%. Table 13.5 summarises the current staffing levels in the *aimag* government health facilities and Project area *soums*. The study found that the government health providers are working against shortages of budget, ancillary staff (e.g. physicians' assistants and nurses) and also have limited in-service training.

**Table 13.5: Health Service Personnel in Omnogovi Aimag (2009)**

Facility	Doctors	Nurses	Laboratory	Other	Provision Level vs. Standard*
Dalanzadgad <i>Aimag</i> Hospital	43	52	9	40	90%
Khanbogd <i>Soum</i> Hospital	4	4	1	8	82% Exceeds minimum requirement for doctors.
Bayan-Ovoo <i>Soum</i> Hospital	3	3	-	10	82%
Manlai <i>Soum</i> Hospital	3	5	1	71	82%
<b>Total</b>	<b>53</b>	<b>64</b>	<b>11</b>	<b>72</b>	

Source: Aimag Health Department; Field Study, 2010. \* reflects number of positions filled versus national MOH standard.

According to national statistics and expert interviews, hospitals in Omnogovi have varying levels of equipment and supplies, with significant shortages of some equipment. For example:

- whilst some equipment supplies in hospitals meet the minimum standards (e.g. stethoscopes, blood pressure monitors, child-weighing scales, autoclaves), there are shortages of other types of basic equipment in most *soum* hospitals (for example, thermometers, stretchers, light sources, examination tables, and water distillers);
- the supply of emergency medicines is also insufficient in most *soums*. At the time of the HIA, only Manlai *soum* hospital met the minimum standards for emergency hospital medicine;
- the provision of uniforms, linen and staff safety supplies are also reportedly insufficient in number and quality in Omnogovi hospitals, including cotton aprons, overalls, cotton gloves, and protective aprons; most *soum* hospitals do not have patient robes; and
- the number of beds for paediatric rooms, as well as isolation rooms, was reported to be below national guidelines for all *soums*.

### 13.4.5 Health Care Financing

Insurance and costs at the *aimag* level are the same as those described under the national level (see Section 13.3.5 above).

### 13.4.6 Community Safety & Security

#### Crime

Crime levels in Omnogovi *aimag* are lower than national levels, but have increased in recent years. In 2007, the number of recorded crimes per 10,000 people was 106 which is lower than the national average of 125. Khanbogd levels are lower still at 98 per 10,000 people. Crime rates, per 10,000 people for Khanbogd *soum* and the *aimag* are shown in Table 13.6.

According to the police department of Omnogovi *aimag*, 502 crimes by 432 offenders were recorded in 2007 and the crime detection rate was 30%. In 2007 1,160 people were detained in detention centres.<sup>38</sup>

<sup>37</sup> Oyu Tolgoi Community Health Safety and Security Impact Assessment 2011.

<sup>38</sup> Oyu Tolgoi Project South Gobi Social Economic and Environmental Baseline Study 2009

**Table 13.6: Crime rate per 10,000 people, Omnogovi aimag, 2007**

	Average crime rate for aimag
Overall crime rate	106
Number of crimes against human life and health	20
Number of murders	0.6
Number of crimes against ownership rights	39
Summertime robberies	34
Number of livestock thefts	2
Number of robberies	2
Number of crimes against environmental protection	4
Number of crimes against traffic safety	8
Number of white collar crimes	28

Source: Police Department, Omnogovi aimag, 2008 cited in Subset

### **Policing**

A regional police station is located at Dalanzadgad with 90 officers, and each *soum* also has a designated police unit. There are seven officers in Khanbogd, and two officers in both Bayan-Ovoo and Manlai (2011 figures).<sup>39</sup> Informal ways to keep social order are community-based, voluntary activities. During the socialist period, citizens worked as patrols in their local territories to keep social order. Currently, some groups called Child Police (based at schools) and various NGOs undertake similar activities but to a very limited degree. From related surveys, there are three such groups in Omnogovi aimag.<sup>40</sup> Also amongst herders, *khot ails* (customary neighbourhoods), work together to prevent livestock theft.

### **Security**

To the south of Oyu Tolgoi is the national border with China and the Gashuun Sukhait border point. Security issues raised by the proximity of the border point to Oyu Tolgoi include the potential for illegal migrant workers to cross the border from China into the local area, and also the possibility of illegal trade increasing as the population of the area around Oyu Tolgoi grows and presents a growing market for goods and services.

There is a police presence during periods when the border is open. Activity at this border post peaked in 2001 when the cross-border trade in cashmere was booming. Anecdotal information suggests that law and order was less strictly controlled at this time and that problems with drinking, drugs and prostitution were evident. Experience at other more developed Mongolia-PRC border crossings indicates that there is potential for problems with drug and alcohol abuse, prostitution and human trafficking but that these may lie more on the PRC-side of the border.<sup>41</sup> Other research confirms that women are being trafficked from Mongolia to mainland China.<sup>42</sup>

Mongolia's frontier guarding operations were established in 1933. The General Department for Border Guarding is currently responsible for implementing the existing laws and regulations on border guarding, as well as the requirements of international agreements on border guarding. Border disputes, such as livestock theft, hunting and illicit trading in national border areas, have occurred and frontier personnel have detected and resolved these according to applicable laws. For instance, 194 cases involving 606 people having violated or suspected of plotting to violate the national frontier laws were examined during the first few months of 2007.<sup>43</sup>

<sup>39</sup> October 2011 *Soum* Police Department figures

<sup>40</sup> Oyu Tolgoi Project Social, Economic and Environmental Subset, Centre for Policy Research, Population Training and Research Centre, 2009

<sup>41</sup> Oyu Tolgoi: Influx Risk Assessment. Barclay and Associates 2007

<sup>42</sup> Combating human trafficking in Mongolia: issues and opportunities 2003-2004

<sup>43</sup> Morning Newspaper, 2007.10.18.

State security is achieved by maintaining security and guarding borders in collaboration with the frontier guarding organisations of its neighbour countries, and conducting border intelligence and surveillance activities from border guarding viewpoints. Mongolia's entire frontiers are safeguarded by 300-350 permanent border guard units together with over 3,000 back-up frontier personnel.

### ***Injury and Accidents***

Deaths from injury, intoxication and external factors (such as trauma and frostbite) now rank third in terms of the causes of death, and particularly affect males aged 20-24 years. Injury is a major cause of inpatient admission.<sup>44</sup> In a survey conducted in 2003-4, the national death rate due to injury was 94 per 100,000 population, and the rate of hospitalization was 970 per 100,000 population (WHO 2006b). People in rural areas and those aged 30-54 years are more vulnerable to injury; people aged 40-44 years have the highest risk of death from injury.

Traffic levels have increased as a result of the Oyu Tolgoi Project. 2011 traffic levels on the Oyu Tolgoi to Gashuun Sukhait road were at an average of 143 heavy goods vehicles movements a day, and 108 light vehicle movements. Projections of future traffic volumes for the Oyu Tolgoi to Gashuun Sukhait road show an estimated 19% traffic increase over the period 2011-2015. Current levels of use on the supply transport route between Oyu Tolgoi, Khanbogd and Manlai *soums* have been recorded at an average of 178 heavy vehicle movements per day and 165 light vehicle movements per day. About 140 of the heavy vehicle movements and 38 of the light vehicle movements are attributed to Oyu Tolgoi. For full details of traffic levels see *Chapter B11: Transport and Infrastructure*.

Participants in the 2010 field study for the HIA were of the view that traffic injuries are increasing in the Project Area of Influence due to increased traffic volumes, increased dust and visibility problems, driver fatigue, drink-driving and poor road quality (including imperfect road surfaces reportedly left by road builders after national and private road projects). They also noted the rapid increase in motorcycle ownership and a corresponding increase in the number of accidents involving motorcycles.

In 2003-2004, the death rate in Omnogovi *aimag* due to interpersonal violence was higher than the national average. Males account for over 80% of deaths from interpersonal violence. Most cases occurred among people aged 25-49 years and most deaths were among people aged 19-36 years.

### ***Domestic violence***

Domestic violence in Omnogovi was discussed by participants in the Oyu Tolgoi Project Social, Economic and Environmental Subset Study.<sup>45</sup> Participants from the 16 Focus Group Discussions in Khanbogd, Bayan-Ovoo, Manlai and Tsogttsetsii were of the opinion that females, children, teenagers, young adults, and elderly women were frequently the targets of domestic violence: by parents, partners and acquaintances, as well as violence from strangers. Participants had different opinions as to how often domestic violence occurs. Female participants thought that domestic violence was fairly common in their communities, whilst male respondents believed it to happen less often. They concluded that domestic violence, including intimidation, assault, anger, humiliation and insults are common in the community.

## **13.5 KHANBOGD SOUM**

### **13.5.1 Overview**

Khanbogd *soum* is the area in which the Oyu Tolgoi Project is located and the *soum* centre is the closest urban settlement to Oyu Tolgoi. The *soum* has a population of c. 3,500 and the centre a population of 1,455 (2010 figure) in an otherwise sparsely-populated area.

Medical services within the *soum* are concentrated within the *soum* centre which is serviced by a single government hospital. There is also an International SOS clinic for mine workers based on the Oyu Tolgoi mine site.<sup>46</sup>

Within the *soum*, there are challenges in terms of access of the rural population to general health care and to specialist health care provision such as dental, obstetric and maternity care. Although life

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<sup>44</sup> Oyu Tolgoi Community Health Safety and Security Impact Assessment 2011

<sup>45</sup> Oyu Tolgoi Project Social, Economic and Environmental Subset (2009)

<sup>46</sup> See KTKK Health Services Review, 2010.

expectancy at birth has increased (from 62.8 in 1992 to 67.2 in 2008) the incidence of communicable diseases has also risen, as have ‘trauma’, accidents and violence-related illness and injury. Combined with a rapidly growing population (4.2% p.a.) and predicted high levels of influx, there will be considerable pressure on the *soum* health services to meet demand (see *Chapter C8: Population and Influx*).

### 13.5.2 Mortality and Morbidity

#### Mortality

Given Mongolia’s death rate in 2010 of six deaths per 1,000 people<sup>47</sup> around 21 deaths a year would be expected for a population of Khanbogd’s size (3,500 people). Between January and the end of March 2011 there were seven deaths in the *soum*, compared with three deaths in the same quarter in 2010.<sup>48</sup> The number of deaths in a population of this size can fluctuate considerably from month to month and long-term data are needed to identify any trends.

The four leading causes of mortality in Khanbogd as of 2007 were circulatory system diseases, digestive system diseases, cancer and external causes/injury (such as from road accidents, trauma and intoxication). Mortality causes correlate fairly closely with those of the *aimag* as a whole as indicated in *Table 13.7* below.

**Table 13.7: Mortality rates by leading cause in Khanbogd Soum and Aimag average, 2007**

	Khanbogd mortality rates per 10,000 population	Aimag average mortality rates per 10,000 population
Circulatory system disease	24	22
Digestive system diseases	10	7
Cancer	7	8
Genital-urinary system diseases	7	-
External causes (trauma/accidents/intoxication)	3	11

Source: Health Department, Omnogovi Aimag, 2007; Note: Khanbogd data are based on small numbers.

Of the seven deaths occurring in the first quarter of 2011 in Khanbogd, two were from cancer and two were from external causes.<sup>49</sup> Data were not available on the other causes but there were no deaths from heart attacks or strokes.

#### Morbidity

The most prevalent illnesses in Khanbogd *soum* in 2007 were respiratory diseases, digestive system diseases, genital-urinary system diseases and circulatory system diseases. These were the same top four illnesses for the *aimag* as a whole and correlate closely with the wider regional pattern. These were followed in terms of prevalence by mental/behavioural disorders and then accidents/intoxication (see *Table 13.8*).

In 2009, a total of 263 people were admitted to the *soum* hospital (comprising 103 males and 160 females). In the first quarter of 2011, there were 55 in-patients. In the first quarter of 2010 there were 259 cases of out-patient morbidity in Khanbogd.<sup>50</sup> This was one of the lowest rates in the *aimag*, however these figures can vary a great deal from year to year and from January to the end of March 2011 567 cases were recorded – one of the highest morbidity rates in the *aimag*. In 2010, there were only two incidences of malignant neoplasms but there were 16 cases of injury, intoxication or other accidents, the highest level in the *aimag*. As with mortality, annual data over time should be analysed to identify any health trends.

<sup>47</sup> World Population Data Sheet 2010 Population Reference Bureau

<sup>48</sup> Aimag Health Department 2011 Health Indicators

<sup>49</sup> Aimag Health Department 2011 Health Indicators

<sup>50</sup> Aimag Health Department 2011 Health Indicators

**Table 13.8: Morbidity Rates Khanbogd and Aimag Average, 2007**

	Khanbogd illness rates per 10,000 population	Aimag average illness rates per 10,000 population
Respiratory diseases	257	1,149
Digestive system diseases	243	642
Genital-urinary system diseases	226	427
Circulatory system disease	145	382
Mental and behavioural diseases	34	133
External injuries (includes road traffic accidents)	30	278
Diseases of the musculoskeletal system and connective tissues	17	-
Diseases of blood and blood-forming organs	10	-
Diseases of the nervous system and sensory organs	7	-
Pregnancy, childbirth and immediately post childbirth	3	-

Source: Health Department, Omnogovi Aimag, 2007; - Data not available.

Note: Khanbogd data based on small numbers.

### Communicable Diseases

The reported rate of infectious disease in Khanbogd *soum* shows a variable trend over time. The rate per 10,000 people was 11 in 2005, 21 in 2006, 11 again in 2007, 20 in 2008 and 22 in 2009.

In Khanbogd in the first quarter of 2010 one case of TB was recorded.<sup>51</sup> There were no cases of shigellosis, hepatitis, chicken pox, measles or mumps. In 2011, between January and the end of March there were no cases recorded of any of these communicable diseases.

In Khanbogd in 2009 there were three cases of sexually transmitted infections (STIs) recorded, and another three cases in 2010.<sup>52</sup> These figures included one case of trichomoniasis in 2009 and one case of syphilis in 2010. There were no cases of gonorrhoea recorded in Khanbogd during 2009 and 2010.

Government officials, health staff and community leaders have commented on the increasing level of commercial sex and STIs. The key informant interviews and focus group discussions attributed this to a “non-family oriented environment” with workers living and working far from their families (this is part of the reason why Oyu Tolgoi is focusing on the Khanbogd-centric housing model).<sup>53</sup>

Table 13.9 illustrates STI prevalence in the *soum* versus Omnogovi *aimag*. No cases of HIV/AIDS have been reported to date in Khanbogd *soum*, though the incidence of other STIs and increasing number of commercial sex workers suggest that HIV/AIDS cases may exist.

**Table 13.9: STIs, Khanbogd and Aimag Average, 2005-2007**

	Khanbogd 2005	Aimag average 2005	Khanbogd 2006	Aimag average 2006	Khanbogd 2007	Aimag average 2007
Syphilis	-	0.6	-	1.5	-	4.2
Gonorrhoea	-	3.2	-	2.4	3.4	3.8
Trichomoniasis	3.8	9.1	10.3	8.0	3.4	9.3

Source: Health Department, Omnogovi Aimag, 2007

During the Health Impact Assessment, consultations were held with infectious disease experts at the Centre for Infectious Disease with Natural Foci in Dalanzadgad. Table 13.10 summarises their

<sup>51</sup> Aimag Health Department 2011 Health Indicators

<sup>52</sup> Aimag Health Department 2011 Health Indicators

<sup>53</sup> HIA, 2011

assessment of the factors which could lead to an increase of infectious disease in Khanbogd *soum*, in response to an open-ended question.

**Table 13.10: Expert assessment of factors predisposing to spread of infectious disease in Khanbogd *Soum***

Factor	Assessment
Proximity to border with China	+++++
The border post of Gashuun-Sukhait is very busy	+++++
Tavan-Tolgoi coal is transported through Khanbogd to China	+++++
Passengers of air and road transportation create risks	+++++
Khanbogd will have an international airport	++++
Population knowledge related to infectious diseases is low	++++
Population is increasing	+++
Limited surveillance of emerging and re-emerging infectious diseases	+++
Poor laboratory capacity	+++
Assessment: +++++ (80-100%) ++++ (60-79%) +++ (40-59%) (Percentage of expert respondents who mentioned the identified factor in response to open-ended question on factors predisposing to spread of infectious disease).	

Source: KTKK Field Study, 2010

### **Alcohol and Drug Use**

The number of smokers and people drinking alcohol was lower in Khanbogd than in the other *soums* of the Project Area of Influence. In 2007, figures from the Health Department of Omnogovi *aimag* recorded the number of smokers in Khanbogd *soum* as about two thirds of the *aimag* average, whilst people recorded as using alcohol were only about a third of the *aimag* average.<sup>54</sup> As waged work and access to money has increased, health staff report that they are seeing an increasing trend in acute alcohol intoxication and alcohol-related injury.<sup>55</sup>

There is a bar selling alcohol at Oyu Tolgoi solely for Oyu Tolgoi workers. Alcohol consumption is tightly controlled and no hard liquor is available. No take-out sales of alcohol are permitted and the mess closes at 9pm. No intoxication at all is tolerated at the workplace and random alcohol tests are undertaken of staff at the start of shifts. The bar on site is closed on Wednesdays. The tight control of alcohol at Oyu Tolgoi limits problems which could emerge with alcohol-affected employees in the community or high alcohol consumption causing health problems which puts additional pressure on local health services.

## **13.5.3 Maternal and Child Health**

### **Maternal Health**

There were no cases of maternal mortality reported in Khanbogd in the first quarter of 2011 or the equivalent quarter in 2010. Maternal health care services are reported to be good for Khanbogd.<sup>56</sup> Antenatal care was noted by health practitioners to be good in the *soum* with the proportion of pregnant women receiving antenatal care at 100%. Only one other *soum* in the *aimag* achieved this level. Just over a third (37%) of pregnant women were taking iron supplements.

There were 73 pregnant women in Khanbogd in the first quarter of 2010, a larger number than nearly all of the other *soums* in the *aimag*. Of these women four were teenage mothers. None of these women were reported to have any pregnancy complications. Unlike most other *soums* in the *aimag*, not all of those eligible to use maternity resting homes in Khanbogd did so. Around three quarters of women used the homes (78%) compared with 100% in most other *soums*.

<sup>54</sup> Oyu Tolgoi Project Social, Economic and Environmental Subset. Final Report 2009.

<sup>55</sup> Oyu Tolgoi Community Health Safety and Security Impact Assessment 2011.

<sup>56</sup> Health Resources Review 2010

Family planning advice as well as free contraception is available from the *soum* hospital. Contraceptive medicine is also available over the counter through private pharmacies. The contraceptive prevalence rate in Khanbogd in the first quarter of 2011 was found to be low compared with other *soums* in the *aimag* at 46%. The most commonly used methods of contraception are pills, injectables and intra-uterine devices. Reported condom use is very low. In the first quarter of 2011, 33% of the contraceptives provided were pills, 27% IUDs, 26% injectables, 8% condoms, and 6% were sterilisation cases. The HIA study team was informed that abortion has been increasing in Khanbogd *soum*, mostly among single and younger women. No abortions were recorded in the first quarter of 2010 but two abortions took place in the first quarter of 2011.

### **Child Health**

Stillbirth has been higher in Khanbogd than in other *soums* of Omnogovi and was nearly four times the *aimag* average. The 2006 reported level was 39 per 1,000 live births compared with the average for the *aimag* of 10 deaths per 1,000 live births. However, there was only one stillbirth recorded in Khanbogd in the first quarter of 2010.<sup>57</sup> The main causes of stillbirth are reported to be prenatal pathologies, congenital malformations and birth complications. Average APGAR scores (scoring system for infants) have remained at the same low level for years (similar again to the overall *aimag* picture).

Child immunization is excellent in Khanbogd *soum* with 100% coverage for BCG, poliomyelitis, the Penta vaccine and measles. There were no deaths to children under five in Khanbogd in the first quarters of 2010 or 2011.<sup>58</sup> There were 71 cases of children under 5 with acute respiratory infections in 2010. This had increased to 87 in the first quarter of 2011.<sup>59</sup>

#### **13.5.4 Nutrition and Diet**

In Khanbogd, in the first quarter of 2011, all 79 weighed infants aged 0-1 were found to be of normal weight. However, 6% of children aged between one and three were below normal weight. HIA data at *aimag* level showed that over a quarter of children were below the expected height for their age in 2004, and that deficiencies in iodine, iron and vitamin D are common.<sup>60</sup>

For herders, the transition from a nomadic to an urban sedentary lifestyle, and inappropriate nutritional intake, are factors influencing the appearance of non-communicable disease and metabolic illnesses.<sup>61</sup>

The transition to a market economy and altering lifestyles has also brought changes in food consumption patterns. Many cheap, poor quality and unsafe food products are imported or are produced by poorly-regulated domestic private companies. Control of food safety in the whole *aimag* is poor with policemen, tax inspectors and doctors carrying out food inspections at best on occasion. Improper food storage and inadequate food handling is reported to be common and a cause of digestive illness and poor nutrition. Due to high population influx the cost of food products has increased in the last two years. As a consequence local unemployed families may have difficulty affording sufficient and/or high enough quality and safe food.<sup>62</sup>

#### **13.5.5 Health Services**

##### **Hospitals and Clinics**

Khanbogd *soum* is served by the Khanbogd *Soum* Hospital which is a Government, primary care, level two hospital in the *soum* centre, equipped with 9 beds (serving a population of around 3,500). The Hospital was built in 1978 and renovated in 2004 (inpatients) and 2010 (outpatients) with support from IMMI and more recently Oyu Tolgoi. There is also an obstetrics and gynaecology clinic, and a dental clinic

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<sup>57</sup> *Aimag Health Department 2011 Health Indicators*

<sup>58</sup> *Aimag Health Department 2011 Health Indicators*

<sup>59</sup> *Aimag Health Department 2011 Health Indicators*

<sup>60</sup> (WHO (2009) and UNICEF website)

<sup>61</sup> Oyu Tolgoi Community Health Safety and Security Impact Assessment 2011

<sup>62</sup> Oyu Tolgoi Community Health Safety and Security Impact Assessment 2011

(established with support from Oyu Tolgoi) located in Khanbogd centre, and an SOS medical emergency response service based at Oyu Tolgoi. There are no medical facilities or staff located in the rural areas.

### **Health Personnel and Equipment**

The Khanbogd *soum* hospital has 4 doctors, 6 midwives, 4 nurses, 1 pharmacist, and 1 laboratory staff member (2010). This reflects compliance of 100% with the MoH standard for doctors and 87% compliance with the standard across other personnel. There are no community based public health workers in the *soum*. Khanbogd hospital staff indicate the need for additional staff with skills in public health, surgery, dentistry, and management of intoxication. Oyu Tolgoi has provided direct support for a Doctor's Training Programme. The objective of the Programme is to improve conditions and opportunities to access health services for local residents through a sponsorship programme that ensures the availability of doctors and personnel in the remote *soums* of Omnogovi Province. To date, the Programme has operated in 13 *soums* and at *aimag* level (Dalanzadgad) in Omnogovi involving 25 doctors of whom 15 were still working in March 2010.<sup>63</sup>

The *aimag* Health Department requires each government health facility to have at least 90% of the specified health equipment available and functioning. The Health Resources Review undertaken in 2010 found that the equipment in Khanbogd *Soum* Hospital was adequate and met the government requirements.

The *soum* hospital is served by a jeep and a motorcycle, both of which were funded by Oyu Tolgoi.

### **13.5.6 Health Care Financing**

Insurance and cost provisions for *soum* residents are the same as those for the *aimag* as described above. In 2010, 99.6% of financing for health care in Khanbogd *soum* was from the state budget with 0.4% from direct revenue. 61.7% was spent on salaries and social insurance; the remainder was spent on fixtures and building costs, food, medicines, stationery, transport and communications.

### **13.5.7 Community Safety & Security**

#### **Crime**

The types of crime recorded in Khanbogd *soum* are shown in *Table 13.6*. The most frequent types of crime recorded were traffic related incidents followed by crimes against people such as physical assaults, and then property theft.

Crime levels have been low in Khanbogd *soum* but increased crime and illicit activities have been identified as possible adverse impacts of the Oyu Tolgoi Project.<sup>64</sup> For Khanbogd with its population of just under 3,000 in 2007, the number of all crimes recorded was around 30 a year. However this has increased slightly in recent years and during 2009 the number of registered crimes recorded was 41, and in 2010 it stayed at a similar level of 38<sup>65</sup> (see *Table 13.11*).

**Table 13.11: Recorded crimes, Khanbogd, 2009 and 2010**

Crime type	2009	2010
Gang	0	5
Crimes against people (e.g. physical assaults)	5	5
Property theft	4	4
Livestock theft	1	0
Traffic related incident	9	8
Other	22	16

<sup>63</sup> Doctors Sponsorship Programme Assessment Report December 2010

<sup>64</sup> Oyu Tolgoi: Influx Risk Assessment. Barclay and Associates 2007

<sup>65</sup> Oyu Tolgoi Khanbogd Basic Dataset

Crime type	2009	2010
Total	41	38

Source: Oyu Tolgoi; CRSD Social Mapping Database

### **Policing and Security Arrangements**

Khanbogd has a designated police unit with seven police officers. The Police are located in the *soum* administration building. The Police noted they are frequently required to attend issues at Oyu Tolgoi and need additional resources to continue to do this effectively.<sup>66</sup> Oyu Tolgoi contracts private security providers which supply security personnel and security arrangements to the Project at all sites. Security companies must be registered by the Ministry of Law. This registration sets the activities the company may engage in. The security company providing services to the Project is a Mongolian security firm. All guards are Mongolian and are not linked to the military. All guards are unarmed apart from those guarding the explosives area, who have side arms. The agreement between Oyu Tolgoi and its security firm requires that security guards will be well trained and that none will have a criminal record.

The number of guards on one shift are as follows: Oyu Tolgoi – 70, South Camp – 14, North Camp – 10, Satellite A – 4, Satellite B – 4. The sub-contractors report to Oyu Tolgoi Security and Oyu Tolgoi Security co-operates with the local police when necessary in relation to legal compliance issues and through regular coordination meetings.

The presence of security personnel in the local area could result in conflict between local residents and security personnel. Oyu Tolgoi's policy is not to prohibit herders and livestock from any land within temporary work areas except where construction works are ongoing or other hazards exist and/or the worksite is within the Exclusion Zone. Permanent fencing has been constructed around the Mine Licence Area; all sites have security personnel. Some local herders and other residents have expressed frustration at being prevented access to prohibited areas. There have been no official grievances related to security guards to date (September 2011), however some local herders have reported that they are unhappy when security personnel discourage animals from being near the fence line or entering areas where construction activities are occurring, even though they have received compensation for loss of access.

### **Sex workers and human trafficking**

A survey on trafficking and prostitution at mine sites in Mongolia was undertaken by The Asia Foundation in 2008. 40 of the 300 respondents were from Khanbogd. Of the Khanbogd respondents, nearly a quarter (23 %) said they had seen prostitution in Khanbogd. The majority of patrons were reported to be mine workers rather than community members who were not mine workers. The majority of prostitution in Khanbogd was not seen to be organised as less than 10 % said that the prostitutes had some kind of manager/boss. Child prostitution was reported to have occurred in Khanbogd.<sup>67</sup>

### **Injury and Accidents**

Participants in the HIA Field Study in 2010 were of the view that traffic injuries are increasing in the Project Area of Influence *soums*, including Khanbogd due to increased overall traffic volumes, increased dust and visibility problems, driver fatigue, drink driving and poor road conditions. They also noted the rapid increase in motorcycle ownership and the increasing number of accidents involving motorcycles.<sup>68</sup>

Reporting may be an issue as reported accidents have barely changed between 2009 and 2010. There were 9 recorded traffic incidents in 2009 and 8 in 2010 involving road users (non Oyu Tolgoi-related traffic), according to the Khanbogd *soum* Governor's Office.<sup>69</sup> These figures are important as a baseline going forwards (i.e. to assess whether traffic-related accidents increase due to Oyu Tolgoi)<sup>70</sup>.

<sup>66</sup> Oyu Tolgoi: Influx Risk Assessment. Barclay and Associates 2007

<sup>67</sup> Incidence of trafficking in persons and position at mine sites in Mongolia. The Asia Foundation 2008.

<sup>68</sup> KTKK Field studies 2010.

<sup>69</sup> Khanbogd *Soum* Governor's Office, obtained by Oyu Tolgoi 2011

<sup>70</sup> No injuries related to Oyu Tolgoi directly operated vehicles or contractor vehicles have been recorded as of 31 November 2011.

### 13.5.8 Noise

Exposure to noise may cause many adverse effects, both physiological and psychological. The exposure of the public to noise from this Project is limited by the fact that the nearest town of Khanbogd, with a population of just over 3,000, is located 35 km to the east of Oyu Tolgoi, and no permanent winter camps exist within 10 km of the mine. Over a 10 km distance, noise levels will reduce by a minimum of 80 dB (based on inverse square law propagation calculations from a point source) such that noise levels will typically fall to background levels. However herders could still be affected by noise from the following sources:

- Activities within the Mine Licence Area, including construction and operation of open pit and underground mines, a processing plant, and supporting infrastructure;
- The construction and operation of the Gunii Hooloi water abstraction borefield and pipeline;
- The construction and operation of the Oyu Tolgoi to Gashuun Sukhait road and the electrical transmission line from the Chinese border to Oyu Tolgoi; and
- The construction and operation of the temporary and permanent airports some 5-7 km to the north of the Mine Licence Area.

A noise monitoring programme has been established to assess the level of noise from these sources. Full details are presented in *Chapter B4 Noise and Vibration*.

### 13.6 PLANNED WORK

Preparation of the ESIA has identified the need for a more comprehensive baseline in terms of the health of the potentially directly affected *soum* population. Information now includes data on health indicators for Khanbogd for 2010 and 2011, and the scope need to be extended to cover:

- trend data for mortality and morbidity;
- trend data for morbidity specifically in relation to communicable and non-communicable diseases which could be attributable to mining and development projects;
- data disaggregation by a) age b) employment c) gender and d) herder/non-herder population; and
- Health monitoring going forwards of key indicators for mortality, morbidity, injury and accidents, 'social' illnesses such as alcohol and drug-related illness and communicable diseases.