Chapter 5

Model for HIA

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Most development projects are driven by the objective of economic gain and it has only recently been recognised that such projects may have an impact on the health of a community, whether directly or indirectly. EIA requirements are well embedded in the legislation of many countries and the methodology for such assessments has been well established. However, a methodology for HIA which can be widely accepted is still under development and few full HIAs have been conducted and published to date.

In keeping with the approach to the EIA, SEIC has adopted a model for the HIA described in the Environmental Assessment Sourcebook Update, July 1997, produced by the World Bank (Ref. 3). This model defines a method for completing an HIA, although it does not describe the HIA methodology to the same level of detail as the World Bank guidelines for the EIA. In this model an initial review of the health situation is undertaken followed by a more detailed study. Elements requiring further assessment can be identified and developed in conjunction with the local community.

The premise of any impact assessment is that basic data and information is collected prior to the development activity, followed by an evaluation based on previous experience and modelling to determine the likely impact. Ideally an HIA is completed in time to feed into the design of the facilities and the project processes.

The purpose of a health impact assessment is to:

- Establish the baseline of existing health conditions in the project area
- Evaluate the potential impact of the project on the health of employees, contractors and their families and the communities around the project so that negative effects are avoided or reduced, positive impact is optimised and the probability of implementing sustainable health development is increased
- Involve and engage the stakeholders to ensure prevention and mitigation of negative effects on health

The HIA utilised a biomedical model of health, whilst recognising other factors as contributing to health and well-being. The impacts were assessed using a risk assessment matrix that is described in Section 9.2.

5.1 METHODOLOGY FOR SEIC PHASE 2 HIA

The Sakhalin II Phase 2 HIA was developed in the stages described below:

5.1.1 Scoping

Although there was no formal scoping process, the scope of the HIA was based on information from the following studies.

Health Review Report
Shell International health professionals reviewed the health situation on Sakhalin in September 2000 (Ref. 4). This resulted in a health review report, which identified the need for a more detailed HIA of the proposed project.

Baseline Health Information Prior to HIA
A number of public health and environmental health studies were conducted and completed in the Sakhalin region in relation to Phase 1. These studies were:

- Health Sector Assessment, 1991 Project Hope (Ref. 5)
- Performance of zoology and entomology crew and laboratory of environmental focal and generalised infections of Sakhalin for the pipeline ROW, 1998 (Ref. 6)
- Atlas of environmental foci of transmissible infections of the Sakhalin region, 1998 (Ref. 7)

As part of the preparation for Phase 2, SEIC arranged some additional baseline health studies. These studies were:

- Report of Environmental Engineering Surveys of the Oil and Gas Pipeline Route and Construction Sites of the Sakhalin II Project Infrastructure, 1999 (Ref. 8)

- Review and assessment of current sanitary and epidemiological conditions along the route of the pipeline and the construction sites for Sakhalin II project infrastructure facilities, 2000 (Ref. 9)
- Report on medical-environmental situation in Yuzhno-Sakhalinsk in connection with ambient air pollution, 2000 (Ref. 10)

Based on the health information available in 2000, the following key issues were identified:

- Sakhalin Island faces problems associated with a transition from the centrally planned National Health Service model of the RF to a system with more autonomy but less financial support. In 2000 the healthcare system with its emphasis on large medical institutions with many specialists remained largely intact but was under funded and functioning poorly. The intended emphasis on primary healthcare and outpatient medical treatment had not been implemented for a variety of reasons, including lack of trained staff and infrastructure. This, together with deteriorating socio-economic circumstances, had led to a declining health status of the population.
- Up to 2001, basic requirements for good health were lacking, e.g., reliable drinking water supply, adequate sewage water treatment, adequate waste management, good food and medication. There was a high risk of infectious diseases, particularly infectious and parasitic diarrhoeal diseases, STDs and TB. (NB This situation is reported to have improved in some urban centres since 2000.)
- While there is an extensive collection of data, the connection between a health hazard and a health risk is often not made. Health hazards are identified but it appears that it is the presence of a hazard, rather than the risk it will cause significant disease, which has been the focus of public health strategy.

5.1.2 Health Baseline Studies

As SEIC did not have some significant information related to health, the company identified the need to source additional health baseline information.

Different methods were required to obtain the requisite information. The company commissioned several different Sakhalin Island health agencies to conduct three different baseline health studies. These were:

- Study A - Health data baseline study (Statistical report) (Ref. 12)
- Study B - Island health infrastructure study (Sakhalin general health system report) (Ref. 11)
- Study C - Island community health survey (Survey of the health community professionals) (Ref. 13)

A health-focused survey of the non-health community was undertaken in conjunction with the fieldwork for the SIA by the SEIC Social Assessment Group (Study D). In addition the official state statistics were also consulted (Study E).

Data sources and studies are described in Section 7.

5.1.3 Community Engagement

General Consultation

SEIC believes that an approach which ensures systematic public consultation is important for the successful implementation of the project. Efforts to inform and involve the public have been given prominence throughout all phases of the Sakhalin II Project since 1992.

The Public Consultation and Disclosure Plan (PCDP) (see www.sakhalinenergy.com) outlines the Phase 2, Sakhalin II public consultation programme. The health consultation programme up to October 2002 is provided in Appendix 6. The aim of the consultation programme has been to inform and raise the awareness of stakeholders and to involve the public in decision-making during all stages of the Project design and execution. In the context of the Sakhalin II Project, consultation has had a number of key functions. These are as follows:

- to provide an opportunity for local people to become better informed about planned activities
- to allow local input into Project decisions that might affect them (i.e. to influence Project design, implementation and follow-up), thereby preventing or reducing potential negative environmental and social impacts and maximising positive impacts
- to meet RF statutory requirements
- to meet the spirit of international conventions, company and shareholder standards

Consultation with health organisations

SEIC has focused on the establishment of ongoing dialogue with the Sakhalin Island health stakeholders at a senior level, particularly professionals working in the following fields: primary (known as polyclinic); secondary (known as qualified); tertiary (known as specialised); and public healthcare. Relationships with the Regional Healthcare Department (RHCD), the Centre for Sanitary and Epidemiology Supervision (TsGSEN) and the major hospitals on the island were strengthened and at the same time relationships were established with the Centre for Alcohol and Drugs, Sakhalin Centre for Prophylaxis of HIV, and some private health institutions (see Appendix 3).

Local communities along the pipeline route were interviewed as part of community consultation during fieldwork for the SIA. The focus of these discussions was on socio-economic factors, but clearly many of these, for example concerns about non-residents fishing, can affect nutrition in areas of subsistence living.

One of the key challenges of the HIA consultation was working in two languages across different cultures. A further challenge was the oral and written translation. This challenge was clearly demonstrated during the review of the draft HIA report with local health stakeholders, when important terms and phrases had been translated in a way that led to very different inferences.

A preliminary HIA workshop with the participation of health community professionals and SEIC health advisers was conducted in Russian and English on January 24-25, 2002. The aims of the workshop were to:

- Introduce the health professionals to the Phase 2 Project and involve them in the HIA
- Engage the health community in identifying health issues
- Gain agreement on the priority of health issues
- Jointly develop suggested measures to mitigate negative impacts
- Create a sense of shared ownership of the assessment process and its recommendations, based on realistic expectations of SEIC's investment
- Identify additional health stakeholders (non-medical, government, industry etc), and involve them in the subsequent HIA process

Details on the results of the workshop are provided in Appendix 6. The information obtained at the workshop was used to identify health issues and potential impacts. Further information on stakeholder identification and consultation is provided in Section 6.

5.1.4 HIA Report

The findings, conclusions and proposed mitigation measures of the HIA process are presented in this report. The objective of this report is to provide a 'high level' overview of the impacts on health as they have been identified at this stage. Further stakeholder engagement is anticipated, following the completion of this report, in particular involving stakeholders outside the health community.

5.1.5 Action Plan

An action plan implementing the measures resulting from this HIA report will be discussed and reviewed by the key health stakeholders and SEIC's HIA team in 2003. Depending on further gap analysis, additional actions are anticipated. Gap analysis is the process of assessing the difference between what is in place and what should ideally be in place.

Chapter 6

Stakeholder identification and consultation

Chapter 6
Stakeholder identification and consultation

This section describes the key stakeholders for the Project. Identifying stakeholders early on and involving them in the consultation process can facilitate co-operative interaction and joint strategic planning. This recognises that sustainable improvements in community health will benefit the project as well as the community. By establishing early and ongoing dialogue with the host government and other stakeholders, unrealistic expectations about roles and responsibilities for funding and investment in health management and infrastructure can be managed.

An initial list of primary stakeholders, i.e. those who are directly affected by or have a specific interest in the Sakhalin II project, has been compiled through consultation with local health community colleagues. This is a 'live' list that will evolve as the stakeholder identification process continues during the course of the HIA. The list is as follows:

- Sakhalin Regional Administration
- Regional health services and associated infrastructure
- Regional hospital, regional polyclinics etc
- Municipal health services and associated infrastructure
- City hospitals, including city polyclinics etc
- SEIC staff and their families
- Contractor staff
- Mass media
- Trade unions
- Sakhalin youth
- Various (sub) communities of the Sakhalin Island population
- Environmental agencies
- Other oil and gas companies
- Industry associations e.g. fishing industry

People in the following districts are directly affected by land take for the Phase 2 development:

- Okha
- Nogliki
- Tymovsk
- Smirnykh
- Poronaisk
- Makarov
- Dolinsk
- Yuzhno-Sakhalinsk City-District
- Aniva District
- Korsakov

A decision about the port use at Kholmsk had not been reached when consultation commenced, therefore it was not considered to be a district affect by land take at that time.

People in districts not directly affected by land take for the Phase 2 development:

- Uglegorsk
- Aleksandrovsk-Sakhalinsky
- Nevelsk

Secondary stakeholders are those stakeholders not directly affected by the development who may nevertheless have an interest in the project. SEIC is involved in discussion with many of these stakeholders. Important secondary stakeholders are:

- Sakhalin academic institutions eg Sakhalin State University and Sakhalin Vocational Institute
- Local and international financial institutions
- National and international health-related organisations
- Russian Telemedicine Foundation, WHO etc.

- Non-governmental organisations, AIDS Foundation East-West
- Local and international contractors and joint ventures such as SMNG, International SOS, Sakhalin Support Services etc.

During the HIA workshop in January 2002, the concept of stakeholders was discussed. Apart from government agencies, the role of stakeholders outside the professional health community was still perceived as limited by most of the participants.

Community consultation in relation to health issues was partly addressed during the TEOC 2001 preliminary EIA (PEIA) meetings and consultations. Discussion with potentially affected indigenous peoples has been ongoing since November 2001. Community consultation is ongoing and more fully described in the PCDP.

The draft HIA report was translated into Russian in August 2002 and discussed with health stakeholders including the regional health department and TsGSEN. Most comments were incorporated, especially those relating to baseline data. This approach enabled the Sakhalin community to participate fully and contribute financially to some of the report's recommended initiatives. Details of the HIA workshop consultation activities are included in Appendix 6.

The following sections describe the company and stakeholder requirements that have been considered during the HIA.

6.1.1 Company Standards

SEIC Company Standards establish requirements for public consultation and stakeholder engagement. These include the following:

- Key Environmental Requirements (KERs)
- Corporate Health, Safety and Environmental Commitment and Policy, February 1, 2001, particularly the aim to earn the confidence of society and to be a good neighbour
- Phase 2 Project Strategic HSE Objectives of SEIC and Key HSE Activities - specifically the requirement to develop a strategy for sustainable development, which engages and works with stakeholders

6.1.2 Shareholder Standards

Shell as one of the SEIC shareholders has specific requirements for the management of environmental, social and health issues. Key standards include:

- Shell Group's Approach to Global Environmental Standards
- Shell Group's Commitment to Climate Change
- Exploration and Production (EP) Environmental Requirements Rev 01, September 23, 1999
- EP's Position on Global Environmental Standards: Minimum Environmental Expectations, May 2000
- EP's 95-0000 HSE Manual, in particular EP95 0370 Environmental Assessment, October 1995
- EP95 0371 Social Impact Assessment, June 1996
- EP95 0374 Stakeholder Consultation, April 1999

Requirements for public consultation are not explicitly stated in the Mitsui Basic Philosophy for the Global Environment, 1990 and the Mitsubishi Environmental Charter, 1996.

Chapter 6
Stakeholder identification and consultation

Chapter 7

Data sources and studies

Chapter 7
Data sources and studies

The baseline data description within the HIA is based on the following studies:

7.1 STUDY A: HEALTH DATA BASELINE STUDY

The objective of this study was 'to obtain source data on the general health, sanitary and hygienic situation in the area to be developed under the Sakhalin II Project' (Ref. 12). The work was undertaken by TsGSEN, which is responsible for compiling data for the state statistical department. The health data baseline study (Ref. 12) is the core study of the HIA, and contains important Sakhalin Island and RF health data such as demographic and epidemiological trends, disease statistics, data related to nutritional status, climatic factors, environmental health, public health, and details about major health hazards.

Some important statistics from this study are included in Appendix 1.

7.2 STUDY B: ISLAND INFRASTRUCTURE REPORT

The island health infrastructure report (Ref. 11) is based on available health data as presented in annual reports and specific reports issued by the various health institutions on the island. The objective of this report was to understand the current operation and future direction for healthcare on Sakhalin. This study was undertaken by Dr Samarsky, a Russian doctor from Sakhalin, who was nominated to undertake the study with the approval of the regional healthcare department. A description of the scope of work is contained in Appendix 5.

The report addresses the following elements: the type and scope of healthcare provided to the population; entitlements and payments; finance; medical activity; medical registration; availability of medical personnel, laws and standards that regulate healthcare in the RF; biological and chemical control of food; environment and radiation; air, water and water supply; physical agents; industrial hygiene; occupational diseases; women's labour conditions; medical examinations; hygiene of children and teenagers; nutrition and medical supplies.

7.3 STUDY C: ISLAND COMMUNITY HEALTH SURVEY

The purpose of the health survey (Ref. 13) was to assess the present state of the public health system and the health of the population on the island. The data were collected by interviewing health professionals who are involved in managing or delivering healthcare to the various communities in the nine districts affected by land take plus Yuzhno-Sakhalinsk. The aim of this study was to determine the health professionals' perception of community health issues. The interviews were conducted by two local physicians, Dr Natalia Kizima and Dr Pavel Bersenev. Both health professionals were trained by SEIC's health team to work with the survey tool, a specially developed HIA health questionnaire. This questionnaire was discussed, reviewed and agreed with the Head of the Regional Healthcare Department, Dr Sibirkin. The questionnaire used for the survey is presented in Appendix 4.

The team interviewed 143 island healthcare professionals in the nine districts, plus Yuzhno-Sakhalinsk between November 12 to December 19, 2001. The locations were selected on the basis of proximity to planned temporary construction camp locations and permanent company sites extending from Korsakov in the south to Val in the north.

Interviews were conducted with a range of healthcare professionals in community care, primary care and secondary care, community pharmacists and public health authorities, as shown in Table 2. The community health survey team members produced a report based on the structure of the HIA health questionnaire.

TABLE 2: HEALTH PROFESSIONALS INTERVIEWED

	Experts interviewed	Number of interviews
1	Head physicians of the central district, municipal and regional hospitals	20
2	Deputy head physicians	22
3	State public inspection head physicians	13
4	Outpatient and polyclinic service	20
5	Therapy, cardiology	8
6	Pediatrics	14
7	Midwifery and gynaecology	10
8	Infectious diseases	4
9	Epidemiology and sanitation	6
10	Surgery and traumatology	8
11	Drugstores	11
12	Ambulance stations	2
13	Hospital Emergency Admissions	5
	TOTAL	**143**

7.4 STUDY D: HEALTH DATA COLLECTED WITH SIA BASELINE DATA (JANUARY - APRIL 2002)

As part of the overall data collection effort for the SIA, information was also collected on local health conditions.

The purpose of this study was to collect information about the social and economic status of the communities in order to identify potential impacts and develop mitigation measures. The study (Ref. 14) also examined community views on health, healthcare, and the likely impact of the Project on health. This survey was conducted from January - April 2002 by the SEIC Social Assessment Group.
The following objectives were set:

to establish contact with the local population and administration

- to collect information about social and economic status of the communities using the specially developed methodology, including interviews
- to identify community needs and problems
- to make a list of key community persons
- to inform the local population about the Project

7.4.1 Selection of Communities

The communities were selected from those in the vicinity of the proposed Project facilities including construction camps; production facilities; LNG plant; laydown areas etc. at the time of field work preparation. Field social scientists interviewed 624 people in 23 communities in nine administrative districts (raions) plus the city of Yuzhno-Sakhalinsk. The details of the survey respondents are given in Table 3, which outlines their gender, age, educational levels and employment status. This demonstrates the breadth of the survey respondents.

TABLE 3: SURVEY RESPONDENTS

Gender					
Male			Female		
53%			47%		
Age					
18-20 years	21-30 years	31-40 years	41-50 years	51-60 years	> 61 years
14.6%	23.6%	21.9%	23%	10.4%	6.5%
Education level					
Not-completed general education	General education	Technical education	Incomplete university education	University education	
4.5%	25.5%	29.6%	10.1%	30.3%	
Employment status					
Workers	Salaried employees	Entrepreneurs	Enterprise or organisation officials	Military personnel, policemen	Retired persons	Housewives and unemployed	Student	Other
26.6%	25.4%	7.3%	8.2%	4.5%	12.1%	6.4%	6.4%	3.1%

7.4.2 Types of Information Collected

The information collected by the survey included the following:

- Socio-demographic characteristics
- Environment and use of natural resources
- Infrastructure
- Socio-economic characteristics
- Health
- Culture and heritage resources
- Lifestyle and quality of life

7.4.3 Conduct of Fieldwork

The Social Assessment Group developed special tools for collecting the information listed above. These tools were: proforma baseline information collection; questionnaires for community population and experts; proforma for food; and medical prices registration. More detailed information about this work can be found in the SIA.

7.5 STUDY E: SAKHALIN REGIONAL STATISTICS

The official public state statistics for October to December 2001 were provided by the Sakhalin Statistics Committee, some extracts of this information are contained in Appendix 1.

Chapter 8

Baseline data

This chapter describes baseline information for Sakhalin Island, relevant to health. This includes basic demography, disease incidence, healthcare infrastructure, health determinants and the outcomes of consultation. The diseases described within this section are those initially identified to be of concern. Further information on social factors, which are associated with health and well being, are contained in the SIA.

Chapter 8
Baseline data

8.1 POPULATION AND DEMOGRAPHY

The total population of Sakhalin Island is just under 600,000 and had been falling until 2001 due to emigration and a fall in the birth-rate. At present approximately 187,000 people reside in the capital Yuzhno-Sakhalinsk, 37,000 in Korsakov, 40,000 in the port town of Kholmsk, 20,000 in Poronaisk, and 11,000 in Nogliki. Other important population centres are Nevelsk, with a population of 20,000, and Okha with a population of 28,000. Along the pipeline route there are a number of smaller towns each with populations of around 1,000 - 2,000 people. Of the total population, there are about 3,300 indigenous people on Sakhalin Island, the majority of whom live in the administrative northern regions of Okha and Nogliki.

TABLE 4: POPULATION BY DISTRICT AND SETTLEMENT AND NUMBER OF WORKERS DURING CONSTRUCTION AND POST COMMISSIONING (NORTH TO SOUTH)

District	*Population	Settlement	**Approximate population 2001-2002	***Asset	****Workers living in camps during construction (average)	****Workers during construction (peak)	****Workers post commissioning (average)
Okha	36,700	none	0		0		
Nogliki	14,600	Val Nogliki Katangli Nysh No local settlement Kaigan	1,350 11,200 900 700 0 no permanent population	PL PL PL OPF	500***** 500***** 500***** 700	500-1000 500-1000 500-1000 700-1000	 200 (OPF)
Tymovsk	20,800	Argi-Pagi Yasnoye Palevo	1,600 1,500 100	PL & IUP	500*****	500-1000	
Smirnykh	16,700	Onor	1,550		500*****	500-1000	
Poronaisk	35,300	Gastello Leonidovo Poronaisk	1,000 2,270 20,000	Booster Station IUP	0 500***** 50	200 (post 2007) 500-1000	
Makarov	11,400	Gornoye Tumanovo Porechye Zaozernoye Pugachevo	350 37 430 17 100	PL PL	500***** 0 0 500*****	500-1000 500-1000	
Dolinsk	32,200	Sovetskoye	730	PL	500*****	500-1000	
Yuzhno-Sakhalinsk	186,900	Yuzhno-Sakhalinsk	187,000	SEB	Variable	variable	350-400
Aniva	15,600	Mitsulevka	200	PL	500*****	500-1000	
Korsakov	45,900	Korsakov	36,500	LNG Off shore Pipeline	2,000-3,000 See pipeline camps	4,500 6,000	200-300 300-350 50-100
Sakhalin Region	**590,600**		**249,257**		**6400-8,500**	**12,900**	**950-1200**

*Sakhalin Region at the turn of the 21st century, Jubilee Collection. Yuzhno-Sakhalinsk: Sakhalin Regional Statistics Committee, 2001
** SIA Health Survey, Social Science Field Work, Collection of Baseline Information (January-April 2002)
*** PL = Pipeline, OPF = Onshore Processing Facility, LNG = Liquified Natural Gas, IUP = Infrastructure Upgrade Project.
**** SIA Section 6; Impacts and mitigation management; employment and business opportunities.
***** NB The number of construction workers in the pipeline construction camps will be seasonal and will vary with construction activity. Only the 50 man IUP supervision camps in Poronaisk and Sovetskoye are located in the settlements. The other camps are between 1 kilometre and 16 kilometres from the listed settlements.

8.2 BASELINE STATISTICAL HEALTH DATA

Morbidity and mortality is a common, although by no means the only method to characterise the health of a community. Other measures of health and well being in a community include access to clean drinking water, education, food, healthcare and a safe living environment.

The tables in Appendices 1 to 3 include important baseline information relating to the availability of healthcare as well as specific disease incidence and mortality. The information contained in these tables are listed below:

Appendix 1

Table 23 Population, number of medical institutions and pharmacies in the territory of municipal entities in the Sakhalin region

Table 24 Number of health institutions and availability of specialised medical services in the districts along the Sakhalin 2 pipeline route

Table 25 Number of doctors per 10,000 people by region

Table 26 Demographic data

Table 27 Disease incidence in population by major classes of diseases (number of cases per 1,000 people)

Table 28 Communicable diseases, 2000

Table 29 Fatality rate of the Sakhalin region population (1995-2000)

Table 30 Mortality rates by district (2000)

Important points to note are:

1. Infant mortality and life expectancy figures are considered to reflect the overall health of the community. In general the life expectancy in Sakhalin is higher than average in the RF. The disparity between male and female life expectancy is larger in other developed countries, although female life expectancy is similar to Western Europe. This suggests that different health issues are affecting men and women. Premature death in men due to trauma including alcohol related poisoning may be contributing to this disparity.
2. Mortality tables by disease though breakdown by age and gender is not published. Infant mortality is higher in Sakhalin and throughout Russia than in other developed countries.
3. Morbidity tables for infectious diseases show that throughout Sakhalin the highest morbidity for infectious disease relates to influenza, diarrhoeal diseases and helminthiasis, although rates for STDs and TB are also high.
4. The data is not coded based on International Coding of Disease (ICD) 10 (Study A).

8.3 INFECTIOUS DISEASE

8.3.1 Sexually Transmitted Diseases (STDS)

Syphilis and gonorrhoea are the two most important STDs on Sakhalin Island. There is a trend of gradual decline in syphilis incidence in recent years. In 2000 the incidence was 188.6 per 100,000, while in 1996 the incidence was 631.7 per 100,000. However compared with the incidence in the USA and European countries (USA in 2000, 2.5 per 100,000), the syphilis case rate is very high. The incidence of syphilis among children under the age of 14 is increasing. Notification of congenital infection began in 1994 and ten cases were recorded in 2000. The highest incidence of syphilis was recorded in the districts Uglegorsk, Makarov, Okha and the city of Yuzhno-Sakhalinsk (Study A).

The incidence of gonorrhoea, 186.2 per 100,000 in 1996 and 157.9 per 100,000 in 2000, is also decreasing. Syphilis and gonorrhoea mainly affect young people. For both diseases, 80% of cases occur in people under 40. The highest incidence is observed in the age group 20-29 (555.3 in 1996 and 623 in 2000 per 100,000) and the 15-19 age group (448.1 and 556.7 per 100,000). The highest percentage of detected STD cases was recorded among the unemployed population although the case rate is also high among the employed.

The discrepancy in cases noted above, and in Table 5, is due to the different sources of this information (Studies A and E).

Some health professionals confirm the existence of organised prostitution in a number of cities including Yuzhno-Sakhalinsk, Poronaisk and Kholmsk. The age of first sexual contacts and active change

of sexual partners is decreasing. A recent study in Sakhalin suggests that many young people consider prostitution a prestigious business. Some health professionals support the suggestion that prostitution needs to be legalised.

According to a survey carried out in 2001 by the Sakhalin AIDS Prevention Centre, 70% of Yuzhno-Sakhalinsk 'intimacy salon' girls (84 prostitutes in total) do not use condoms because of client preference. There are no official healthcare programmes for prostitutes since prostitution in the RF is illegal.

Outdated diagnostic and treatment equipment, insufficient supply of material and shortage of qualified staff in skin and venereal disease institutions reduce the efficiency of the STD programme.

Some health professionals suggested at interview that whenever an STD specialist is available, STD treatment is under control. At the same time, the availability of antibiotics and medical literature lead to self-treatment (10 to 40% of all STD cases, depending on the district). These cases are not included in the official statistics. Therefore the true rate of STD is likely to be higher than the official figures. In some districts (like Poronaisk) STD infected socially excluded persons are not treated, (Study C: Island community health survey).

TABLE 5: INCIDENCE OF VENEREAL DISEASE IN THE REGION PER 100,000

	Year					
	1995	1996	1997	1998	1999	2000
Syphilis (all forms) total	3064	4143	3634	2633	1571	1129
per 100,000 of population	454.8	653.4	579.4	432.7	260.3	191.2
Gonorrhea total	1658	1219	874	705	902	945
per 100,000 of population	246.1	192.2	139.3	115.8	149.4	160.0

Source: Sakhalin Region at the Turn of the 21st Century, Jubilee Collection. Yuzhno-Sakhalinsk Regional Committee of State Statistics, 2001.

8.3.2 HIV/AIDS

The first recorded case of HIV infection on Sakhalin Island was in 1993. By the end of 2001 a total of 67 cases of HIV infection had been recorded. The HIV incidence increased from 0.95 per 100,000 in 1997 to 3.37 per 100,000 in 2001. The majority of the cases were male and they had become infected within the RF. Before 1997, only HIV contracted through sexual intercourse was observed on Sakhalin Island. HIV-positive members of the population detected since 1997 indicate cases related to intravenous drug use.

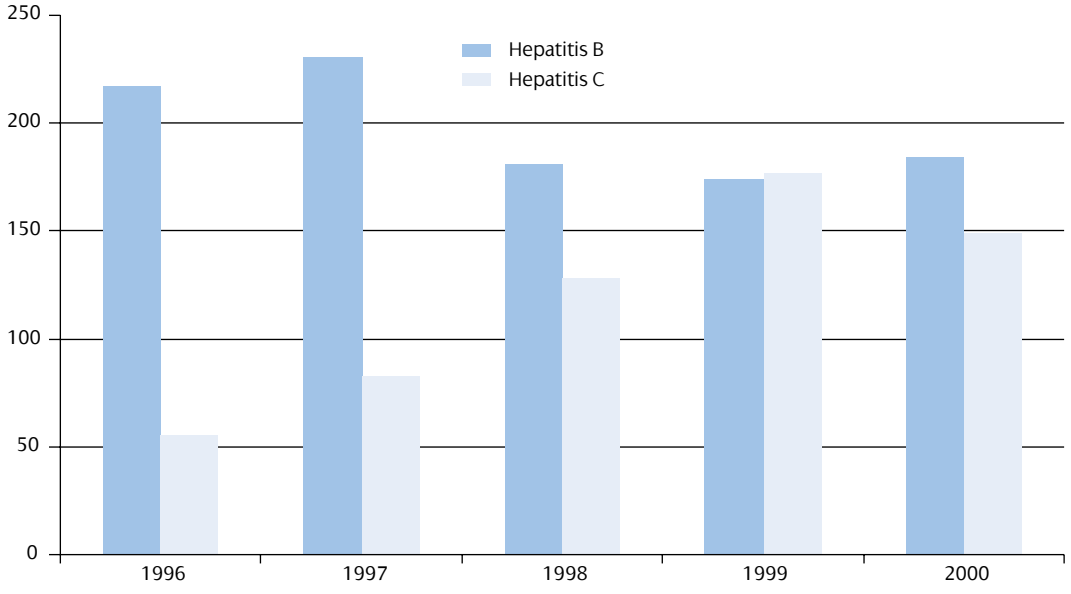
All patients treated for an STD or who are seeking treatment from a gynaecologist or urologist are also tested for HIV. There is a special centre for prophylaxis of HIV in Yuzhno-Sakhalinsk, co-ordinating HIV detection and prevention management on Sakhalin Island. The activities of this centre are influenced by budget constraints.

8.3.3 Hepatitis B and C

Hepatitis B accounts for 45% of all diagnosed viral hepatitides and hepatitis C, 13%. The carrier rate for hepatitis B is rising, reaching 184 per 100,000 in 2000. The highest incidences occur in healthcare workers (531 per 100,000) and in the age group 18-19, 461 per 100,000. This suggests transmission by parenteral route, either through accidental transmission in a healthcare environment or intravenous drug use. The incidence in children is less than 1% (185 per 100,000) suggesting vertical transmission. A region-wide immunisation programme for hepatitis B started in 1998, targeting at-risk newborns and healthcare workers. Limited funding restricted the programme.

Throughout Sakhalin the incidence of hepatitis C is about 6 per 100,000. Of concern is the prevalence of the disease among haemodialysis staff, 20% of whom are infected.

FIG 5. PREVALENCE OF HEPATITIS B AND C VIRUS CARRIAGE PER 100,000



8.3.4 Tuberculosis

Although the frequency of diagnosis of TB has stabilised, the disease is a serious problem on Sakhalin Island. The incidence was 85.2 per 100,000 in 2000, which is significantly higher than the average in the RF where the incidence is 61.4 per 100,000. Between 1999 and 2000, the incidence of TB increased in 11 out of the 18 administrative areas (see Table 6). Among the Sakhalin Island indigenous population in Nogliki and Okha regions the TB incidence rate is high. Overall high incidence rates were recorded in Nogliki, Okha, Smirnykh and Tymovsk Districts. The highest incidence, 157 per 100,000 was in the city of Yuzhno-Sakhalinsk. The case detection in children, currently 14.3 per 100,000, as well as the growth in the number of newly diagnosed advanced TB cases and the increase of drug resistant TB is cause for serious concern.

The incidence rate of TB in the prison population is significantly higher than the Sakhalin Island incidence rate. Among the inmates of Smirnykh penitentiary, 12% have active forms of TB. Treatment and follow up of TB patients in prisons is not always adequate, creating a reservoir of partially treated and drug resistant cases. Once the prisoners return to society, the risk of TB exposure within the community increases (Study C).

The present TB screening programme is not available for the whole community and mainly focuses on people who are employed. A large percentage of the non-working population does not attend regular screening. District clinics, apart from Nogliki are not equipped with portable chest X-ray units. Some people are reluctant to go to the regional TB dispensary for treatment, partly due to travel costs. The Bacillus Calmette-Guerin (BCG) vaccine is part of the national immunisation schedule.

The Directly Observed Therapy Shortcourse (DOTS) recommended by the WHO is accepted by the health authorities but has not been implemented. TB patients are initially hospitalised in special TB clinics, however, when they are discharged they are often stigmatised. Only 3-5% of all patients are well nourished and some patients from the low-income groups do not comply with both the in-and-outpatient treatment regimes. The cost of tuberculosis medication is funded by the Federal Health Department.

TABLE 6: TB INCIDENCE RATE IN THE TOTAL SAKHALIN REGION PER 100,000

District	Incidence per 100,000			Increase / decrease rate (%) 1999 to 2000
	1998	1999	2000	
Aleksandrovsk-Sakhalinsky	29.4	43.9	63.6	+ 44.2
Aniva	32.1	57.9	57.7	- 0.7
Dolinsk	49.3	41.5	60.2	+ 45.1
Korsakov	52.1	63.5	83.5	+ 31.7
Kuril	25.0	29.5	12.5	- 136
Makarov	16.3	33.6	77.6	+ 130
Nevelsk	69.3	68.8	70.5	+ 2.5
Nogliki	102.0	122.6	61.2	- 100
Okha	78.6	99.8	92.1	- 7.6
Poronaisk	43.7	53.4	71.6	+ 34.1
North Kuril	35.7	19.5	50.0	+ 150
Smirnykh	109.2	99.4	119.8	+ 20.5
Tomari	51.6	53.6	54.8	+ 1.9
Tymovsk	48.2	72.3	69.8	- 3.6
Uglegorsk	32.8	41.8	54.2	+ 29.4
Kholmsk	56.7	65.1	54.3	- 16.6
South Kuril	31.3	59.9	30.3	- 49.2
Yuzhno-Sakhalinsk	80	78.9	85.3	+ 8.1
Region total	**60.9**	**76.4**	**85.2**	**+ 11.5**

Source: Centre for Sanitary and Epidemiology Supervision

8.4 FOOD BORNE AND WATERBORNE DISEASES

8.4.1 General

The incidence of acute intestinal infections on Sakhalin Island is high and increasing. The incidence in 2000 was 86.5% higher than the incidence in the RF. The 'all case incidence' was 633.2 cases per 100,000 (combined known and unknown etiology). The incidence for cases with unknown etiology was 374.9 per 100,000 and for cases with known etiology, 258.3 per 100,000.

8.4.2 Viral

There is little detailed information on viral intestinal infections on Sakhalin Island, apart from hepatitis A (see Table 7). Based on the reported statistics it is very likely that many of the cases reported as intestinal infection of unknown etiology were caused by viruses.

TABLE 7: ALL FORMS OF VIRAL HEPATITIS IN SAKHALIN

Nosological forms	1997		1998		1999		2000	
	No.	%	No.	%	No.	%	No.	%
Viral hepatitis _A	892	77.3	100	29.76	55	22.82	110	41.00
Viral hepatitis _B	205	17.76	170	50.60	141	58.51	121	45.15
Viral hepatitis _C	57	4.94	66	19.64	44	18.26	36	13.43
Viral hepatitis, total	1,154	100	336	100	241	100	268	100

8.4.3 Bacterial

The most important known acute intestinal disease is bacillary dysentery (Shigellosis). In 2000, 15 major outbreaks of dysentery were reported. The incidence varies from district to district. The highest incidence reported in 2000 was 1801.3 per 100,000 in the Uglegorsk District. Following a minor earthquake on August 5, 2000, there was an outbreak of water and dairy mediated bacterial dysentery with a peak of cases reported at the end of August and early September. The infection was spread mainly through the centralised city water supply system and milk from two agricultural enterprises. The most common identified micro-organism was Shigella Sonnei (72.6% of the cases).

In contrast to the incidence of Shigellosis, the rate of Salmonella in 2000 was only 11.2 cases per 100,000. The factors contributing to Salmonella infection are insufficiently cooked meat, poultry and eggs of local origin. The reported low incidence of Salmonella is in line with the findings of food Salmonella monitoring programmes, using classical bacteriological techniques. Of 7,457 samples tested in 2000, only two cases obtained positive results (poultry not included). However, there is evidence of Salmonellae amongst the poultry population of poultry farms.

Other bacterial intestinal infections are rarely reported. There was an outbreak of cholera in a small community on Sakhalin Island in 1999, where 12 cases were reported. A Sakhalin resident who had visited China imported the disease.

8.4.4 Parasitic

The most commonly reported parasitic intestinal infection related to water is giardiasis. The incidence in 2000 on Sakhalin Island was 79.7 per 100,000. The disease is mainly recorded among the urban population (94.8%) and mostly affects children under the age of 14 years (73.4%).

8.4.5 Helminthiasis

Helminthiasis is common on Sakhalin Island. The two major intestinal worm infections are enterobiasis, with an incidence of 708.3 per 100,000 and ascaris with an incidence of 260.1 per 100,000 in the year 2000. Although helminthiasis typically affects children, adult cases also occur. The incidence of ascaris on Sakhalin Island is five times higher than in the RF. The highest incidence of 942.1 per 100,000 was observed in Korsakov District.

Diphyllobothriasis occurs throughout Sakhalin. Infection is related to the consumption of raw or undercooked fish belonging to the Salmonidae family.

Poor living conditions, contaminated drinking water and poor food hygiene contribute to the incidence of food and waterborne diseases. Details about housing and utilities including drinking water are described in Section 8.14.

8.5 ZOONOSES AND ARTHROPOD-BORNE DISEASES

Rodents, small mammals and insects such as ticks comprise the reservoir for zoonoses and arthropod-borne disease on Sakhalin Island. There is widespread distribution of vectors which include ticks, mosquitoes and gadflies (Study A).

Reports from the local TsGSEN have noted the possibility of an increase in some insects as a result of forest clearing for the pipeline right of way. The right of way ranges in width from about 43m to a maximum of 65m.

The focus for management of these diseases at present is based on counting the number of vectors and the level of infection. There is extensive legislation regulating the methods of control of vector-borne disease which includes non specific and specific measures such as immunisation. In general the diagnosed case rate of arthropod-borne and zoonotic infection has been low. However, studies in the north of Sakhalin have demonstrated serological evidence of previous disease which suggests that there has been an under diagnosis of several diseases including Lyme Disease, tularaemia and leptospirosis (feedback from TsGSEN during the review of the draft HIA).

8.5.1 Tularemia

In humans the usual portal of entry for tularemia is via the skin, mucous membranes or the bite of a tick or other arthropod. Inhalation has been identified as a portal in Russia. A virulent form of tularemia is reported in North America. A form causing mild disease only is found in Europe and Asia. Throughout Sakhalin there are a number of vectors for tularaemia, but there have only been two diagnosed human cases recorded in the past 15 years, (Study A). However, serological evidence of past infection has been demonstrated in 4-10% of a sample population in four northern districts in 2001.

On Sakhalin there is a vaccination programme for tularemia, but it has been administered sporadically and it is not clear if the low apparent incidence of disease is due to this programme, the lack of a virulent form of Francisella tularenis (the agent of infection) or treatment for other conditions which can incidentally cure tularaemia.

8.5.2 Tick-borne Encephalitis (TBE)

Tick-borne encephalitis is prevalent in far-eastern Russia and there have been a number of cases reported among construction workers in this area. Although the vectors for transmission of TBE are present on Sakhalin Island, there have not been any recorded cases of TBE between 1995 and 2000. While there is a Russian legal requirement for immunisation for at-risk personnel, less than 250 people on Sakhalin were immunised in 2000 and one quarter of these were from Yuzhno-Sakhalinsk. In 2002 approximately 2,500 people were expected to be vaccinated.

8.5.3 Lyme Disease

Awareness about Lyme disease and diagnostic criteria have recently been developed on Sakhalin. This has lead to an increased frequency of diagnosis in the Sakhalin region. Diagnosis in the first nine

months of 2002 tripled in comparison with the incidence in the previous year (10.5 vs 3.2 per 100,000) (feedback from TsGSEN during the review of the draft HIA).

The incidence tripled in Yuzhno-Sakhalinsk (15.24 vs 4.9 per 100,000), quadrupled in Kholmsk District (7.2 vs 1.8 per 100,000) and almost doubled in Korsakov District (25.4 vs 14.8 per 100,000 - the highest level in the region). Disease incidence in Dolinsk and Tymovsk Districts is also higher than for the same period in 2001.

8.5.4 Leptospirosis

In many places, the principal mode of transmission of leptospirosis is by contact with contaminated water, whilst direct contact with animals and food (feed) is of secondary importance. In Sakhalin the prime source of disease is attributed to infected dogs (feedback from TsGSEN during the review of the draft HIA). There were three recorded cases in 2000 and 2001.

8.5.5 Q Fever

Q Fever is contracted by inhalation of infected dusts, by handling of infected material and possibly by drinking infected milk. The causative organism is found in animals and ticks. No cases have been recorded in Sakhalin in the past five years.

8.6 LIFESTYLE AND NON INFECTIOUS DISEASE

8.6.1 Cardiovascular disease and cerebrovascular disease

The true incidence of vascular disease is difficult to determine due to the expected prevalence of asymptomatic disease. However, vascular disease on Sakhalin accounted for 652 deaths per 100,000 throughout the region in 2000 and was the highest cause of death accounting for nearly 50% of deaths.

In people of working age (men between 16-55 years and women 16-50 years) the death rate from vascular causes accounted for 227 deaths per 100,000. This ranked only behind accidents and trauma as the major cause of death in this age group. Although the exact incidence of the risk factors of vascular disease are not available, the prevalence of smoking is estimated at about 50% of the adult population. The prevalence of hypertension is not known but the expense of medication suggests that many people with hypertension are not likely to be treated, (as explained during the health practitioner's workshop).

Although vascular disease accounts for a high level of mortality, region-wide morbidity is much lower suggesting either under-diagnosis during life or inaccurate information on death certificates. Both these problems are recognised globally when classifying disease.

8.6.2 Drugs and Alcohol

8.6.2.1 Alcohol Abuse

Alcohol abuse is considered a high priority health-related problem, on both Sakhalin and the Russian mainland. The economic and social burden of alcohol-related problems in Russia not only affects people's lives and careers but also includes the contribution of alcohol to traffic accidents, crime, homicide, and domestic violence. For example, more than 35,000 people die every year from acute accidental alcohol poisoning in Russia.

Alcohol-related problems requiring urgent medical treatment include: alcohol intoxication, poisoning, industrial and household injuries, road traffic accidents, penetrating wounds, acute pancreatitis, worsening of peptic and duodenum ulcers and bleeding from oesophageal varices.

There has been a marked increase over the last three years in the level of diseases related to alcohol abuse on Sakhalin Island. Local health professionals expressed concern that the level of alcohol dependency has become critical and that proactive, preventative and educational programmes are necessary. Analysis of data from the Regional Centre for Alcohol and Drugs has shown an increase in requests from patients for alcohol and drug abuse rehabilitation treatment, although adequate funding

for such programmes is not available. It has become evident recently that teenage drinking is on the rise. Statistics show that teenage alcoholism is the most widespread social health problem, followed by drug abuse.

A number of health professionals confirm that drinking is a cultural tradition of the Russian people. Compared to other regions of the RF, the rate of alcohol addiction is and always has been higher in Sakhalin and other northern territories. Treatment programmes for alcohol addiction are very limited and some health professionals are unaware of their existence. There is a regional narcologic dispensary and a narcologic hospital department as well as an anonymous treatment facility in Yuzhno-Sakhalinsk. The treatment focuses on detoxification, without a real effort to resolve related psychological problems.

8.6.2.2 Drug abuse

Drug abuse poses a serious threat to the health of the population on Sakhalin Island and throughout Russia. Poor socio-economic conditions are considered a major contributing factor to this situation. There has been a 17-fold increase in the abuse of illegal drugs and inhalants by teenagers since 1999. During the last ten years the sharp increase in the spread of drug use among adolescents has resulted in a steady increase of drug dependency.

Health professionals are concerned that the absence of an effective preventive, proactive treatment doctrine with widespread implementation contributes to the drug and alcohol situation throughout the region and the Russian mainland. The poor socio-economic conditions limit development and implementation of recreation programmes targeting adolescents (Study C). In some districts there are cases of glue and paint sniffing in children and teenagers (Study C).

TABLE 8: ALCOHOL AND DRUG ADDICTION

Patients under the care of a doctor*	Year					
	1995	1996	1997	1998	1999	2000
Alcoholism and alcoholic dementia total	1678	2023	1154	1014	958	1006
per 100,000 of population	259.0	319.0	184.0	166.6	158.7	169.1
Drug addiction and toxicomania total	109	117	142	162	136	179
per 100,000 of population	16.8	18.5	22.6	26.6	22.5	30.1
Number of alcoholic and alcoholic dementia follow-ups total	17315	17568	17473	17335	16971	16571
per 100,000 of population	2672.9	2770.5	2785.9	2848.8	2811.6	2785.5
Drug addiction and toxicomania follow ups	423	452	550	640	724	843
per 100,000 of population	65.3	71.3	87.7	105.2	119.9	141.7

*Diagnosed for the first time

Source: Sakhalin Region at the Turn of the 21st Century, Jubilee Collection. Yuzhno-Sakhalinsk Regional Committee of State Statistics, 2001.

8.6.3 Smoking

Tobacco use is the leading preventable cause of death in the RF, presently causing more than 800,000 deaths each year. Within the RF, 36% of the population are smokers, 62% of the men and 13% of the women. Approximately 80% of adult smokers started smoking before the age of 18. Most smokers are young people. Below the age of 35 years, 47% of people smoke. In the age group 36-50 years, 43% are smokers and above the age of 50, 21% are smokers.

On Sakhalin Island health professionals confirm a substantial increase in the number of smokers and at the same time the average age of smokers is decreasing. The average percentage of the population who are smokers is estimated at 50-70%, including many health professionals. In Yuzhno-Sakhalinsk most of the patients of skin and venereal disease clinics, TB and narcologic dispensaries are smokers. According to maternity clinic personnel, many pregnant women and young mothers smoke. There are registered cases of newborns with nicotine withdrawal syndrome.

An important factor is the availability of tobacco products. More and more tobacco advertising billboards are erected in the streets of Yuzhno-Sakhalinsk. Cigarettes are available round the clock, (Study C). By law, smoking is prohibited in many public places such as aeroplanes and restaurants, but enforcement varies.

8.7 HEALTH INFRASTRUCTURE

Health infrastructure on Sakhalin Island (Ref. 11) is composed of separate systems that work together to provide healthcare to the residents of Sakhalin. This system includes:

- The Oblast or Regional system
- The Municipal or City system

There is also a limited private healthcare sector.

8.7.1 Oblast or Regional Healthcare System

The Regional Healthcare Department (RHCD) is a regional entity that operates under the principles and guidelines of the Ministry of Health of the RF. The RHCD is financially supported by a regional budget controlled by the governor of the Sakhalin region.

The head of the RHCD is authorised to implement the state policy for healthcare in Sakhalin. The state system of healthcare also includes other state institutions which are subordinate to the authorities. This includes hospitals/polyclinics, educational institutions, pharmaceutical institutions and forensic medical examination institutions. TsGSEN reports independently to the Ministry of Health, although there is interaction with the RHCD.

The regional and municipal branches of the healthcare system work in mutual co-operation to address the healthcare needs of Sakhalin Island. The regional branch is responsible for the entire Sakhalin region and Yuzhno-Sakhalinsk, the largest city. The municipal system shares responsibility for Yuzhno-Sakhalinsk.

8.7.2 Municipal or City Healthcare System

The municipal system of healthcare also complies with the principles and guidelines of the Ministry of Health of the RF, although it is funded by the municipal budget and not the regional budget. The Mayor of Yuzhno-Sakhalinsk controls the municipal healthcare budget. Under the municipality's authority are hospitals, polyclinics and pharmaceutical institutions which operate according to RF and appropriate municipal authorities legislation.

8.7.3 Private Healthcare Sector

The private sector on Sakhalin Island has developed substantially since the inception of non state-owned healthcare services over the past ten years. The most notable changes are in the speciality services sector, including dental, ophthalmology and pharmaceutical outlets. Private sector healthcare facilities often provide a higher quality service at a higher price (Study B). These enterprises are either solely owned by Russian nationals or joint ventures involving non-Russian entities.

Yuzhno-Sakhalinsk has five privately managed dental clinics, an international primary healthcare clinic (ISOS) and a private ophthalmological clinic all of which offer healthcare services geared to an international standard. It is expected that this sector will grow rapidly along with the Project development.

8.7.4 System Description

8.7.4.1 Philosophy

In theory, each citizen is guaranteed under RF law access to the state healthcare system via a compulsory state medical insurance programme. However the healthcare system is in a transitional phase and is leaning towards a system in which additional services can be purchased.

8.7.4.2 Services Covered by Compulsory Medical Insurance

Citizens who have compulsory medical insurance are entitled to:

- Ambulance and emergency medical treatment at medical facilities in their resident districts
- Primary healthcare at medical facilities in their resident districts
- Specialised healthcare at regional medical facilities
- Free in-patient medications

8.7.4.3 Financing

The budget for the healthcare system is broken down as follows: in the regional system, 67% of funding comes from the local regional budget or governors budget, 27% from compulsory medical insurance payments, and 6% is from private individuals paying for additional services. A similar breakdown applies to Municipal facilities although the major funding is from the Municipal budget rather than the regional budget.

The Sakhalin Island healthcare institutions have an approved budget which does not cover 100% of their needs. The standard of the healthcare system depends directly on the socio-economic situation of a district. In Korsakov, Okha and Nogliki Districts and in the city of Yuzhno-Sakhalinsk, medical services are better organised and more widely available in comparison with other municipal territories on the Island (Study C).

8.7.4.4 Payment of Healthcare Providers

Healthcare providers are paid by the medical institution which employs them. A regional healthcare employee's salary comes from the regional budget while the City Hospital employee's salary is paid from the municipal budget. In the past, salary payments were months behind because of budgetary lapses. Healthcare provider salaries are consistent with non-professional wages paid to other state employees.

8.7.4.5 Service Delivery System

Primary healthcare is available free of charge for all citizens, typically at the municipal healthcare level and at the TsGSEN. The scope of services is regulated by the regional administration according to the national health programme.

Specialised healthcare, which is a combination of fee for services and free of charge healthcare, is provided either at the regional or municipal level. Smaller districts usually have limited specialised healthcare capabilities and refer patients to regional health facilities.

8.7.4.6 Transition Issues

A move toward fees for additional services is emerging in both the state-run institutions and the newly emerging private sector. Internationally recognised quality diagnostic centres, upgraded from the previous soviet healthcare facilities, and a majority of specialised facilities provide additional services for a fee. These include private rooms, individual nursing care, new procedures and dental care. Medical consumables and meals are also charged to the patient (Study B).

8.7.5 Local Healthcare Services

A description of the available healthcare services is included in Table 24 in Appendix 1. The tables in Appendix 1 also include a breakdown of health institutions and distribution of medical staff in each district and available facilities such as X-ray and laboratory services. The focus of healthcare is outpatient based, although much treatment is undertaken on an inpatient basis. In rural communities local healthcare is provided by felshar stations (paramedic) and ambulance doctors.

8.7.6 Secondary (Qualified) Healthcare Facilities

Some of the qualified facilities along the pipeline right of way are described below.

8.7.6.1 Nogliki District

Medical facilities at Nogliki Hospital are in a poor state of repair. A new modular hospital facility is in the process of being built. It is anticipated that this future facility will provide qualified healthcare support to the continental shelf projects in northern areas.

Development of local Emergency Response (ER) facilities and training of the ER staff will be necessary to ensure adequate medical support for the SEIC workforce and contractors. The development of emergency facilities would also benefit the local community.

8.7.6.2 Korsakov District

The medical facilities and expertise available in the Korsakov Hospital are above average Sakhalin Island standards, and the hospital can deal with most surgical and medical cases. The hospital is open 24 hours per day, and is undertaking efforts to prepare for the LNG plant construction project. It has about 450 beds and 130 doctors, and an intensive care unit with ventilators. Funding restrictions limit nursing staff to one nurse for three patients. Neuro-surgical cases and more complicated orthopaedic cases are referred to Yuzhno-Sakhalinsk.

8.7.7 Specialist Healthcare: Regional Hospital at Yuzhno-Sakhalinsk

The regional hospital is the referral hospital for all other island hospitals. It has about 650 beds and 150 medical staff. Emergency medicine, intensive care unit (ICU) /anaesthetists and surgeons are on site 24 hours a day supported by an extensive range of specialists on call. The hospital has radiology, including CT scan, haematology, biochemistry and microbiology services. The regional hospital does not have the capability to perform cardio-surgery, although there is an increasing demand for coronary artery bypass operations among the population. Neither brain tumour operations nor spinal surgery are performed. The nursing training school and postgraduate medical training school are within the hospital grounds. Medical staff undergo five-yearly re-certification in their respective specialities.

The regional hospital is developing a partnership arrangement with an American hospital group. This relationship will focus on developing the appropriate clinical decision tree to improve clinical care and emergency response. The partnership is also addressing equipment requirements to enable improved service provision.

8.7.8 Healthcare Professionals Training and Registration

Physicians are required to complete a six-year medical degree and a one or two-year residency programme before becoming qualified to take the RF commission examination that demonstrates competency. Every five years thereafter, participation in education update programmes is required to maintain salary levels.

Foreign healthcare providers are required to register with the RF Ministry of Health which will evaluate the home country certification and determine if the individual is qualified to practice within Russia (Study B).

8.7.9 Other Infrastructure Issues

During the HIA workshop other issues related to those above were raised. These issues included quality and delivery of clinical care and first aid training, training of medical and other hospital staff, delivery modes for healthcare including telemedicine and IT systems in clinical situations. Participants in the HIA workshop also noted the disparity between international and Russian clinical standards and protocols.

8.7.10 Mental Health Services

Services for the treatment of mental health are limited and the focus is on institutional care. Local statistics at a district level did not differentiate suicide from death caused by accidents and poisoning, including acute alcohol poisoning. Elsewhere in Russia, suicide, especially amongst middle-aged men, is one of the leading causes of premature death. This is often attributed to social isolation, unemployment and alcohol abuse.

8.7.11 Infectious Disease Services

Infectious wards have been designated for isolation in central district hospitals and in the city hospital of Yuzhno-Sakhalinsk. However, full quarantine facilities are not available. Local laboratories are able to identify most microbiological pathogens.

8.7.12 Capacity of Healthcare Facilities

Many years of funding shortage have affected the general condition of clinical buildings and created problems for overhaul and routine repairs. Some medical institutions are housed in converted and unsuitable buildings.

In some districts there has been a lack of disposable instruments, which, when necessary, are replaced with multi-use syringes (Study C). This is not usual practice and is not condoned by local health authorities.

Due to changing demography, including negative population growth rates and migration, the number of hospital beds has been reduced in some districts (Study C). The distribution of medical manpower has also changed with a net migration of specialists to larger centres (see Table 23, Appendix 1).

8.7.13 Family Planning

In Yuzhno-Sakhalinsk there is a family planning centre at the regional hospital. At a district level, the family planning programme is implemented by practicing gynaecologists who have set up special clinics and see patients on scheduled weekdays. In Kholmsk District the position of a family planning specialist has ceased.

Basic information on undesired pregnancies and abortion is available in every district but a proactive approach is lacking. In Korsakov District there is a 'crisis centre' for teenagers and a club for school girls. The Central District Hospital publishes three newspapers - 'Pulse', 'Mercy and Health' and 'Teenager'- that cover the issues of maternity and childcare. There is a confidential hot-line for teenagers in the city of Tomari. In some districts, family planning education is done by local gynaecologists during conferences and at lectures given by organisations and enterprises.

Health professionals are concerned about frequent pregnancies and child births among alcoholics and other marginalized groups. Some health professionals voiced regret that the permitted grounds for surgical sterilisation are limited.

A wide range of contraceptives, including condoms, is available in towns and communities. Women from low-income groups with many children are provided with free intra-uterine device (IUDs). Gynaecologists also distribute oral contraceptives but most young people cannot afford them. The quantity of free contraceptives is very limited (Study C).

8.7.14 Child and Adolescent Health Development

A special department of the TsGSEN develops guidelines and sets regional health requirements for paediatric and adolescent healthcare including immunisation and vaccination programmes. There is also a targeted 'Children of Sakhalin' programme (Study B).

8.7.15 Regional Disaster Response

8.7.15.1 Regional Catastrophic Response Team

The Regional Catastrophic Response Team (RCRT) was founded on May 3, 2000 and is pursuant to the following RF legislation:

- Law No 68 FZ *Safeguard of the population and territories against natural and man made catastrophes December 21, 1994*
- CIS Resolution No 420 *Protection of life and health of the population of the Russian Federation in emergencies caused by natural disasters, accidents and catastrophe May 3, 1994*
- CIS Resolution No 1113 *Unified State System of Prevention and Control of Emergencies November 5, 1995*

Each Russian region has a dedicated RCRT, which is responsible for development of emergency response strategies, employing RCRT manpower and maintaining equipment and responding to catastrophic events in its respective region. In the event of a large-scale catastrophe, multiple RCRTs may be deployed.

As a regionally funded entity, the RCRT's primary sphere of responsibility is to ensure that timely and professional emergency healthcare services are available 24 hours a day, seven days a week, in order to respond to catastrophic situations. The Sakhalin Island region is particularly vulnerable due to periodic seismic activity, flooding and seasonal forest fires.

The RCRT base of operations is located in the grounds of the regional hospital in Yuzhno-Sakhalinsk. The chain of command for the RCRT originates within the regional health services and moves down through the regional hospital to the director of operations.

The RCRT structure consists of a full time administrative staff of 14 people, including office, logistical support and strategic planning staff. The healthcare providers are part-time employees who attend monthly and annual scenario training sessions and work on a rotating on-call system. Presently the RCRT consists of the following medical staff:

- 47 physicians (surgeons, traumatologists, neurosurgeons & anaesthetists)
- 24 paramedics (felshers)
- 25 nurses (medsistras)
- A reserve pool of medical students

The healthcare providers and emergency support staff work under the regional three-tier emergency call-out system, consisting of:

- Active/non-emergent on call system
- Emergency/emergent stand-by
- Emergency/Team call-out

The emergency call-out system also integrates other associated regional emergency response assets, including, but not limited to, military rescue teams (EMERCOM), fire brigade personnel and equipment and the local militia. A regionally structured incident command system has been developed to co-ordinate catastrophic response activities.

The RCRT also has limited access to military assets, including large off-road transport vehicles and aircraft (helicopter and fixed wing). There is a lack of suitable equipment (mobile tent hospitals, portable medical equipment, etc.) and medical consumables due to funding issues. This is a frequently encountered problem throughout the healthcare system.

The Sakhalin RCRT is a proponent of future development of a joint catastrophic response strategy with the oil and gas industry stakeholders. The RCRT has also had an open-door policy for participation in its drills.

8.7.16 Medications

The high cost and scarcity of medication were highlighted by participants during the HIA workshop. During the community consultation, it was claimed that patients were knowingly given less effective medication, as the necessary medication was either not available under their insurance scheme or was too expensive.

Pharmaceuticals are sold at both state-run and private pharmacies. These institutions operate under the guidelines of the RF Ministry of Health in providing prescriptions and over the counter medications to the population. Presently there are 67 state-run pharmaceutical suppliers and 75 commercial suppliers on Sakhalin Island. The number of private sector suppliers is expected to increase. All medications are required under RF law to be registered and quality verified, although it was suggested during the survey of health professionals that there may be some black market medications available (Study B).

A survey was conducted to identify the most frequently used medications, both prescription and over the counter (OTC). This list was then cross-referenced with the WHO essential medicines list. Availability, prescription requirements and the cost of either a course of treatment or one month's supply are tabulated in Appendix 2. This list supports an assertion that high cost, rather than lack of availability, contributes to poor compliance, especially for long term treatment regimes such as for hypertension. Many medications, with the exception of narcotics, are available over the counter without a prescription.

8.7.17 Traditional and Alternative Medicines

Interviews with the local people in Study D suggest that many people in the communities, especially in rural settlements, practice self-treatment. Herbal remedies, acupuncture or massage practitioners are first-line treatment, rather than conventional treatment. A doctor is sought in an emergency, for serious illness or when initial treatment has failed. Some of the villages have traditional healers that use herbal medicines. The extent of traditional medicine is unknown.

8.8 IMMUNISATION

Active immunisation programmes are implemented throughout the region and more than 98% of children are immunised according to the national immunisation schedule. Hepatitis B and rubella were added to the schedule in 2001. The incidence of vaccine-preventable diseases in adults suggests that follow-up booster vaccination is not adequate, or that childhood vaccination in the past was not well implemented.

In the second half of 1998 several institutions received money from the Regional Mandatory Medical Insurance Fund (RMMIF) to purchase hepatitis B vaccine and immunise a limited number of the medical specialists and newborns from high-risk groups. Simultaneously a vaccination programme for children with close relatives, who are either hepatitis B carriers or have chronic hepatitis B forms, was launched.

Promotion of the hepatitis B vaccination strategy in 1998-1999 was the driving force behind the 2000-2001 vaccination campaign among seventh grade school children. Funding for the school children vaccination campaign was provided in three stages. The cost of the first vaccine was met by parents, the second by the municipal budget, and the third one by the regional budget. However, lack of funding precluded vaccination for many children.

Medical personnel from high-risk groups (working in direct contact with blood) are also being vaccinated though vaccination coverage is still limited because of budget constraints (Study C).

8.9 HEALTH CONCERNS IDENTIFIED BY THE COMMUNITY AND HEALTH PROFESSIONALS

Concerns from those working in the health system relate to poor standards of medical equipment. Many medical facilities suffer from technically outdated equipment, which limits their diagnostic, treatment and ambulance capabilities (Study C). Moreover, the medical profession is becoming less and less attractive as a career option and there is a growing manpower shortage. Many district specialists are leaving smaller districts, preferring to work in the capital, Yuzhno-Sakhalinsk. Ageing staff and a lack of any young recruits are exacerbating the problem (Study C).

The principal community health concerns are related to the lack of skilled medical care, the cost of medications, the cost of healthcare (travel costs) and dissatisfaction of the community with the attitude of medical practitioners (Studies C and D). The general level of alcohol use, smoking amongst young people, drug use and poor quality drinking water were also noted as health concerns.

The principal concern with the Project related to potential oil spills and consequent environmental pollution (Study D).

8.10 HEALTH DETERMINANTS

8.10.1 General

Direct health expenditure is only one element contributing to the health of the population. The socio-economic situation, the employment level in a community and the state of infrastructure contribute significantly to the level of public health. Food affordability and accessibility affect nutrition, which consequently has an effect on health. Education, particularly of women, has an effect on the birth-rate and levels of prostitution, sex education is expected to reduce the spread of STD and improve living conditions and the availability of TB drugs will reduce the incidence and spread of TB.

Some factors which have an impact on health, such as electricity black-outs which affect refrigeration and food hygiene, are unrelated to health infrastructure or expenditure. Many large urban shops have backup generators but these are not readily available outside the major cities.

Alcohol use is associated with domestic violence and road trauma. Statistics demonstrate that alcohol-related accidents and poisoning are the major cause of mortality in people of working age in Sakhalin (see Appendix 1).

A significant amount of food is imported into Sakhalin. The increase in population during construction is expected to drive the market to increase imports and is not expected to adversely affect supply. This issue is further discussed in the SIA.

Details about the socio-economic situation and the anticipated impact of the Project are contained in Chapter 9 of the SIA.

Although the Project is expected to have a positive economic effect on the local economy, some marginalized community members, such as those with mental health problems and those on fixed incomes, will be adversely affected by the rising cost of living, including housing expenses. Furthermore, the impact of an imported workforce with a diverse cultural background and an increase in the problems associated with an anticipated rise in prostitution on Sakhalin are likely to impact on health.

The following sections outline the baseline data for some of the health determinants.

8.10.2 Nutrition and Food Supply

Daily food intake of people on Sakhalin Island consists of vegetables, bread, pasta, beans, fruit, cereals, sugar, red fish, chicken and canned or stewed meat (Study D).

The cold and wet weather limits the extent of agricultural activity on Sakhalin Island. Local agriculture produces crops of potato, cabbage, carrots, beets and feed crops. Tomato, cucumber, peppers and green vegetables are grown in greenhouses.

The only locally produced crop with a production volume that fully meets the needs of the island is potato (100%). Local production supplies about 50% of the region's demand in vegetables, milk, eggs and fresh meat, 34% of milk and dairy products and 75% of eggs (Sakhalin Investment Attraction

Agency). However, home-grown fruits and vegetables are a dietary staple during the summer months and are readily available throughout the region.

Sakhalin's livestock sector consists mainly of cattle, pig and poultry husbandry. The average volume of local livestock production only partly meets the needs of the island, as outlined above.

The food supply is divided into food supplied by local producers (farmers, bakeries) and food which is supplied by wholesalers (stores, pavilions, kiosks, bakery shops). Appendix C, Table C-19 and C-20 of the SIA provides a summary of the numbers and types of food supply sources in communities.

8.10.2.1 Food contamination

In 2001, nearly 15,000 food samples on Sakhalin were analysed by TsGSEN and almost 1,400 were contaminated. Out of approximately 400 samples of imported products, 12 did not meet standards. Details of the type of products tested were not available.

The amount of imported European and Asian packaged foods, fruits and vegetables has increased dramatically over the last three years and the quality of these products is generally of international standards.

8.10.2.2 Nutrition programmes

School nutritional programmes have improved over the last three years. Agreements with agricultural and fishing collectives have allowed educational establishments to be supplied with necessary foodstuffs despite restricted budgets. However, in the whole region, demand for milk, fresh fruit and vegetables cannot be met. The districts in rural areas with limited financial support are the most vulnerable (Study B). There have been no recent studies of nutrition on Sakhalin.

8.10.3 Employment and Unemployment

The primary employment sectors on Sakhalin Island are currently the extractive industries, which include fisheries, coal and oil production and timber-related industries, including pulp and paper manufacturing. Whilst industries such as timber and coal have declined in recent years, food production services and oil production are becoming increasingly important sectors. Agriculture is of particular importance in rural communities.

Official unemployment stood at approximately 3% of the labour force in 2001 (Gubernskiye Vedomosty, 2002), however calculations of unoffical employment figures for August, 2002 indicate that the unemployment rate may be as high as 10.9% (see Chapter 4 of the SIA). Unemployment levels are roughly equal between the genders. The number of unemployed increased by 30% between 1991-1999 due to an overall decline in production and a restructuring of the basic components of the regional economy after the collapse of the Soviet Union. Employment levels appear to be recovering, with the slack being taken up by the private sector, which in 2000 provided employment to almost half of the workforce.

Small communities have been most affected by unemployment, with levels reaching 50% in some areas, particularly where state enterprises ceased to operate following the emergence of the RF. At present, employment opportunities in some rural areas are limited, and are further exacerbated through fewer education opportunities and a weak skills base.

Employment is discussed further in the SIA.

8.10.4 Income and Living standards

Average incomes in Sakhalin are roughly 20% higher than elsewhere in Russia, however, this apparent comparative wealth must be offset against the cost of living in Sakhalin, which is generally 50% higher than on mainland Russia (Sakhalin Regional Statistics Committee, 2001).

Average per capita monthly income in 2001 was approximately R3,400 and represented an increase of over 30% from 2000. The real amount of settled pensions rose by approximately 20% in the same period, (Gubernskie Vedomisti, 2002). Nevertheless, a significant percentage (36% in 2000) of the population exists on incomes below subsistence. The range in income distribution is narrower than for

other parts of the RF, with the income of the most affluent 10% of the population being approximately eight times higher than the poorest 10%, whereas in Russia this difference is closer to 14 times.

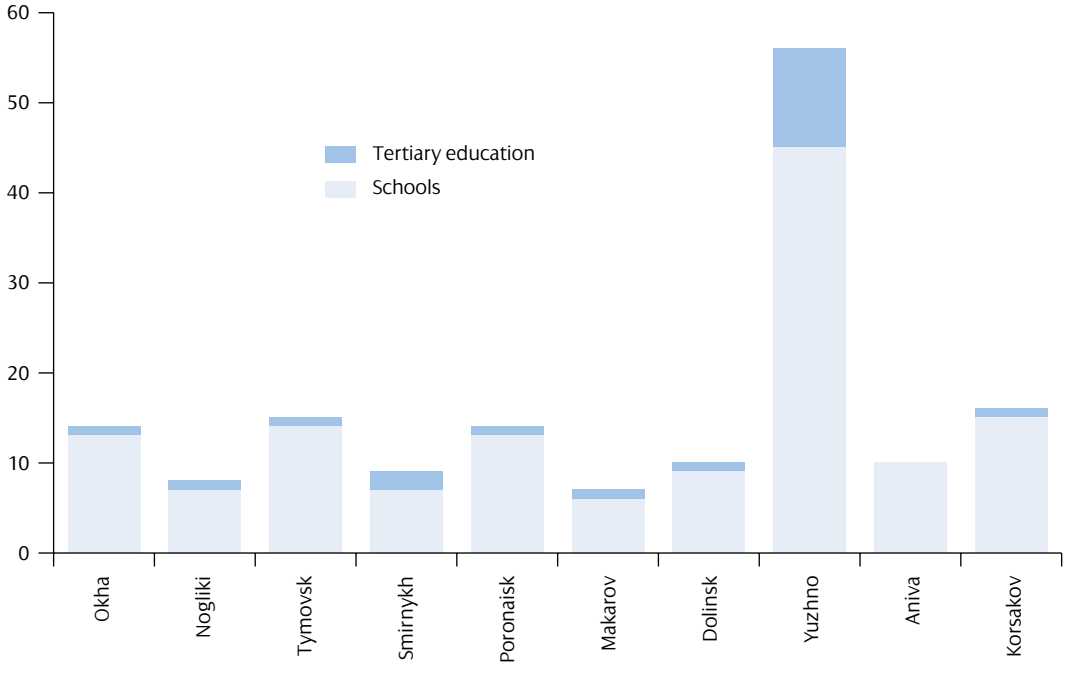
Incomes vary considerably between the districts. The highest earners are within Nogliki and Okha Districts, where average monthly incomes for those employed reach over R6,000, largely derived from the oil and gas industries. However, Okha District also has one of the highest levels of unemployment on Sakhalin (see Table C-14, Appendix C).

Incomes are lowest in Tymovsk, Makarov, and Aniva Districts, where average monthly wages are in the order of R2,000, derived from agriculture, timber and fisheries.

8.10.5 Education

Sakhalin Island provides all levels of education ranging from elementary to tertiary (vocational schools, universities etc). These services are not uniformly distributed around the island. Yuzhno-Sakhalinsk District has the highest number of educational establishments, including the highest number of tertiary education facilities. Tertiary education is limited elsewhere on Sakhalin. The lowest number of schools is in Makarov and Nogliki Districts, although other districts such as Smirnykh, Aniva and Dolinsk also have few schools (Fig. 6). These are areas of low population densities.

FIG. 6: EDUCATIONAL FACILITIES WITHIN SAKHALIN, 2001



The primary and secondary schools offer general education, and usually cater for between 100-200 pupils. Most appear to be fully staffed. Pre-schools, or elementary schools, are much fewer in number, and those that exist are often overcrowded. In communities of less than 350 people, there are neither schools nor nursery schools.

Vocational and higher education establishments, which are mostly limited to Yuzhno and Nogliki, offer training in areas such as welding, mechanics, radio engineering, home economics, law, and economics.

Further information on education is provided in Chapters 4 and 5 of the SIA.

8.10.6 Housing and utilities

About 40% of housing is privately owned and the remainder is owned by various levels of government authorities (Ref. 15). With the exception of the city of Yuzhno-Sakhalinsk, the number of new housing units coming on the market decreased in 2001 (see Chapter 4 of the SIA).

More detailed information about housing provision by district is shown in Table C-25, Appendix C in the SIA.

8.10.6.1 Utilities

Table 9 provides details of the type of utilities supply system in the Sakhalin Region for both urban and rural areas. Further details on utilities are provided within the SIA, in particular Table 5-11 provides a summary of the availability of the utilities: power supply, heating, water, sewerage, and waste management in the communities along the pipeline route (Study D). Each of these issues is described below:

TABLE 9: UTILITIES IN SAKHALIN REGION HOUSING FACILITIES IN 2000 (IN %)

Type of Supply System	In Urban Areas	In Rural Areas
Water	90.2	52.6
Sewage	84.9	44.5
Central Heating	83.4	36.1
Hot-water	25.8	4.4

Source: Sakhalin Region at the turn of the 21st century, Jubilee Collection. Yuzhno-Sakhalinsk: Sakhalin Regional Committee of State Statistics, 2001.

Power supply
In most of the communities along the pipeline route the power supply is regular and central, although there are occasional seasonal blackouts. Two communities have autonomous power supply.

Sewerage
In rural villages and smaller cities most homes have out-houses and only a small percentage have central sewerage. The percentage of houses with central sewerage is higher in larger cities like Nogliki (74%) and Yuzhno-Sakhalinsk (90%). In Korsakov, where 84% of houses have central sewerage, the system needs repair (Study D).

The percentage of wastewater passing through treatment facilities increased from 57% in 1996 to over 65% in 1999. Prior to 1995, some 60% of wastewater was discharged without any treatment. Management of infrastructure, including sewage treatment, is the responsibility of local authorities.

Contamination of drinking water by sewage has occasionally occurred. This contributed to an outbreak of hepatitis A in Poronaisk in 1997. Since 1998 the only disease outbreaks related to sewage contamination have occurred following natural disasters such as earthquakes and floods.

Heating
Many small communities have no centrally provided heating and use wood or coal stove heating. In the bigger cities, there is a larger percentage of centrally provided heating but this system is subject to seasonal breakdown (Study D).

8.10.7 Waste Management

There are about 60 domestic waste dumps, 40 oil slime storage ponds and waste pesticide disposal sites on Sakhalin. Industrial waste is stored or illegally dumped, as there is no facility for hazardous waste treatment (Study A). In some communities, locals burn or dump their domestic waste. Although land fills are available, there is limited organised waste collection.

Based on TsGSEN statistics, approximately 36,000 tonnes of toxic industrial waste is generated in the Sakhalin region annually. The majority of this industrial waste is generated by the oil and gas industry, transportation industry (both public and private) and agriculture. Industrial waste belonging to Hazard Class 3, consisting largely of oil slime generated in the process of oil and gas production, totals about

22,000 tonnes annually or 58.2% of total toxic waste.

There is no facility on Sakhalin Island designed to treat or dispose of toxic waste. According to RF law, a company that generates toxic waste belonging to either Hazard Classes 1 or 2 must keep it in indoor storage or at authorised disposal sites. About half the toxic waste is recycled and half is stored. Occasionally industrial waste is dumped into designated domestic waste disposal grounds. This has the potential to infiltrate sub-surface water reservoirs.

The TsGSEN is concerned that project-related hazardous waste may increase the potential for land and water contamination. SEIC has agreed a plan with the Sakhalin authorities to upgrade some current landfill waste facilities for use during construction. Details concerning waste management are included for each asset in the EIA.

8.10.8 Drinking Water

Drinking water is sourced from underground and surface water bodies. The following table outlines the sources of drinking water and the percentage of water samples which do not meet the required microbiological standards for communities along the pipeline route.

TABLE 10: DRINKING WATER FROM NORTH TO SOUTH

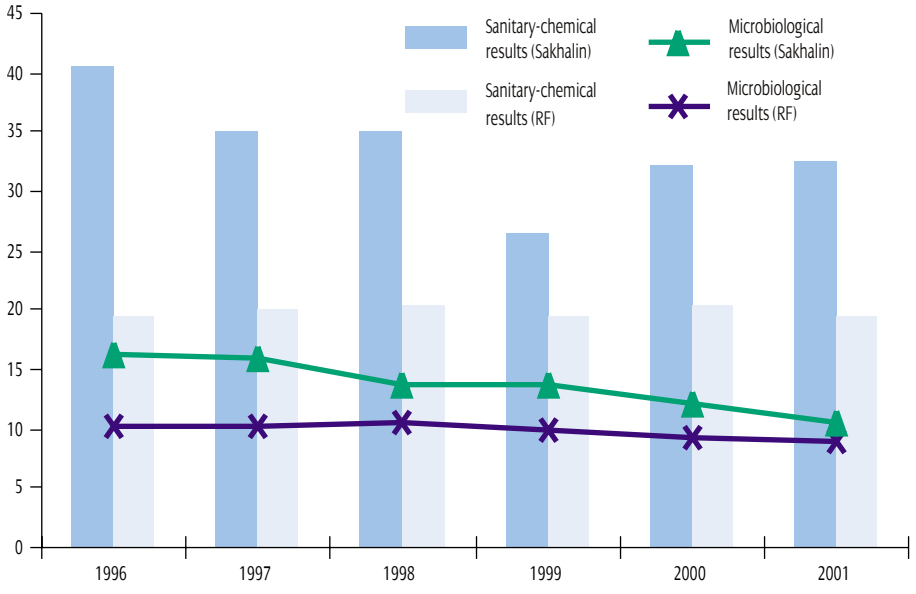
District	Total water supply sources in district	Underground sources	Surface sources	Number of communities with centralised water supplies	Microbiological parameters (proportion of deviant samples, %)	
					1999	2000
Okha	15	9	6	N/A	4.21%	0.18%
Nogliki	41	N/A	N/A	8	1.85%	2.43%
Aleksandrovsk-Sakhalinsk	7	3	4	2	14.07%	15.44%
Tymovsk	77	75	2	12 (13,269 persons)	17.34%	14.16%
Smirnykh	50	50	0	4.388 persons	7.19%	4.90%
Uglegorsk	12	3	9	N/A	13.66%	16.01%
Poronaisk	60	57	3	8	17.58%	10.49%
Makarov	20	19	1	3	4.06%	8.99%
Tomari	N/A	N/A	N/A	3	5.41%	5.22%
Dolinsk	21	20	1	10	8.37%	25.48%
Nevelsk	8	6	2	6	34.78%	48.69%
City of Yuzhno-Sakhalinsk	167	164	3	city plus 8	11.93%	7.75%
Kholmsk	30	9	21	N/A	18.77%	19.31%
Aniva	18	16	2	9	11.37%	7.94%
Korsakov	27	20	7	6	28.58%	24.96%

Source: Health data baseline study, Statistical data report Sakhalin Sanitary and Epidemiology Centre, 2001. (Note: N/A = Not available)

Only 71.1% of the water that goes to the consumer is treated (Study B). In 2001, of the 809 wells sampled throughout the Island, nearly one third did not meet RF microbiological limits (Study A).

The following graph demonstrates the water quality in terms of microbiological and natural contamination with iron and heavy metals averaged across the region and includes a comparison with the Russian average.

FIG. 7 QUALITY OF DRINKING WATER FROM CENTRALISED WATER SYSTEMS



Source: TsGSEN

The regional budget has increased funding for infrastructure, including water systems, substantially over the past three years to over USD 3 million in 2002.

The regional TsGSEN is revising the social-hygienic monitoring programme to target measuring biogenic elements, including fluorine in the water supply and distribution systems. Throughout Sakhalin Island the sub-surface water reservoir has a low fluorine concentration, from 0.0 to 0.3 mg/l.

8.11 AIR POLLUTION AND EMISSIONS

The key outdoor air pollutants on Sakhalin Island relate to the use of coal as a fuel source and motor vehicle emissions. (Diesel and unleaded fuel are the main vehicle fuels that contribute to air pollution). In the capital, Yuzhno-Sakhalinsk, the exposure of the population to air pollution is compounded by the frequency of ground temperature inversions, particularly in winter. Tobacco smoke, and in some communities wood and coal-burning stoves, contribute to indoor air pollution.

8.12 ROAD TRAFFIC ACCIDENTS

Accidents are a major contributor to premature death (i.e. death of people of working age). The tables below demonstrate the number of road traffic accidents and fatalities for the first six months of 2002, and include a comparison with 2001.

TABLE 11: SAKHALIN ROAD ACCIDENT STATISTICS IN 2002 BY DISTRICT (JANUARY TO JUNE 2002)

District	Number of accidents	Number of fatalities	Number of injured
Okha	7	0	8
Nogliki	5	2	6
Tymovsk	9	4	9
Aleksandrovsk-Sakhalinsky	2	0	2
Smirnykh	6	1	7
Poronaisk	8	0	10
Uglegorsk	10	1	14
Makarov	3	3	1
Tomari	4	0	4
Dolinsk	13	4	24
Yuzhno-Sakhalinsk	235	22	284
Aniva	14	2	14
Korsakov	37	11	57
Nevelsk	8	0	9
Kholmsk	20	5	21
Total region*	**381**	**55**	**470**

(*not included Kurilsk, N-Kurilisk and S-Kurilisk)

Source: Official website of RF Traffic Police (http:www.gibdd.ru), information received from Sakhalin Regional Traffic Police upon SEIC request and Sakhalin Regional Statistics Committee (Ref. 16)

TABLE 12: SAKHALIN ROAD ACCIDENT STATISTICS BY CAUSE OF ACCIDENT JAN-MARCH 2002 VS 2001

	number of accidents		number of fatalities		number of injured	
	2002	% increase over 2001	2002	% increase over 2001	2002	% increase over 2001
Total number of road accidents	154	23.2%	26	85.7%	176	26.6%
Traffic rules violations by drivers	36	80.0%	1	0.0%	37	94.7%
Accidents involving drivers under influence of alcohol	18	38.5%	3	200.0%	25	66.7%
Accidents involving pedestrians	35	0.0%	4	400.0%	36	2.9%
Accidents involving vehicles in substandard mechanical conditions	128	34.7%	26	100.0%	148	34.5%

Source: Official website of RF Traffic Police (http:www.gibdd.ru), information received from Sakhalin Regional Traffic Police upon SEIC request and Sakhalin Regional Statistics Committee (Ref. 16)

Table C-22 in the SIA gives a summary of the number of traffic accidents in Sakhalin by district during the period 1998 to 2002.

Several factors may contribute to the number of traffic accidents including:

- Recent import of right hand drive vehicles in a country which drives on the right
- Poor road surfaces and ice and snow on roads
- Increased number of young people driving high speed vehicles
- Drink driving

Evidence from other development projects suggests that there will be an increase in Project road traffic during construction and therefore there is likely to be an increase in road traffic accidents and injuries. A road transport HSE case is being developed as part of the HSE-MS to identify measures that could reduce the likelihood of vehicle accidents. In addition, the siting of camps, which is part of the IUP, considers the routing of roads in such a way as to minimise the effect on the community by construction traffic.

Details of the site alternatives and the infrastructure upgrade programme are provided in Volumes 1 and 6 of the EIA while details of the camp location selection process are included in Chapter 5 of the SIA.

8.13 CONSULTATION OUTCOMES

The issues and concerns detailed below were raised during the consultation process.

Based on the implementation of the previous off-shore project, 30% of the interviewed health professionals anticipated no negative effects on the population's health. Furthermore, it was suggested that the Project will be beneficial to the Sakhalin economy and the standard of living. The Project will help to develop infrastructure, create new jobs and possibly bring more money into the healthcare system. Possible future gas distribution to the population will improve living conditions in the districts.

A number of health professionals have a cautious attitude towards the Project, because of their concern about its potentially negative impact on Sakhalin Island's environment, especially in the LNG construction zone, which is currently a recreational area for the Korsakov District. There is also a fear of air and sea pollution. The inflow of people to the region may complicate the present epidemiological situation and change the pattern of disease rates.

Interviewees were also concerned about a possible increase of seismic activity in the oil and gas fields as it is feared that it may provoke new earthquakes. There may also be an increase in the rates of industrial injuries and occupational diseases that might put an additional burden on the healthcare services. Additional preventive treatment facilities may be required.

The health of the population and the condition of the healthcare system are closely interconnected with the level of social and economic development of regional districts. The trends of economic development in the region follow general national patterns and the situation can be characterised as unstable. The chronic budget deficit contributes to manpower shortage, poor equipment and the declining supply of medications. The healthcare system is struggling to cope with diseases that are widespread such as TB and STD.

A range of social problems contributes to the condition of the population's health. Unemployment and actual impoverishment of certain categories of the population (especially pensioners and those on low or fixed incomes), and a lack of organised social activities has led to an overall decline in the social status of some Sakhalin Island residents. The lack of motivation to live healthily, coupled with limited cultural development, is contributing to the high percentage of smokers, alcohol abusers and growing number of drug addicts.

The arrival of workers from the Russian mainland and non-Russian nationals may lead to changes in certain disease patterns. Construction of Project facilities will be conducted in areas with a natural balance of certain disease vectors and may lead to numerical and territorial changes of natural infection sources (Study C).