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KREC
Minding your mines

This thesis is conducted as a part of the undergraduate program of BI Norwegian School of Management.

This does not imply that the methods applied, the results represented, nor conclusions drawn, are verified by BI Norwegian School of Management, or Fudan University.

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**Executive summary**

This thesis presents the findings from an in-depth analysis of the Chinese market for environmental mining management, with the aim to explore the possibility to offer consulting and educational services in this market.

The analysis is carried out on behalf of Kjeøy Research and Education Center (KREC), a Norwegian company providing education and consulting services on environmental management in the mining industry.

KREC is a small business founded in 2003 and is located in Northern Norway on the island of Kjeøy. The company consists of a team of three scientists who are specialized in environmental sciences related to mining. After seven years of business in Europe and America, KREC is now considering a possible entry into the Chinese market.

After an introductory chapter where the company, project aim and objectives are presented, the thesis proceeds with an overview of the methodology used to ensure an adequate research process. The thesis continues with explanations of the theories used. The theories are then applied to determine the company’s strengths and weaknesses, and the industry’s opportunities and threats. On the basis of these analyses, the authors suggest different strategic alternatives, before making their recommendations to KREC.

The authors recommend KREC to not enter China. This because the company lacks the resources required for the substantial investments needed to build and maintain relationships and acquire market and culture knowledge.
Methodology

As the authors had little prior knowledge about the environmental mining industry in China, an explorative design based on published data (secondary research) and qualitative primary research was employed. The secondary findings were obtained from relevant articles with information concerning environmental issues, the mining industry in China as well as doing business in China. Other findings were obtained from literature about features of the Chinese market and culture, business to business and others. Primary data was collected from in-depth interviews.

Findings

The Chinese mining industry is huge, and important to the development of the country, and thus the government. However, the environmental standards in mines are quite bad. At the same time, the EGS market is booming, and the central government is intent on improving the environment. There are however difficulties for them in implementing environmental laws due to resistance from the mining companies and local governments. If KREC wants to enter China and do business over time, relating to the government is essential. However, they have to understand the government’s goals and mentality, and align their business with these.

China faces many serious environmental challenges, but the awareness in the population of environmental issues is increasing. On the other hand, the education level of environmental improvement of mines seems to be rather low.

International competitors in the consulting market are globalized mining consulting companies, of which many are large and offer a wide variety of services.
The local competitors are private environmental consulting companies and state-owned research institutes. State-owned research institutes are often big, with good technology and reputation, but consulting services are only a small part of their business. Private companies are often smaller and more cost-efficient.

In the market for educational services KREC must compete with international and local universities and companies that offer educational services on mining environmental management.

KREC is in the first stages of the internationalization process, and their internationalization ability is moderate. Their strongest points are their scientific expertise and customer focus. Their weakest points are lack of resources due to size, network in China, and culture and market knowledge in China. The optimal way to enter the Chinese market seems to be a “piggyback” strategy. This is an entry mode KREC has already used, and it would not depend so much on market and cultural knowledge, or investments to build long term relationships.

KREC could target the following segments for their services: Private mining companies, central and local government, educational institutions and international and local competitors.

When doing business in China, networks and personal relationships are extremely important, as are observing local customs and maintaining harmony.
Acknowledgements

Our sincere thanks to our class of BI students at Fudan university in China and to our supervisors Gao Jinsong and Karin Bryntse for their moral support, constructive criticism and continuous feedback on our bachelor thesis.

We also owe thanks to everyone who agreed to interviews and provided the information needed to complete the project, and a special thanks to Ingar F. Walder of KREC for providing us with the opportunity to write this thesis for them.

Without all of your contributions there would be no thesis.

Sandra Kontny:__________________ Yinyin Zhang: __________________

Jardar Nygård: _________________ Kenneth Brødreskift: _________________

Shanghai, China ________/_________/________
Abbreviations

ACE – Attitudes, Competence, Embodiment
COO – Country Of Origin
CUMT – China University of Mining and Technology
DNV – Det Norske Veritas
EGS – Environmental Goods and Services
GDP – Gross Domestic Product
KREC – Kjeøy Research & Education Center
PESTEL – Political, Economical, Socio-cultural, Technological, Environmental, Legal
R&D – Research and Development
RMB – Renminbi, the official currency of the People’s Republic of China
SEPA – State Environmental Protection Administration
SPD – Strategic Problem Definition
S&T – Strategic and Technological
STP – Segment, Target, Position
SWOT – Strengths, Weaknesses, Opportunities, Threats
UiO – Universitetet i Oslo
USD – United States Dollar, the official currency of the United States
WWF – World Wide Fund for Nature
Thesis structure model

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Explanation of theories

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The Bakka Model

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PART: 1 – Introduction

“For, usually and fitly, the presence of an introduction is held to imply that there is something of consequence and importance to be introduced”

- Arthur Machen
Chapter 1

Chapter 1 will give an introduction of the company written for, as well as the purpose of this thesis and the research question.

1.1 Background to research

Kjeøy Research and Education Center (KREC) is a small Norwegian business, founded in 2003 and located in the North of Norway on the island of Kjeøy. The company consists of 3 scientists who are experts in the field of Mine Waste Management, and offer consulting and education services to governments and industries on environmental management of mines.

KREC cooperates with several universities in Europe and the U.S., and are involved in projects in EU (developing guidelines), Sweden, Norway and Bolivia.

After 7 years of business in Europe and the Americas, KREC is now considering offering their services to the Chinese market for environmental mining management. The company does not have concrete plans to enter the market, but wishes to know about the possibilities for entry, and thus requires an analysis of the market’s attractiveness.

Due to the high levels of pollution in China, and the importance of both the mining industry and environmental protection to the country, China seems to be an attractive target market.

The aim of this thesis will consequently be to suggest an appropriate strategy for KREC, on whether they should enter the Chinese market, and if so, how they should enter and how to proceed. The authors will provide the company with information on how they should do business in China and if KREC could succeed in the Chinese mining
environmental management industry, based upon their own resources and competencies, and the threats and opportunities within the Chinese market.

1.2 Research question

The purpose of this research is to find out whether it is possible and advisable for KREC to deliver their services in the Chinese market for mining environmental management, and, if so, determine the optimal way for them to enter.

Our research question is therefore as follows: “Should KREC enter the market for environmental consulting and education in the Chinese mining industry? And if so, how to proceed?”

1.3 Research objectives

In order to answer the research questions, the following objectives have been identified:

- Analyze KREC in terms of internal strengths and weaknesses
- Identify and analyze the key environmental factors and trends affecting the mining industry in China for the coming years
- Determine the demand for KREC’s services in the China
- Analyse the competitive situation in the Chinese market for environmental mining consulting and education
- Identify possible entry barriers
- Identify the most promising target customers
- Determine the optimal way to relate to the government
- Determine the optimal way to enter the market
1.4 Research limitations

This report was written to satisfy both the need to meet the academic requirements determined by BI The Norwegian School of Management and Fudan University Shanghai, and to provide the cooperating firm Kjeøy Research & Education Center with valuable commercial information. This has evident implications of the contents of the report, which will have to suit both the academic requirements from BI and the commercial interests of KREC. The authors also encountered several other limitations. When doing online research, there were some difficulties due to firewalls and restrictions towards sensitive information, which limited access to certain information sources.

Additionally, there have been some limitations concerning some of the interviews as well. Many were unavailable for interviews, and some of the interviewees would not answer certain questions regarding the industry and the government.

Furthermore, the group was unable to acquire certain internal information from the company, which reduced the force of the internal analyses, and consequently affected the final recommendation. The language barrier has fortunately not been a significant issue, as three of the authors speak Mandarin.

1.5 The company

1.5.1 Kjeøy Research & Education Center

Kjeøy Research & Education Center (KREC) is a small Norwegian company, located in North of Norway on the island of Kjeøy. The company was founded in 2003, and offers research, education and consulting services related to improvement of mines. KREC is now employing a total of three people, with unique expertise within their field. They have considered expanding the company, but states that they do not wish to develop a

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1 Skype interview with Ingar Walder
large company. They are however looking for a fourth employee. According to our contact person in the company, R&D director Ingar F. Walder, they can also easily expand their company temporarily if the need arises.

KREC aims to become an internationally as well as nationally acclaimed center of research and education on their main focus areas: Environmental and nature sciences.

1.5.2 KREC’s educational service offerings

KREC has teamed up with the University of Oslo to organize a new Master's and PhD program in Geology, specializing in Mineral Resources. Students can perform research within mining related environmental issues at KREC’s facilities as well as participate in several courses. Classes at KREC’s facilities are offered as intensive classes over 1-2 weeks. KREC can also offer a certificate program in mining environmental management.

1.5.3 KREC’s conference and workshop service offerings

Kjeøy is stated to be an ideal location for specialized conferences. KREC has two class rooms and one conference room which can be used for conferences and workshops.

Past Conferences and workshops:
• Sub-Sea Tailing Deposition (June 2008)
• 9th International Symposium of Mining in the Arctic (September 2007)
• Hydrology and Geochemistry of Tailings and Waste Rocks (June 2006)
• Hardpan Formation in Tailings and Waste Rocks (June 2006)

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2 Interview with Ingar Walder
3 Interview with Ingar Walder
4 www.krec.no
5 www.krec.no
1.5.4 KREC’s research service offerings

KREC’s laboratory is built in cooperation with SARB consulting\(^6\). The laboratory is well-equipped and allows KREC to perform research for their customers. These research service offerings include:

- Research for clients, which can be based on client’s request
- Research for governmental organizations and science foundations
- Research as sub-contractor to other organizations

1.5.5 KREC’s consulting service offerings

KREC has exceptional expertise and knowledge within the mining environmental management field.\(^7\) The whole company consists of three scientists who can provide consulting services for the mining industry and government on mining environmental related issues.

1.5.6 KREC's specific research areas

KREC’s laboratory has several different types of column experiments running to evaluate acid rock drainage, leaching potential, mineral reaction rates, CO2 sequestration potential etc.

**CO2 Sequestration**

In its broadest sense, sequestration is any means that prevents carbon dioxide from entering the atmosphere. Sequestration in mineral mines involves reacting carbon dioxide with either magnesium oxide (MgO) or calcium oxide (CaO) to form stable carbonates, which are then reburied in the mines from which the original oxide was taken.\(^8\)

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\(^7\) Interview with Ingar Walder

Pit Lake Geochemistry
The study of the chemistry of pit lakes by sampling and analyzing.\(^9\)

Tailings Geochemistry and Hydrology
Mine tailings are large piles of crushed rock that are left over after the metals of interest like lead, zinc, copper, silver, gold and others, have been extracted from the mineral rocks that contained them.\(^{10}\) Tailings geochemistry and hydrology is the study of the chemistry of the tailings and how they affect water.

Waste Rock Geochemistry and Hydrology
The study of the chemistry of waste rock, and the effect of waste rock in water.

Kinetic Testing
Relating to the motion of material bodies and the forces associated therewith.

Sequential Extraction Testing
Is an analytical process that sequentially chemically leaches metals from soils, sludges or sediments. The various steps of the sequential extraction, are designed to dissolve the fraction of metal in the sample associated with a particular matrix component, such as carbonates, organic matter or primary and secondary minerals.\(^{11}\)

Mineral Reaction Rates
Testing of the reaction rate of mineral resources.

1.5.7 KREC’s ongoing projects

KREC is now involved in several projects:

\(^9\) http://science.jrank.org/pages/3006/Geochemistry.html
\(^{10}\) http://superfund.pharmacy.arizona.edu/Mine_Tailings.php
\(^{11}\) http://everything2.com/title/sequential+extraction
• Carbon Dioxide Sequestration, Sweden/LKAB Waste Rocks
• Kinetic testing of Bolivian Mine Waste Material, Bolivia
• Carbon dioxide sequestration using Olivin
• Tailings Discharge issues at Titania Mine, Titania Mine, Norway
• Development of EU-guidelines for Implementation of the “Mine Waste Directive”
• Sequential Extraction Leaching method development and metal Leeching from Ag-Sn Mining Centers, Bolivia
• High Voltage Electric Pulse Technology used for improving Mineral Leaching

1.5.8 Customers

KREC’s customers includes both governments and mining centers, such as Sweden LKAB Waste Rocks, the Bolivian government (through URS\textsuperscript{12}), Titania Mine in Norway, Ag-Sn Mining centers in Bolivia and the EU.

\textsuperscript{12} www.URS.com
PART: 2 - Research Process

“An appropriate research design has to be chosen in order to ensure efficient and correct data gathering. Furthermore, the design should indicate how to get the information needed and how to further analyze the collected data”\(^{13}\)

\(^{13}\) Maylor & Blackmo, 2005;152
Chapter 2: Research Methodology

2.1 Research Design

There are three main research designs; explorative design, descriptive design and causal design. When the researcher has little prior knowledge of the research area, an explorative design is often chosen. This type of research has the goal of formulating problems more precisely, gaining insight, forming hypotheses, gathering explanations, etc. Further, they chose a qualitative methodology approach, which is of an inductive nature and used to formulate theories and gain in-depth understanding.

2.2 Data Collection

Data collection is done in two ways; through primary and secondary data.

Primary data is collected from first-hand experience, whilst secondary data is published data and data already collected in the past by other people for other purposes.

2.2.1 Secondary Data

This involves gathering information from literature studies, such as articles, books and web pages. The secondary data collected is information already written about the relevant subject, and the advantage of using secondary data is that it is less resource demanding to collect. In some cases, the secondary data can also confirm the findings from primary data.

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14 http://www.quickmba.com/marketing/research/
15 http://www.orau.gov/cdcynergy/demo/Content/activeinformation/tools/toolscontent/SOC_qual_quant_chart.htm
16 Maylor & Blackmon, 2005
According to Aaker (2004), secondary data is collected through internal and external sources:

**Internal Sources**
Information collected through internal sources is collected from the company, such as sales numbers, organizational structure, product/service information, company vision, mission, future plans and other relevant information. Ingar Walder and the company’s homepage, (which redirects to www.kjeøy.no), have been the sources for internal information in this thesis.

**External Sources**
Information collected from external sources is obtained from public available information, from sources such as web pages, reports, articles, and other literature. The authors found the internet to be the most useful source for market information, and books to be the preferable source of general information on doing business in China.

### 2.2.2 Primary Data

There are many methods of collecting primary data and the main methods include questionnaires, interviews, case-studies and portfolios. Using a qualitative approach the aim would be to find connections between findings as well as develop a deeper understanding. In this project, in-depth interviews are chosen as the most applicable method of obtaining primary data.

**In-depth Interviews**
When conducting in-depth interviews the interviewees are carefully chosen by their relevance to the research question. Furthermore, the interviewees are divided into internal and external groups. Internal interviewees are from inside the company in question, while external interviewees are people who possess relevant knowledge but do not work for the

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17 www.brent.tvu.ac.uk
company. The interviews have been conducted in Chinese, English and Norwegian, and translated into English where needed.

2.3 Critical Evaluation of Secondary and Primary Research

2.3.1 Reliability and validity

During research it is important to evaluate the trustworthiness of the sources used. One must ensure reliability and validity by being critical. Reliability refers to consistency of the measure of a concept, which means that the results will continuously be the same. Validity refers to the accuracy of the research, i.e. if the measures used really measure what they are intended to measure. To help ensure reliability when collecting primary data, tape-recorders will be used to guarantee no information will be left out, as well as taking notes during the interview. Concerning validity in the interviews, one must avoid too general questions as well as leading and long questions. In addition, one must consider possible biases the interviewees might have, to ensure reliability. In advance of conducting interviews, the questions will be emailed to our supervisor, Karin Bryntse, for comments and guidance. When using the internet one has to be especially critical to the sources’ reliability, considering possible biases, lack of updated knowledge, and other sources for misinformation.

2.4 Structure of interviews

2.4.1 Semi-structured interviews

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18 Maylor & Blackmon, 2005:157
When conducting in-depth interviews a semi-structured interview method was chosen. This structure allows the interviewee to talk quite freely on a specific topic, as well as fostering a fairly open two-ways communication. During the interviews a list containing questions with the intention to cover what we needed to know was created, with regards to the research questions and objectives. This functioned as an interview guide.

Telephone interviews
In order to save time and money, some interviewees residing outside Shanghai were interviewed per telephone. This method was used when interviewing the expert from Zhejiang, the professor from China University of Mining and Technology and the European China expert. We also had a conversation with our contact person from KREC, Ingar F. Walder, via Skype. By conducting interviews by using telephone or Skype, the interviews often turned out to be less structured. However, we managed to obtain much relevant information needed to answer several of our research questions and objectives.

E-mail interviews
E-mail interviews were used as an alternative to telephone interviews. This is a convenient method, and it ensures no information to be omitted. It is however a more structured method and does not allow for improvisational questions as well as the communication becomes more limited. The interviews conducted by using e-mails were with Ingar F. Walder and Gudny Okkenhaug from the Norwegian Geotechnical Institute (NGI).

2.4.2 Interview objects

The interviewees were people with knowledge of environmental mining issues in China, and how to do business in China. Sometimes the interviewees were found to have differing views on the external situation, possibly due to biases or lack of knowledge.

In addition to the external sources, one interview per e-mail and one via Skype with Ingar
F. Walder from KREC were conducted, providing useful information on details about KREC. The interviewees are described in more detail below.

**Jinsong Gao**

Jinsong Gao serves as supervisor for BI students at Fudan University. He has years of experience with doing business in China, among other things from working for the Norwegian company DNV in China.

The interview with Jinsong Gao took place the 19th of March 2010 at the Crowne Plaza Hotel in Shanghai.

**The China expert**

This man has studied negotiations and business culture in China through a number of years. He has no less than 20 years experience of working in China and with Chinese. He has lived in Shanghai for four years and has worked in collaboration with European and Chinese universities. He has also written books on how to do business in China. In addition, he has first-hand experience of cooperation between educational institutions.

The interview with the China expert took place on the 24th of March 2010 by Skype.

**Gavin Chan**

Gavin Chan is a Chinese student with a major in environmental science, and is about to finish his fourth year of a bachelor degree. The program he attends at his university has three major directions; Environmental science, environmental engineering, (focusing on solid waste and waste water) and environmental management, which focuses mainly on main stakeholders and government. Chan has also done a project for the WWF concerning volatile organic compounds. Additionally, he has participated in activities related to environmental groups.
The interview with Gavin Chan took place on the 17th of March 2010 at Fudan University.

The expert from Zhejiang
This expert is from Zhejiang Institute of Geology & Mineral Resources. In addition to the interview, he also granted access to a government report from Zhejiang, called *Plan of abandoned mines treatment in Zhejiang, 2009 – 2015.*

One interview took place the 12th of April 2010 in Hangzhou, and one via telephone, the 30th of May 2010.

Gudny Okkenhaug, NGI
Gudny Okkenhaug is doing her PhD, titled “Mobility and solution of antimon (Sb) in the environment”, which includes soil polluted with antimon from mines. In connection with this she spent time in China, taking samples from mines. She does not have an extensive overview of the situation in China, but were able to provide us with some insight from her experiences.

The interview was conducted via email, the 7th of February 2010.

The teacher from China University of Mining and Technology
This interviewee is a teacher in environmental engineering at the CUMT.

The interview was conducted by telephone, on the 13th of May 2010.
PART 3:  Theory

“He who loves practice without theory is like the sailor who boards ship without a rudder and compass and never knows where he may cast.”

- Leonardo da Vinci
Chapter 3: Analysis

This chapter contains explanations of the chosen framework of analyses that is used in the thesis.

3.1 Internal Analyses

3.1.1 The Bakka model

This model helps determine how far the firm has come in the internationalization process. The model is divided into different phases, and describes which factors assumable influences decisions in each phase.\textsuperscript{19}

By looking at KREC’s approach to internationalization, this can provide better understanding of how far KREC has come in the internationalization process, in order to better be able to decide whether and how KREC should enter the Chinese market.

\textit{Figure 1: The Bakka model, Theory (see appendix12)}

3.1.2 The ACE-model

The ACE model analyses the firm in terms of how well equipped they are to do international business, by looking at Attitudes, Competencies and Embodiment in successful exporting firms.\textsuperscript{20}

\textit{Attitudes}
Successful exporters generally have more positive attitudes towards risks and multicultural cooperation, as well as being more market-oriented and less stifled by

\textsuperscript{19} Solberg, 2009
\textsuperscript{20} Solberg, 2009
market barriers.\footnote{Solberg, 2009}

**Competence**

Of twelve researched attributes, successful exporters only excel at one: Sales. Intriguingly, unsuccessful exporters actually seem more skilled at taking advantage of governmental export-subsidies. Solberg (2009) concludes that competence is a necessary but not sufficient attribute for being a successful exporter. He then goes on to show the marketing mix of successful exporters: They emphasize cooperating with customers (a major point) and product development, are able to take higher prices for their products, have skilled sales personnel and use several ways of influencing the market.

**Embodiment in the organization**

The entire organization, and particularly the top management, should be engaged in the internationalization process.\footnote{Solberg, 2009}

This model will be used to determine KREC’s internationalization ability, for use in the Solberg’s nine windows model.

### 3.1.3 The Marketing Mix

The marketing mix is a classification of market activities into the “4 P’s” of product, place, promotion and price, which all are tools for the seller to influence the buyer.\footnote{Kotler & Keller, 2006}

However, as KREC is a service provider, the additional “3 P’s “of service marketing are included: People, physical evidence and process.\footnote{http://www.learnmarketing.net/servicemarketingmix.htm}
Product

Variables of the product are for example product variety, quality, design, features, services, etc.\(^{25}\)

Price

Price includes list price, discounts, credit terms, etc.\(^{26}\)

Promotion

This means advertising, sales force, public relations, direct marketing and sales promotion.\(^{27}\)

Place

This regards distributions, and contains variables such as distribution channels, location, transport and coverage.\(^{28}\)

People

"Recruiting the right staff and training them appropriately in the delivery of their service is essential if the organisation wants to obtain a form of competitive advantage".\(^{29}\)

People are significant within any service providing business, and the staff should have the appropriate interpersonal skills, aptitude, and service knowledge to provide the service that consumers are paying for.\(^{30}\)

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\(^{25}\) Kotler & Keller, 2006
\(^{26}\) Kotler & Keller, 2006
\(^{27}\) Kotler & Keller, 2006
\(^{28}\) Kotler & Keller, 2006
\(^{29}\) http://www.learnmarketing.net/servicemarketingmix.htm
\(^{30}\) http://www.learnmarketing.net/servicemarketingmix.htm
Physical evidence

Physical evidence is the material part of a service, for example uniforms, packaging, web-pages, and furnishings. These give the customer clues to the value of the service.\(^{31}\)

Process

The process is the systems used by the firm to be able at delivering its services. Having functional systems will make the process efficient and lead to customer loyalty as well as increased confidence in the company.\(^{32}\)

KREC’s marketing efforts in terms of their marketing mix will be presented, and later suggestions to changes that should be made if they are to enter China.

3.2 External analyses

3.2.1 Porter’s five forces

This model is a tool to determine the attractiveness of a market or market segment.\(^{33}\)

The five forces are as follows:

Threat of new entrants

This means the extent to which barriers to entry exist. The higher the threat of new entrants is, the less attractive a market will be.\(^{34}\)

The threat of new entrants is lower if: The entry costs are high, e.g. high investments are

\(^{31}\) http://www.learnmarketing.net/servicemarketingmix.htm
\(^{32}\) http://www.learnmarketing.net/servicemarketingmix.htm
\(^{33}\) Kotler & Keller, 2006
\(^{34}\) Oxford University Press:
   http://www.oup.com/uk/orc/bin/9780199296378/01student/additional/page_12.htm
needed; there are major advantages to firms that have been operating in the industry already (e.g. through experience and market knowledge and understanding); government policy prevents entry or makes it more difficult; there is high loyalty to existing brands; the existing firms may react aggressively to any new entrant; and/or if the existing firms have control of the supplies.\(^\text{35}\)

**The power of buyers**

The stronger the power of buyers in an industry is, the less attractive the market will be.\(^\text{36}\)

Buyer power will be higher if: There are a few, big buyers so each one is very important to the firm; the buyers can easily switch to other providers (low switching costs); and/or if the probability of upstream integration is high.\(^\text{37}\)

**The power of suppliers**

The stronger the power of suppliers in an industry is, the less attractive the market will be.\(^\text{38}\)

Suppliers will be more powerful if: There are relatively few of them (so the buyer has few alternatives); switching to another supplier is difficult and/or expensive (high switching costs); the supplier can threaten to buy the existing firms, meaning it has a strong negotiating position.\(^\text{39}\)

**The degree of rivalry**

This measures the degree of competition between existing firms. The higher the degree of rivalry is, the less attractive the market will be.\(^\text{40}\)

35 http://www.oup.com/uk/orc/bin/9780199296378/01student/additional/page_12.htm
36 http://www.oup.com/uk/orc/bin/9780199296378/01student/additional/page_12.htm
37 http://www.oup.com/uk/orc/bin/9780199296378/01student/additional/page_12.htm
38 http://www.oup.com/uk/orc/bin/9780199296378/01student/additional/page_12.htm
39 http://www.oup.com/uk/orc/bin/9780199296378/01student/additional/page_12.htm
40 http://www.oup.com/uk/orc/bin/9780199296378/01student/additional/page_12.htm
Rivalry will be higher if: There are a large number of similar sized firms (rather than a few dominant firms) all competing with each other for customers; the costs of leaving the industry are high e.g. because of high levels of investment; there are high levels of capacity being underutilised; the market is shrinking so firms are fighting for their share of falling sales; and/or if there is little brand loyalty so customer have low switching costs.

*The substitute threat*

This measures the ease with which buyers can switch to another product that does the same thing e.g. aluminum cans rather than glass or plastic bottles. The lower the switching costs are, the less attractive a market will be.⁴¹

This model will be used to analyze the competitive situation in the market for environmental management of mines in China, to determine how attractive this market is for KREC.

### 3.2.2 PESTEL analysis

The PESTEL analysis is used to analyze the Political, Economical, Social, Technological and Legal factors in a firm's macro environment.⁴²

*Political factors*

These refer to government policy such as the degree of intervention in the economy. What goods and services does a government want to provide? To what extent does it believe in subsidizing firms? What are its priorities in terms of business support? Political decisions can impact on many vital areas for business.

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⁴¹ [http://www.oup.com/uk/orc/bin/9780199296378/01student/additional/page_12.htm](http://www.oup.com/uk/orc/bin/9780199296378/01student/additional/page_12.htm)
⁴² www.oup.com
Economic factors
These include interest rates, taxation changes, economic growth, inflation and exchange rates. Economic change can have a major impact on a firm's behavior. 43

Socio-Cultural factors
Society shapes our beliefs, values and norms. 44 Changes in social trends can impact on the demand for a firm's products and the availability and willingness of individuals to work. 45 Cultural factors will also be included here, as China has distinct cultural aspects which affect business. This is a point KREC should pay specific attention to, as they have little knowledge of China.

Technological factors
Technology is a major force for change in people’s lives. These changes should be monitored in terms of pace of change, opportunities for innovation, varying R&D budgets, and increased regulation. 46

Environmental factors
Environmental factors include for example local waste issues, the weather, and global climate change. 47 It will thus include the effect of mining pollution on the environment, both at local, national and global levels. Knowledge about the environmental factors will be essential for KREC, as it is the basis of their business.

Legal factors
These are related to the legal environment in which firms operate. 48 This will not only include the legalization itself, but also its effectiveness.

43 www.oup.com
44 Kotler, Keller & Lu, 2009
45 http://www.oup.com/uk/orc/bin/9780199296378/01student/additional/page_12.htm
46 Kotler, Keller & Lu, 2009
47 http://www.oup.com/uk/orc/bin/9780199296378/01student/additional/page_12.htm
48 http://www.oup.com/uk/orc/bin/9780199296378/01student/additional/page_12.htm
The findings from the PESTEL analysis will provide an overview of the external environment, allowing for identification of opportunities and threats for use later in the SWOT analysis.

### 3.3 Marketing Strategy Theories

*Theories used to suggest a strategy for KREC.*

#### 3.3.1 Service marketing

As KREC is a pure service provider, it is appropriate to include some theory on service marketing, to better be able to give advice on their marketing efforts.

A service is “*any act or performance one party can offer to another that is essentially intangible and does not result in the ownership of anything.*”\(^{49}\) Furthermore, a service is characterized by four significant aspects: *Intangibility, inseparability, variability*, and *perishability.*\(^{50}\)

**Intangibility**

This means that, unlike a physical product, a service cannot be sensed or experienced before purchase.\(^{51}\) In KREC’s case, the customers cannot know the quality of the consulting or educational service before they have experienced it. Therefore, Kotler, Keller & Lu (2009) suggest that the service provider “tangibilize the intangible”, i.e. adding physical evidence to their services.

This can be done with customer experience engineering, meaning that the company tries to design performance and context clues which are consistent with what they want the customer to experience. In KREC's case, for example that their in-house training is

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\(^{49}\) Kotler, Keller & Lu, 2009, p318  
\(^{50}\) Kotler, Keller & Lu, 2009  
\(^{51}\) Kotler, Keller & Lu, 2009,
sufficiently easy to understand for the customer (performance) and that their location in Norway is orderly and pleasant, and gives you the feeling of being in a professional research institution (context). The latter could for example be evidenced with displays of chemical formulas, pictures of (happy) scientists at work and consultants "in-action", like those found on their webpage, and perhaps even a rock or two containing minerals and waste. These clues are assembled in an experience blueprint, which ideally should address all five senses\textsuperscript{52}.

\textit{Inseparability}

This means that one cannot separate production and consumption. The service is produced and consumed simultaneously. Because the customer is also present (although not necessarily physically), provider-client interaction is a special feature of service marketing\textsuperscript{53}.

\textit{Variability}

The quality of services may vary from time to time and from person to person. Therefore, a service company should take the following three measures:

- Hire the right service employees and provide them with excellent training
- Standardize the service-performance process
- Monitor customer satisfaction\textsuperscript{54}

\textit{Perishability}

Services cannot be stored. Once the train has left, you cannot sell the remaining seats. This might cause problems if demand is fluctuating, as you might have excess capacity when demand is low and not enough when demand is high\textsuperscript{55}, - a common problem for restaurants and bars, for example.

\textsuperscript{52} Kotler, Keller \& Lu, 2009
\textsuperscript{53} Kotler, Keller \& Lu, 2009
\textsuperscript{54} Kotler, Keller \& Lu, 2009
\textsuperscript{55} Kotler, Keller \& Lu, 2009
Differentiating services

To avoid having to compete only on price, a service provider must be skilful at differentiation. This can be done in various ways, for example through going beyond customer expectations by offering innovative service features; adding secondary features; or just through the sheer range of the service offerings.  

Branding strategies

As service decisions often are made away from the actually service location, brand recall is vital. The name should be easy to remember, and logos, symbols, slogans etc. can complement the name in creating awareness, in addition to the physical facilities of the service facilities: apparel, reception area, signage, and so on.

KREC should also design marketing communication and information programs to give the customer more information about the brand than they get from service encounters alone. The company should emphasize creating associations of credibility and trustworthiness, expertise, and likability. One well known way to create such associations is through using the country of origin effect.

3.3.2 “Country of origin” effects

Country-of-origin” perceptions are the mental associations and beliefs triggered by a country. Marketers would want to use country-of-origin perceptions in the most advantageous way possible to sell their products and services.”

56 Kotler, Keller & Lu, 2009
57 Kotler, Keller & Lu, 2009
58 Kotler, Keller & Lu, 2009
59 Kotler & Keller, 2006
If Norway trigger mental associations for the Chinese customer that are positive in the company’s context, this could be significant to include within KREC’s marketing strategy. KREC could for instance emphasize Norway’s beautiful and clean environment.

**Managing service quality**

It is important to ensure that the customer’s perceived quality does not fall below his expected quality\(^{60}\), as illustrated in the model below.

*Figure 2: Gaps model of service quality, Theory (see appendix 8)*

What is important is to ensure that all instances of the service offering are aligned, i.e. that there are no gaps between, say, the way managers think customers expect their service to be and what customers actually expect, or between management perceptions and the way they specify the service.

### 3.3.3 Solberg’s 9 Windows

This model helps determine the internationalization strategy of a firm, by combining the firm’s internationalization ability with the globality of the industry in a nine-windowed matrix, where each window represents a course of action\(^{61}\). (See model, appendix 9).

**Internationalization ability**

Some firms are better equipped to do business across borders and cultures than others. By looking at the firm’s organizational culture, its market network and market share, one can determine a firm’s ability in this regard\(^{62}\). We will use the ACE model to assess KREC’s organizational culture. Market network and market share will be based on assumptions where internal information is lacking.

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\(^{60}\) Kotler, Keller & Lu, 2009  
\(^{61}\) Solberg, 2009  
\(^{62}\) Solberg, 2009
Globality of industry

By looking at the structure of the international competition and the strength of globalization forces in the industry, one can determine to which extent the industry is of a global character. Three aspects are of particular significance for the latter: Protectionistic regulations, nationalistic attitudes of the buyer, and different preferences or traditions regarding technical solutions.

3.4 Segmentation, Targeting and Positioning

STP deals with the three strategic marketing activities of dividing the market into homogenous segments, choosing which segment to target with the firm’s products or services, and then developing a market offering to position the firm favourably in the minds of the target customers.

STP will be essential for KREC if they are to introduce their services to the Chinese markets in an effective way.

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63 Solberg, 2009  
64 Solberg, 2009  
65 Kotler & Keller, 2006
Chapter 4: Findings

In the introduction of this thesis the authors chose eight research objectives to base the research on. It will in this chapter be reported some of the findings under each of these objectives. The objective of determining demands has here been included in the chapter on opportunities and threats in the market, as they are based on the same findings.

4.1 KREC’s internal strengths and weaknesses

Our internal findings are based on information from Ingar F. Walder and the company’s webpage. The authors have also made some assumptions of their own, where it seemed necessary and information was lacking.

4.1.1 Strengths

KREC’s scientific expertise is perhaps their main strength, as, according to Walder, KREC possess unique knowledge, only shared by about ten people worldwide. Related to this is the product (i.e. service) quality, which in addition to the expertise also includes the way knowledge is transmitted to the customers. KREC’s strengths on this point is evidenced by high customer satisfaction.\(^{66}\) Contributing to this is the company’s customer focus. The services are tailored to the customers, and in order to do this, considerable time is spent on learning the customers’ businesses.\(^{67}\)

KREC’s network appears to be quite good, as the company has several cooperation partners and also operates with direct marketing through an email list assembled throughout KREC’s years of business.\(^{68}\) The homepage also mentions the ideal location several times, which is said to “inspire innovation”, \(^{69}\) and could also be characterized as

\(^{66}\) See interview with Ingar Walder
\(^{67}\) See interview with Ingar Walder
\(^{68}\) See interview with Ingar walder
4.1.2 Weaknesses

The size of the company is regarded as a weakness if it is to enter China. It may lack the necessary resources needed for a sustained engagement in the country, and customers in China might prefer larger, more well-known companies. Furthermore, the company lacks knowledge and know-how about the Chinese market and culture.71

Marketing is also a weakness for KREC. Although the company seems to have enough business and be able to get new business, segmenting and targeting could be used to identify the most attractive and strategically important customers and markets. Moreover, the company seemingly does not have a clear, streamlined profile, or a clear positioning. The webpage also needs revision.72

The lack of marketing efforts is also mirrored in an apparent absence of a clear strategy. KREC’s vision is to become an internationally acclaimed centre of research and education, but the company does not seem to work systematically towards this.

4.2 Key environmental factors and trends affecting the mining industry in China in the coming years

4.2.1 Threats

The Chinese are known as having a relationship-focused business culture. According to Gesteland (2005), any visiting company should be aware of the Chinese norm to first make a friend, then a deal, which also is referred to as guanxi. Having a regular contact and correspondence seems crucial to maintain relationships.73 One also needs to invest substantial amounts of time to get the right connections. However, without those

71 See interview with Ingar walder
72 www.krec.no
73 Gesteland, 2005
connections not much can be accomplished.  

In business negotiations, verbal and body language is important, fostering clear communication and avoiding situations that might cause “loss of face” for the Chinese counterparts.

The central government might prioritize other areas of more severe or symbolic impact than mining. In addition, it is probable that economic growth will continue to be the main priority. The local governments and local industries are often intertwined, and you might find local government officials with personal financial interests in the mining industry.

KREC’s small size might be a problem, as customers in China might prefer larger, more well-known companies.

4.2.2 Opportunities

The CIA lists environmental sustainability and corruption as two of four major challenges for China’s continued growth. Holz (2005) also predicts that the government at some point will no longer be willing to sacrifice sustainability for GDP growth.

The central government does indeed seem very interested in bettering the environment. WWF (2008) reports that Chinese Government pollution control related investments rose with 35% in the 2004-2006 period, and predict that this trend will continue.

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74 Gesteland, 2005
75 Gesteland, 2005
76 See interview with Gavin Chan
77 http://www.unescap.org/huset/lgstudy/country/China/China.html#ahead
78 Zhou & Zhu, 2008
79 See interview with China expert
Only a few universities offer mining environmental related subjects in China. They do however seem open to the possibility of sending students to foreign countries to study new technologies.\textsuperscript{82}

Although KREC is a small, unknown company, Chinese companies and/or government might be interested if KREC has specialized knowledge which is difficult to obtain from others.\textsuperscript{83}

The mining industry is in need of significant environmental improvement,\textsuperscript{84} although the government has made specific laws aimed at decreasing the environmental impact of mining,\textsuperscript{85} and encourages and supports scientific research and technological development related to environmental protection of mines. They also implemented a 400 trillion RMB (585 billion USD) stimulus package, of which roughly 10% are being spent on energy saving and ecological projects.\textsuperscript{86}

4.3 The competitive situation in
the Chinese market for environmental mining consulting

The market for environmental mining consulting is growing.\textsuperscript{87} And the government has plans of sustainable development in the mining industry.\textsuperscript{88}

International competitors are mainly highly internationalized companies, many of which are large, global companies, offering a wide variety of services. In addition there are many small companies, even one-man companies.\textsuperscript{89}

\textsuperscript{82} Interview with expert from Zhejiang
\textsuperscript{83} See interview with Jinsong Gao
\textsuperscript{84} Okkenhaug, Gao, Chan, China Project 2006, SRK Consulting
\textsuperscript{85} www.jincao.com/fa/05/law05.38.htm
\textsuperscript{86} http://cleantech.com/news/4074/chinas-stimulus-package-boosts-water-desal-recycling
\textsuperscript{87} WWF, 2008
\textsuperscript{88} Chinese mining industry and sustainable development: http://www.chinamining.com.cn/resource/HOME5.asp
\textsuperscript{89} Interview with Ingar Walder, 2010
Local competitors consist of private environmental consulting companies and state-owned research institutes. State-owned research institutes are often big with consulting services only being a small part of their business, as they focus more on developing new technology, while private companies are usually smaller, focusing more on consulting services and cutting costs. Moreover, research institutes have better reputation among customers; they are trustful and tend to have good technology and knowledge.

Therefore if KREC decides to enter into the Chinese environmental mining consulting market, they need to compete with research institutes on technology on the one hand and price with private consulting on the other hand. There is a large number of private environmental consulting companies and nearly every province in China has a mineral resources research institute.

4.4 The competitive situation for environmental mining education in China

There are two main types of competitors in the mining environmental education market in China. First are mining related universities (local and foreign), which already are established in China or already cooperate with mining related universities in China. Second are established mining related companies in China who want to cooperate with universities in the same field by providing their knowledge. According to the teacher from China University of Mining and Technology, his university already cooperates with foreign universities in some fields that they are not so good at.
4.5 Possible entry barriers

4.5.1 Qualification

According to the expert from Zhejiang, foreign companies which want to provide consulting services related to environmental mining issues, might encounter difficulties concerning certification. The regulations on this seem many and strict. For example, a mining environmental consulting company needs to have expertise to a certain degree within different areas of knowledge. To ensure a company’s qualification, it must have a certain quantity of successful projects completed each year.

4.5.2 Culture and language

KREC may encounter difficulties concerning culture and language. According to Walder, the company lacks knowledge on how to do business in China and on cultural aspects which might affect the company.\(^93\) Any business entering China will have to overcome this barrier, investing time to learn the culture and market and establish networks.

4.6 Identify the most promising target customers

4.6.1 Government

*Central Government*

As mentioned by several of the interviewees and the WWF (2008) report, the government is interested in bettering the environmental conditions in the mining industry.\(^94\) While they have established laws for this, implementation is difficult.\(^95\) They do also own mines themselves, often larger mines with better quality standards.\(^96\) The government

\(^{93}\) See interview with Ingar Walder
\(^{94}\) WWF, 2008
\(^{95}\) See interview with China expert, and Zhou & Zhu, 2008
\(^{96}\) See interview with Gavin Chan, and Project China, 2006
would be eligible for KREC’s guideline services, or consulting services for their mines.

*Local governments*
Based on the example of Zhejiang, there seem to be plenty of mines around which are in need of treatment that will be paid for by local governments. The local governments also seem to lack the necessary funds, but on the other hand they also seem to lack the required expertise. Thus, helping local governments clean up their mines could be a possibility for KREC. Cooperating with the various local research institutions on scientific projects could also be an opportunity.

**4.6.2 Competitors**

*Iinternational competitors*
Walder explains that they are sometimes hired in as specialists for larger firms. This could also be an opportunity in China. Jinsong Gao also mentions DNV as a possible cooperation partner, helping them provide guidelines for the government.

*Local competitors*
Finding a local partner would be a good way for KREC to gain experience in the Chinese market, learn about Chinese culture and build relationships.

**4.6.3 Private Mining Companies**

The privately owned, smaller mines probably have the worst environmental standards in China, and are thus in great need of improving this if they are to comply with government standards. On the other hand, these companies seem to often try to avoid

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97 Plan of abandoned mines treatment in Zhejiang from 2009 - 2015
98 Plan of abandoned mines treatment in Zhejiang from 2009 - 2015
99 See interview with Ingar Walder
100 Interview with expert from Zhejiang
environmental protection in order to save money.\textsuperscript{102}

4.6.4 Educational institutes

The general education on environmental issues in China seems low,\textsuperscript{103} and environmental sciences are not seen as an attractive path for Chinese students.\textsuperscript{104} Many universities does however offer environmental studies,\textsuperscript{105} although none offer specific courses for environmental mining management.\textsuperscript{106} The most attractive university seems to be the China University of Mining and Technology, as they focus on mining and also offer environmental studies.\textsuperscript{107}

4.7 The optimal way to relate to the government

In China, the government is very involved in mining industry. If KREC wants to have long-term business in China, relating to the government is essential. Two things are very important for getting access to the Chinese government. The first is to understand government’s goals and mentality, in the other words, what government wants to achieve and how they go about it; the second is personal relationships.\textsuperscript{108}

In terms of goals and mentality, the Chinese government is trying to achieve sustainable development in the mining industry.\textsuperscript{109} But still, economic growth is the top priority for the Chinese government.\textsuperscript{110} In terms of personal relationship, a bottom-up approach will be applicable,\textsuperscript{111} for example working with a mining university or an international partner with ties to the government will provide KREC with a chance to find the right person to help KREC to access the local or even central government.

\textsuperscript{102} Zhou & Zhu, 2008  
\textsuperscript{103} Interview with expert from Zhejiang, the China expert, and Gavin Chan  
\textsuperscript{104} Interview with Gavin Chan  
\textsuperscript{105} Interview with Gavin Chan  
\textsuperscript{106} Interview with expert from Zhejiang  
\textsuperscript{107} http://www.cumtb.edu.cn/  
\textsuperscript{108} Interview with JinSong Gao  
\textsuperscript{110} Interview with China expert  
\textsuperscript{111} Interview with China expert
4.8 The optimal way to enter the market

The optimal way to enter the Chinese market for KREC seems to be a “piggyback” strategy.\textsuperscript{112} This is an entry mode KREC has already used, and it would not depend so much on market and cultural knowledge. In addition, it would require less investments in relationship management, as especially western companies tend to be less relationship focused than Chinese.\textsuperscript{113} Also, according to Solberg (2009), firms in the early phases should focus on cooperation with external partners in their internationalization process, but take care not to lock themselves in relationships that hinder the development of the firm, emphasizing the importance of direct market contact to further their learning process.

\textsuperscript{112} See the Bakka Model, chapter 6.1
\textsuperscript{113} Gesteland, 2005
PART 4: Analyses

“Get the habit of analysis - analysis will in time enable synthesis to become your habit of mind.”

-Frank Lloyd Wright
Chapter 5: Internal Analyses

5.1 The Bakka model

5.1.1 Motivation for export

Despite KREC’s vision of becoming an internationally acclaimed research institution, they do not seem to have a definite strategy of expansion. Rather, they seem to merely respond to random requests, meaning their motivation for export is mainly operative. This places them between phase one and two in the Bakka model.

5.1.2 Choice of markets

Although KREC’s choice of markets seems rather random, placing them in phase one (random markets/neighboring countries) seems suitable. Supporting this is the fact that most recent projects and research partners are in or around Scandinavia (Sweden, EU, Germany, Russia, and Switzerland). However, the number of markets KREC are involved in indicates that the company is equally compatible with phase two (many markets).

5.1.3 Market share

The authors do not have much information on the subject, but assume KREC’s market share is quite small, and will characterize it as “invisible” or “insignificant”, placing the company between phase one and two.

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114 Interview with Ingar Walder
115 www.krec.no
5.1.4 Organization

KREC seems to fit best in phase one ("One man show," part time), as there is no export division or the like, but seem to handle international operations themselves, presumably sharing the responsibility between the three employees – or maybe having one main person in charge - in addition to their other tasks.

5.1.5 Entry strategy

As KREC usually responds to requests or is hired as subcontractors, its entry strategy is most often a piggyback strategy, placing them in phase one.

5.1.6 Marketing mix

The company’s webpage states that prices are competitive. In addition, there is little promotion, which again corroborates that KREC belong in phase one. However, services are adapted to customer needs, and workshops and short courses should be considered promotional activities. Thus, they are approaching the second phase.

5.1.7 Economic results

We do not have information on whether the firm’s export contribute to their profits, but assume a positive income from international operations, perhaps the company actually is mutually dependent on their home and international markets. This places it between phase three and four in the model.

5.1.8 Conclusion

116 Interview with Ingar Walder
118 Interview with Ingar Walder
KREC is placed between phase one, trial export, and two, extensive export, meaning it is becoming an increasingly international company, but still lingers in the early stages of internationalization. According to Solberg (2009), firms in the early phases should focus on cooperation with external partners in their internationalization process, but take care not to lock themselves in relationships that hinder the development of the firm, emphasizing the importance of direct market contact to further the learning process. (*Explanatory figure 12 (bakka model), see appendix 14*)

5.2 The ACE model

5.2.1 Attitudes

*Multicultural cooperation*
KREC has experience from working with people from different cultures, through projects in Bolivia, Scandinavia and the U.S., and cooperate with various universities. The firm worked with Inuits on Greenland, and has recently hired an additional employee originally from Cameroon. Consequently, the company can be characterized as open-minded towards collaboration with different cultures.

*Market orientation*
When determining whether KREC is a customer oriented company, we look the ability to follow trends, do forecasts and adapt to needs and wants.

KREC seems to provide services to people asking for it specifically and lacks customer and market analyses to predict future trends and needs. However, there is product adaptation according to customer needs. Conclusively, KREC seems to be fairly market-oriented.

5.2.2 Competence

119 Interview with Ingar Walder,
KREC does not employ specific sales personnel; rather the scientists themselves support most functions. They do use several ways of influencing the market, but have seemingly not systematically considered the various possible ways to do so. They seem to be well aware of supportive systems, which is a characteristic of unsuccessful exporters.\textsuperscript{120} They do however work closely with customers, learning their business in order to tailor their services to them. Their product development is quite good, as they have several projects under construction, such as the master/PhD in cooperation with UiO, and their certificate program. Their competence thus seems to be average.

\textit{Cooperation with customers}

Concerning cooperation with customers, Walder explains that KREC takes care to learn the business of their customers well, in order to provide good service. Moreover, they offer in-house training courses for their clients, providing training according to the need and level of knowledge of their customers, thus enabling the company to do further environmental management themselves, without relying on further consulting. This is an indication of good customer cooperation.

\textbf{5.2.3 Embodiment within the organization}

A company rep stated that they do not have any concrete plans of entering China, and the authors’ impression that KREC possibly lacks the enthusiasm and willingness needed to commit to a long-term engagement in China.

\textbf{5.2.4 Conclusion}

\textsuperscript{120} Solberg, 2009
KREC’s positive attitudes towards multicultural cooperation, fair degree of market orientation, average sales competence, close cooperation with customers and lack of embodiment in the organization adds up to a moderate internationalization ability.

5.3 KREC’s Current Marketing Mix

*Here an overview of KREC’s current marketing mix will be presented.*

5.3.1 Product

KREC’s services can be divided into two categories: Education and consulting.

*Education*

- A Master/PhD of Mineral Resources (in cooperation with the University of Oslo)
- Short courses and workshops
- Certificate program for ”Management of Mining Environment” for professionals in the field

*Consulting*

- Development of guidelines and regulations for environmental management of mines
- Perform waste characterization to evaluate short and long term handling of waste
- Provide short and long term tests and research t obtain optimal closure design
- In-house training programs

Ingar F. Walder informs that KREC possesses specialized knowledge only shared by around ten individuals worldwide. This indicates that KREC’s scientists are operating in a world-class scientific environment, and this is probably noticeable in the quality of their services.
5.3.2 Price

According to Walder, the prices on KREC’s services are unpredictable, and entirely dependent on the job. However, the KREC website states that their prices are competitive, indicating low prices.\footnote{http://www.krec.no/index.php?option=com_content&view=article&id=124:the-company&catid=70:in-general&Itemid=115}

5.3.3 Place

As KREC is providing services, there is no use of distribution channels. The company provides its services directly to customers. However, by providing directly from company to customer, it is important that KREC is familiar with the specific market target and segment.\footnote{Bucklin: Theory of Distribution Channel Structure: 1966}

In terms of location, KREC provides its services either at the customer’s location or at Kjeøy.

5.3.4 Promotion

Ingar Walder explains that the company does not have any defined marketing strategy. The main focus is on research primarily for the private industry and he further underlines the importance of knowing the client’s business well.

He explains that KREC is getting clients by organizing short courses and workshops and that the company usually is marketing these activities through different scientific magazines, and direct email through an email list developed over the years. Walder also emphasizes the importance of continuously announcing activities online.
5.3.5 People

As the company consists of only three scientists it lacks a specific sales force. KREC most likely has excellent knowledge about the products/services being offered, but at the other hand it is rather questionable if the firm has the right knowledge about how to deliver the services to maximize customer satisfaction. Despite a lack of marketing strategy and competence, Walder mentions the importance of relationship marketing, and seems to have an intuitive knowledge of how to best market the company’s services.

5.3.6 Physical evidence

One major piece of physical evidence is KREC’s homepage. It does however need an overhaul. It is a bit unclear if you are on KREC’s homepage or on the island of Kjeøy’s homepage. The company may have its reasons, but it seems strange to the uninitiated visitor to their homepage. Moreover, there are a lot of spelling errors, empty or under-construction pages and Norwegian and English is mixed in the same text at one instance. Furthermore, their logo is a bit confusing – seemingly a ladle for pouring water out of boats - and does not give a clear picture of the company. There also is no slogan. Their physical location at Kjeøy however seems very nice, as the company mentions several times on its homepage. It might however be a bit too homely, lacking definite clues that you are at a world-class research institution.

5.3.7 Process

As KREC’s positioning was suggested to emphasize scientific expertise and customer focus, it is very important that KREC establishes good service processes, to avoid service gaps and customer dissatisfaction. Clear systems for customer communications should be established, and customer inquiries should have priority in the organization. Swift, polite and solution oriented answers to these should be the norm. All feedback should be noted, filed, analyzed and used to improve the company. The entire company should be trained
in these processes, so there is no confusion as to what level of service should be given to customers, and how to respond to feedback. Appointing key account managers for the various customers would also be wise, to make the relationship more personal and thus improve communication.
Chapter 6: External Analyses

In chapter 6 the analyses to be examined are Porter’s Five Forces, Country of Origin, and PESTEL. Here the authors lay the foundation for identifying the market’s threats and opportunities, which later will be summarized in the SWOT analysis.

6.1 Porter’s five forces analysis

KREC’s services can be divided into two categories: Mining environmental consulting and Education service. As these two services belong to two different markets, porter’s five forces on each individual service will be provided. The 1-5 scale will be used, 5 means highest and 1 means lowest.

6.1.1 Porter’s five forces analysis of mining environmental consulting

*Bargaining power of buyers: 5*

Customers for environmental mining consulting services can be categorized into three groups: 1) Government 2) State-owned mining companies 3) Private mining companies.
State-owned companies tend to be big companies and in charge of the most important mines. Private mining companies are usually small companies, sometimes family-owned businesses. The trend in China is that small private companies are going to merge with big state-owned companies, as small private companies tend to have bad safety and environmental conditions, although this might be a local phenomenon.\(^{123}\)

The buying power of customers in the environmental consulting market is relatively high. Big mining companies possess a credible backward integration threat, as they can hire environmental consulting expertise due to their high financial ability. Secondly, these big mining companies purchase a significant proportion of output from environmental consulting companies. Each project from these companies tends to be big and environmental consulting companies need to spend from several weeks to several months to complete a project.

*Intensity of rivalry among competitors: 3*

Competitors in this market consist of private environmental consulting companies and state-owned research institutes. There are several state-owned research institutes: The authors were able to find an institute of geology and mineral resources in nearly every province. According to the expert from Zhejiang, environmental treatment of mines is just one of the tasks such research institutes do, and thus they have higher costs than private companies. On the other hand, they focus more on research, and have better technology. They are also seen as more trustworthy.

As for private companies, you have both international and domestic companies. On the international scene, you find everything from giants to one-man enterprises,\(^ {124}\) the former offering a variety of services, with environmental mining consulting being just one of many.


\(^{124}\) See interview with Ingar Walder
Among those already offering their services on the Chinese market, you have companies like URS (although they currently do not do mining projects in China), with approximately 45,000 employees, offices in more than 30 countries and a turnover of USD 10.9 billion\textsuperscript{125}, AECOM, also with around 45,000 employees and a turnover of USD 6.1 billion,\textsuperscript{126} Nalco, with an USD 3 billion turnover (2004) and about 7000 employees,\textsuperscript{127} SKM with 6500 employees and 42 offices around the world,\textsuperscript{128} and SRK Consulting, with 900 employees spread across 36 offices on 6 continents.\textsuperscript{129}

The authors did not find specific information on the local competitors, but they do exist, and play a significant part in the market\textsuperscript{130}

There are both forces to increase and decrease the intensity of rivalry among competitors. Forces which increasing intensity of rivalry:

1) There are a large number of firms competing for the same customers and resources.
2) Switching costs for buyers are quite low as most services are standardized.
3) Exit barriers are quite high. A consulting firm needs to make a lot of specialized investments. These investments include monetary investments on technology and location, and time investment on licenses and building and maintaining relationships with key customers.

\textit{Forces which decrease the intensity of rivalry}:

1) The market growth is quite high, enabling environmental consulting firms to improve revenues without eating each other’s profits. This decreases firm’s pressure to fight for market share.

\textsuperscript{125} http://www.urscorp.com/
\textsuperscript{126} http://www.aecom.com/
\textsuperscript{127} http://www.nalco.com/
\textsuperscript{128} http://www.srk.com/
\textsuperscript{129} http://www.srk.com/
\textsuperscript{130} See interview with expert from Zhejiang
2) There are no storage costs for environmental consulting companies, as they sell services. This decreases the company’s pressure to sell services as soon as possible. Therefore to summarize, intensity of rivalry among competitors is medium.

**Threat of new entrants: 2**

The authors have identified two kinds of potential new entrants. They are local companies who plan to enter the environmental mining management industry, and foreign environmental consulting firms, which want to enter into the Chinese market.

For local companies, barriers to entry are quite high, because:

1) Local companies need to acquire the necessary knowledge, for example through hiring experts on environmental issues in the mining industry. According to the expert from Zhejiang, mining environment related education is quite bad. Furthermore, according to Gavin Chan, environmental sciences are not seen as an attractive career path for students. Therefore it might be difficult for local companies to hire such experts, or at least they need to pay high prices.

2) It is difficult and takes time to acquire all the relevant licenses.¹³¹

3) Companies already in the market will have benefits from better networks

Foreign firms already have the necessary knowledge, but the barriers to entry are still quite high, for the following reasons:

1) Foreign firms need to invest in market research in order to obtain knowledge of the Chinese market, and overcome language and culture barriers.

2) China has relationship-focused business culture, which indicates that it takes very long time to build a network. The time cost for foreign firm to find an initial contact should also be taken into account.

3) It is difficult and takes time to acquire all the relevant licenses.

¹³¹ Interview with expert from Zhejiang
Therefore, to summarize, threat of new entrants is quite low.

Threat of substitutes: 1
It is difficult to identify any possible substitutes for environmental consulting services. One could be new technology of mining that doesn’t generate pollution at all, but this kind of technology is unlikely to be developed soon. Therefore the threat of substitutes is low.

Bargaining power of suppliers: 1
There are no suppliers to speak of for environmental consulting firms, as they sell their knowledge, which they produce themselves.

Conclusion
The average attractiveness for mining environmental consulting market is 2.4. Despite the high bargaining power of buyers, the intensity of rivalry among competitors is medium, mainly because of high market growth. Threat of new entrants is quite low as it is difficult for both local companies and foreign companies to establish in the Chinese market. In addition there is no threat of substitutes for mining environmental service in coming years. All these elements make the mining environmental consulting market above average attractive to KREC.

6.1.2 Porter’s five forces analysis of Education

Bargaining power of buyers: 3
The China University of Mining and Technology (CUMT)\textsuperscript{132} is the only university in China which provides education directly related to mining industry. There are however some other universities that provide education indirectly related to mining industry. For example, Zhejiang University\textsuperscript{133} has a department of earth sciences.\textsuperscript{134} Therefore in this

\textsuperscript{132} \url{http://www.cumt.edu.cn/}
\textsuperscript{133} \url{http://www.zju.edu.cn/}
\textsuperscript{134} \url{http://gs.zju.edu.cn/}
market, there are a fewer buyers with significant market share. On the other hand, buyers do not purchase a high proportion of output from suppliers. This is evidenced by that such a small company as KREC can have cooperation with many universities and do other projects at the same time (see chapter 1.5). Furthermore switching costs for buyers are significant. These costs include time and money invested on establishing cooperation and administration costs. Therefore bargaining power of buyers is medium.

**Intensity of rivalry among competitors: 3**

There are two types of competitors in the mining environmental education market in China: Universities (local and foreign), and environmental mining consulting companies which already are established in China or seek cooperation with relevant universities in China, trading their knowledge. Currently, this market seems to grow slowly. According to teacher of environmental engineering from CUMT (see interview), the number of students at the China University of mining and technology will probably not increase for coming years. Switching costs are quite high, since when cooperation is already established, it is difficult for the customer to switch to another supplier. Furthermore, levels of product differentiation are high. Different universities or companies might specialize in different areas of knowledge. Therefore the intensity of rivalry among competitors is medium.

**Threat of new entrants: 4**

New entrants are all foreign universities and companies, which want to offer their education services in China. According to teacher of environmental engineering from CUMT (see interview), it is quite easy for his university to meet potential cooperation partners. Usually they meet them in seminars and conferences. Entry barriers are low for international organizations, as there is no policy forbidding foreign universities or companies to cooperate with Chinese universities. Therefore threat of new entrants is quite high.
**Threat of substitute:** 1
There are no substitutes for mining related education now or for coming years.

**Bargaining power of suppliers:** 1
There are no suppliers in this market.

**Conclusion**
The average attractiveness for mining environmental education market is 2.4. Despite the high threat of new entrants, the threats from substitutes and suppliers are low. Furthermore, the buyer bargaining power and intensity of rivalry among competitors in this market is not high. All these elements make the mining environmental education market upper-middle attractive to KREC.

### 6.2 PESTEL analysis

#### 6.2.1 Political factors

The government is very much involved in the business arena in China, and having a good relationship to the government might be very helpful\(^{135}\). As China is developing rapidly, there is great demand for raw minerals and energy resources\(^{136}\) – for example coal, which supplies 70% of the country’s energy,\(^{137}\) and hence the mining industry is of great importance to the country. The law also states that all mineral resources shall be owned by the state, regardless of who owns the land and the right to use it.\(^{138}\)

As for sustainable development, the central government seems most interested in protecting the environment,\(^{139}\) however, other areas of more severe or symbolic impact

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\(^{135}\) See interviews with China Expert and Jinsong Gao


\(^{137}\) [http://news.bbc.co.uk/2/hi/asia-pacific/32669.stm](http://news.bbc.co.uk/2/hi/asia-pacific/32669.stm)

\(^{138}\) [http://www.jincao.com/fa/05/law05.38.htm](http://www.jincao.com/fa/05/law05.38.htm)

than mining might be prioritized, like the Beijing Olympics, or wastewater. In addition, it is probable that economic growth will continue to be the main priority. In its report, WWF (2008) also highlights the government’s role in furthering sustainable development, listing several ambitious government goals which has already had significant effects:

“... increase energy efficiency by 20% in the period 2005-2010, cut discharge of main pollutants by 10%, double the percentage of renewable energy it uses from 8% to 15% by 2015, and increase wind power generation fivefold from 2007-levels to 30GW by 2020.”

Also, in an article from China Mining Organization, environmental protection is listed as number two of three main goals for the Chinese mining industry.

As both the mining and environmental industries are important to the government, it is likely that they will be interested in the market for environmental consulting in the mining industry for the foreseeable future. However, despite their intention to improve the environmental conditions of mines, the government pays less than private companies for each project. This is supported by the Zhejiang expert, who states that KREC should not offer too expensive services to the government. However, Jinsong Gao comments that in contrast to private companies, the state will always pay, on time.

Local vs. Central government

China is divided into four levels of local government: Province, City, County and Village (town). The main function of local government is managing the economy of the area under its jurisdiction. However, the local governments and local industries are often intertwined, and you might find local government officials with personal financial

140 See interview with Gavin Chan
141 See chapters 7.2.2.4 and 7.2.5.1
142 See interview with China Expert
144 Interview with Jinsong Gao
145 http://www.unescap.org/huset/lgstudy/country/China/China.html#ahead
146 http://www.unescap.org/huset/lgstudy/country/China/China.html#ahead
interests in the local mining business, which may resist environmental protection of mines, often perhaps as they are judged by the central government mainly on the their financial achievements and lack the incentives to effectively implement environmental laws.

According to the local government in Zhejiang, one of the richest provinces in China, the biggest problems regarding environmental issues in abandoned mines are lack of money, incomplete legalization and unclear division of responsibilities, and lack of technology and experts. They have however, ambitious plans for recovery of the mines:

2009 - 2010: Second round check of abandoned mines; make treatment plan; do example projects; establish standard technology systems and management and monitoring systems.
2011 – 2015: Complete laws and provisions, and finish 70% of all mines
2016 – 2020: Finish all mines, and make a good system.

Conclusion
One should seek to have a good relationship with the Chinese government. The central government is probably also willing to support endeavors for better environmental protection of mines. However, one must be aware of the issues with local governments often being less willing to prioritize environmental protection.

6.2.2 Economic factors

General economic factors

147 Zhou & Zhu, 2008
148 See interview with Jinsong Gao, 2010
149 http://www.zhejiang.gov.cn/gb/node2/node1619/node1622/userobject13ai698.html
150 Plan of abandoned mines treatment in Zhejiang from 2009 - 2015
The Chinese economic growth the past few decades has been spectacular. Holz (2005) predicts this to continue into the future, with a growth of 7-9% until 2015 (it was actually 8.7% even in 2009, despite the global recession\(^{151}\), and reached 11.9% in January 2010\(^ {152}\), sufficient for the size of China’s economy in terms of purchasing power parity to equal that of the U.S. before 2015. In 2009, China was already the second largest country in the world in this regard.\(^ {153}\)

It should be noted that the CIA lists environmental sustainability as one of the four major challenges for China’s continued growth, alongside corruption, increasing the domestic demand and sustaining adequate job growth\(^ {154}\). Holz (2005) predicts that the government at some point will no longer be willing to sacrifice sustainability for GDP growth, although this change will likely be a slow process. China experimented with the implementation of a Green GDP index in 2004, heavily advocated by Pan Yue, Deputy Director of the State Environmental Protection Administration (SEPA),\(^ {155}\) but the project was later put on ice, much due to pressures from local governments.\(^ {156}\)

**Tax**

Tax rates can be quite complicated in China, as different regions, different industries and different levels of government have their own preferential policies. However, in 2008 the government implemented a unified corporate tax rate for both domestic and foreign companies (lowering domestic companies’ tax from 33% to 25%, while increasing tax on foreign companies from 15% to 25%).\(^ {157}\) Still, certain industries, such as environmental protection, will enjoy tax reductions of up to 50%.\(^ {158}\)

**Economic trends in the EGS sector**

\(^{155}\)http://www.worldwatch.org/node/4626
\(^{156}\)http://www.climaticoanalysis.org/post/china-green-gdp
\(^{158}\)www.ibls.com
The market for environmental goods and services in China is booming. WWF (2008) reports that Chinese Government pollution control related investments rose with 35% in the 2004-2006 period, totaling $84.52 billion and constituting 1.22% of China’s GDP.

*Table 1: Chinese pollution control related investments 2004-2007 (see appendix 11)*

China is already becoming a leading player in the EGS market, and the Climate Group reports that China is or will soon be the leading manufacturer of various critical low-carbon technologies. WWF (2008) also estimates that these trends will continue, and that EGS investments in China will reach between $1.5-1.9 trillion by 2020.

*Table 2: Estimation of investments in EGS in China towards 2020 (see appendix 12)*

**The Chinese Stimulus Package**
To counter the effects of the financial crisis, the Chinese government implemented a 400 trillion RMB (585 billion USD) stimulus package, of which roughly 10% are being spent on energy saving and ecological projects. Many of these projects however, are concerned with wastewater treatment.

**Conclusion**
All in all, the economic macro trends seem to encourage investment in the Chinese EGS market.

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**6.2.3 Socio-cultural factors**

Environment – related social trends in China

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159 WWF 2008
According to the expert from Zhejiang\textsuperscript{161}, China was not paying any significant attention to environmental protection and recovery of mines 20 years ago. The focus then seemed to be more on mining productivity and the country’s economical growth.

As time went by and more signs of China’s bad pollution conditions appeared, people seemed to become more aware of the critical condition of the country’s environment. A poll conducted by the Pew Research Center before the 2008 Olympics found that 74 percent of the people interviewed said they were concerned about air pollution\textsuperscript{162}

Furthermore, China has recently passed the U.S. when it comes to investments in renewable energy. The country has thus become an important player within environmental developing. According to a report from a study carried out by the Pew Charitable Trust, China has shown a clear willingness to be at the forefront in the development of green technology.

Apparently, the awareness among China’s inhabitants towards environmental issues seems to have changed, and the government appears to shift their focus from more or less solely focusing on economic growth to sustainable development\textsuperscript{163}. The mayor of Shanghai has even suggested adding a surcharge on electric bills to pay for environmental improvements\textsuperscript{164}.

\textit{Guanxi}

According to Gesteland (2005), who you know in a relationship focused culture such as the Chinese, is of utmost importance. First you make a friend, then you make a deal. The Chinese refer to these networks and relationships as \textit{guanxi}. Of course, knowing the right people is useful in any culture, but it is a difference of degree: In a relationship focused country, business cannot be done \textit{without} knowing the right people. He goes on to suggest that foreigners entering these cultures approach their partners indirectly, for

\textsuperscript{161} See interview with expert from Zhejiang Institute of Geology & Mineral resources, 2009
\textsuperscript{162} \url{http://pewresearch.org/pubs/906/china-economy}
\textsuperscript{163} Interview with expert from ZheJiang, and interview with Jinsong Gao
\textsuperscript{164} \url{http://factsanddetails.com/china.php?itemid=392&catid=10&subcatid=66}
example through a third-party introduction.

*Guanxi with the government*

As KREC is seeking opportunities to provide their services in China, the company’s mindset should be aligned with the government,\(^{165}\) both as the government is a potential customer, but also due to its influence in the business world. Having a “governmental mindset” would be beneficial when establishing guanxi. Gao suggests for KREC to be certain and honest, and to find arguments which would be central and in favor of the government. However, approaching the government can be difficult, and in addition to having the right mindset, one should also go through a personal contact.\(^ {166}\)

*Hierarchy and maintaining harmony*

Within Chinese business culture there seems to be a ranking order and hierarchy. Compared with the Norwegian and more egalitarian business culture, the Chinese older and more senior business men seems to have higher status above others. If young representatives from KREC intend to approach Chinese potential customers or clients they should be aware of showing respect towards the elder. Furthermore, there are several norms in which the company should follow during any business negotiation, concerning verbal language, body language, fostering clear communication and avoiding situations that might cause “loss of face” (embarrassment, to be short) by the Chinese counterparts.

*At the negotiation table*

Conducting negotiations in China seems to be characterized as a time-consuming process. Any foreign company should be prepared for this and remain calm and patient. In terms of the written final agreement, the Chinese tends to expect renegotiations if circumstances change. KREC should be aware of this and make it work for both parts, by employing the principle of reciprocity: If the Chinese counterpart wants to add terms of agreements in their favor, then KREC can do the same. Additionally, when doing

\(^{165}\) Interview with Jinsong Gao

\(^{166}\) Interview with Jinsong Gao
business with the Chinese, KREC should be aware of their short-term perspective during planning and negotiation and take this into consideration in advance of any agreement.

Maintaining relationships
During the initial phase of a company wanting to enter China, a lot of time is spent building relationships and networks. One should never underestimate the importance of following up on and responding to the newly acquired contacts. According to Gesteland (2005), having regular contact and correspondence is crucial to maintain good relationships.

Conclusion
Because of increased environmental awareness in China and the government’s willingness of environmental improvement, the Chinese might be more open for a foreign company like KREC to enter the Chinese market. KREC’s probability for doing successful business in China depends on the company connecting with and establishing good relationships with the right people. In order for this to be successful, Chinese cultural norms should be learned and followed.

6.2.4 Technological factors

Pressure and innovation
In order for China to achieve economically, social, and ecologically sustainable growth, the country must escape their traditional labor and resource intensive production pattern. OECD (2007) reports that China indeed has made remarkable progress in raising its innovation abilities, and the country is now a major R&D player.

Since 1990, China has carried out a series of climate change-related S&T projects under the framework of national S&T programs. These national programs include the National Hi-tech R&D Program (863 Program), National Basic Research Program (973 Program) and National Key Technologies R&D Program. The focus is on global climate change
prediction and its impacts, future trends of the living environment changes in China, global environmental change, response strategy and technologies in response to climate change and so on.\textsuperscript{167}

Thanks to the above-mentioned national programs and international cooperation in S&T, China has made achievements in climate change-related research and technologies development in the following four aspects:

1) Basic Research on Climate Change Impacts of Climate Change and Response Measures, 2) Development and Application of GHG Emission Control, 3) Climate Change Mitigation Technologies and 4) Social and Economic Impact Analysis and Mitigation Measures.\textsuperscript{168}

\textbf{Exchanging new technologies}

According to the expert from Zhejiang, China is very good at the technological field related to environmental mining issues, and they have advanced technology. He mentions that China not usually collaborates with foreign technology institutes, but that they do import some new technologies. This is usually done by students who studies abroad, and by sending workers to foreign countries, especially Japan, to learn new technologies.

\textbf{Conclusion}

Technological change is a fundamental force in the modernization process, and one which will become more important as the pace of technological progress and the impact of the environmental damage accelerates. Additionally, sending students abroad seems to be a main way of learning new technologies related to environmental mining.

\textbf{6.2.5 Environmental factors}

China is facing enormous challenges in developing an environmentally sustainable
society. At the same time, they are making rapid progress on this area.\textsuperscript{169}

\textit{The general environment}

China faces a host of environmental challenges. Here is a quick overview:

- About 25\% of China is now desert.
- As much as 10\% of China’s farmland is believed to be polluted.
- Two thirds of China’s approximately 660 cities have less water than they need and 100 of them suffer severe shortages.
- The Yangtze River receives 40\% of the country’s sewage – 80\% of which is untreated.
- More than 70\% of waterways and 90\% of underground water supplies are polluted.
- An estimated 750 000 premature deaths per year caused by respiratory diseases related to air pollution.\textsuperscript{170}

\textit{The mining industry}

China has a significant part of the world’s mineral resources (12\%), but due to the size and population of the country, the mineral resources per capita is rather small, ranking 53\textsuperscript{rd} in the world. Moreover, China can be said to be one of the few countries in the world that have a complete set of mineral resources varieties. This has created favorable conditions for China to establish a comparatively comprehensive national economic system by relying mainly on its domestic resources.\textsuperscript{171} In the coal sector, Northern China, especially Shanxi Province, contains most of China's easily accessible coal and virtually all of the large state-owned mines.\textsuperscript{172}

The Chinese mining industry is however in need of significant environmental improvement.\textsuperscript{173} In her PhD thesis work, Okkenhaug found that the mining area she

\textsuperscript{169} WWF, 2008, and interview with China expert
\textsuperscript{170} WWF, 2008
\textsuperscript{171} http://www.mbendi.com/indy/ming/coal/as/cj/p0005.htm
\textsuperscript{172} http://www.chinamining.com.cn/resource/city/sx.asp
\textsuperscript{173} Interviews with Gudny Okkenhaug (2010), Jinsong Gao (2010), Gavin Chan (2010), China Project 2006, SRK
studied contained “very high amounts of antimon” (her object of study), and that pollution was dumped “without any form of covering, partly toward rivers”, and also with residents nearby being exposed\textsuperscript{174}. The article Mining and Conflict in Chongqing also paints a black picture of the environmental part of Chinese mining,\textsuperscript{175} with pollution leaking into and destroying water supplies, infecting crops and people alike, as well as dust causing respiratory diseases.\textsuperscript{176} Jinsong Gao, the expert from Zhejiang and Gavin Chan also reinforce these impressions. The larger, state owned mines are however reported to have better standards than smaller, private ones.\textsuperscript{177}

As an example, we found in a report from the Zhejiang government\textsuperscript{178} that there are 2780 abandoned mines in the province that are in need of treatment. 198 of these are classified as serious, meaning they might affect more than 30 people and cause more than 3 million RMB’s worth of damage. 898 are classified as relatively serious, and 1684 as not so serious. The budget for each mine is, in order of classification: 400 000 – 500 000 RMB, 200 000 – 300 000 RMB, and 30 000 – 100 000 RMB.

\textit{Conclusion}

The Chinese mining industry is big, and in need of serious environmental improvements.

\textbf{6.2.6 Legal factors}

The central government has established laws on mining environmental protection, but has some problems in implementing them.

\textit{Environmental laws}

The Chinese government has established the Mineral Resources Law of the People’s

Consulting
\textsuperscript{174}Interview with Gudny Okkenhaug, 2010
\textsuperscript{175}Zhou & Zhu, 2008
\textsuperscript{176}see also Project China, 2006, BBC News, 1997, and interview with Gavin Chan, 2010
\textsuperscript{178}Plan of abandoned mines treatment in Zhejiang from 2009 - 2015
Republic of China, with the purpose to develop the mining industry, promote exploration, development, utilization and protection of mineral resources, as well as ensure the present and long-term requirements of socialist modernization.

Further paragraphs indicate that every mineral resource shall be owned by the state and that state-operated mining enterprises shall be the principal force in exploiting mineral resources. Approval of prospecting reports shall be done by the Mineral Reserves Approval Agency of the State Council, directly under the Central Government.

The law underlines the responsibility of every enterprise or individual regarding pollution damages caused by mines. There is liability regarding measuring of land affected by pollution and thus reclamation, planting of trees and grass appropriate to the local conditions.\(^{179}\)

The central government attempts to enforce environmental laws as well as combat illegal mines, which are set up without permission. However, corruption within the local government seems a fundamental problem.\(^{180}\)

.Support by the government
The state encourages and supports scientific research and technological development relating to protection of geological environment of mines. They also encourage enterprises, institutions, social organizations and individuals to invest in recovery of geological environment of closed and abandoned mines which seems favourable towards KREC. As a forecast concerning legal trends, the government’s future focus seems to be establishing and improving laws to regulate environmental protection of mines.

.Intellectual Property Rights (IPR)
There is no information available of KREC having any patents on technology, procedures, or the like, the otherwise significant problem of IPR seemingly does not apply in KREC’s

\(^{179}\) www.jincao.com/fa/05/law05.38.htm

\(^{180}\) Zhou & Zhu, 2008
case. There is perhaps a threat of partners or customers trying to “steal” KREC’s specialized knowledge, but this also seems unlikely, as the knowledge probably requires long and meticulous study to obtain.

**Conclusion**

There seems to be willingness within the government to establish and improve well functioning laws and support technologic and scientific development to improve the environment. However, corruption within the local government seems to be a problem which hinders implementation of the laws.
Chapter 7: SWOT

In this chapter the most significant strengths and weaknesses of KREC will be presented, in addition to the threats and opportunities within the market. The analysis is based on the information from the previous internal and external analyses. The results of the SWOT analysis will be used in order to suggest a strategic problem definition.

7.1 Strengths

For strengths the scores indicate Performance, i.e. the degree to which the company possesses the given strength, and Importance, being the degree to which the strength or weakness is important to KREC if they are to enter China. A score of 1 on performance means the company does not posses the strength to a large degree, while 5 that this is a major strength. For importance, a score of 1 means the strength is not particularly useful to the company, while a score of 5 means it is could be used with great advantage.

Customer orientation – Performance: 4 Importance: 5
As KREC takes care to learn the business of their client well and adapts the services to the needs of the client, the company can be said to be customer oriented. This is also supported by the positive feedback given by customers. They do however not seem to do market analyses to anticipate trends and systematically identify the needs of customers in the market.

Scientific expertise – Performance: 5 Importance: 5
According to Walder, KREC possesses very specialized knowledge. Presumably, the quality of their more standard scientific work is also excellent. The quality of their scientific work is one of KREC’s major strengths, and it is also vital when operating with a niche strategy.

Service quality – Performance: 5 Importance: 5
In addition to the quality of content in the service – i.e. their scientific expertise – service
quality also includes the manner in which the service is delivered, and to which degree it satisfies the customer. As KREC has reported high customer satisfaction, the quality of their services is probably also high. This is essential for a service provider.

**Location – Performance: 4 Importance: 2**

KREC mentions their ideal location several times on their webpage. In addition, their webpage seems to somehow also represent the island of Kjeøy itself. The location does indeed seem nice, but the authors find it to be of minor relevance for entry into the Chinese market. An exception is in the event of an exchange program with a Chinese university. It would also contribute to making workshops and courses at Kjeøy more enjoyable, but is hardly a priority for Chinese customers.

**Price – Performance: 4 Importance: 4**

KREC’s competitive prices is an advantage for the firm, as Chinese customers tend to be price sensitive. However, offering an unique service might often be more important than price.

**Market network - Performance: 5 Importance: 4**

In the course of time, KREC has built a network of contacts, to whom they market their services directly. They also cooperate with several universities internationally, and are at times hired as subcontractors for larger firms. This indicates a good market network, which is very important for a small company like KREC.

### 7.2 Weaknesses

For weaknesses, the scores also indicate Performance and Importance. A score of 1 on performance means that the company is not especially weak in that regard, while a score of 5 indicates a major weakness. A score of 1 on importance means the weakness does not hamper the company significantly, while a score of 5 means it is detrimental.
Marketing expertise - Performance: 4 Importance: 4
According to the company, marketing is not a priority in KREC. Their marketing efforts are based on personal contacts and experience and without a clear strategy. According to the company, updating their webpage with new projects is very important, but their website is in quite bad condition and in need of a major overhaul.

China expertise - Performance: 5 Importance: 5
The company has no previous experience in China, and has informed that their knowledge of Chinese culture is scarce. This is a major weakness when doing business in China.

Strategy - Performance: 3 Importance: 4
KREC has a stated goal of “becoming an internationally acclaimed research center”, but they do not seem to systematically work towards this. They get customers quite randomly, often by request from people who have attended their workshops and the like, instead of analyzing strategically important markets and customers and working towards those. Neither do they seem to have done internal analyses to identify competitive advantages and weaknesses. Not having a clearly defined strategy and systematically working towards goals is quite unfavorable.

Small company - Performance: 5 Importance: 5
KREC’s size might be a disadvantage, as entering China would demand a lot of investments in time and relationships. It is uncertain whether KREC has the capacity for this. In addition, larger Chinese companies and governmental institutions might not take them as seriously as they would a larger company.

Lack of network in China - Performance: 5 Importance: 5
As networks are crucial when doing business in China, the absence of this is a major weakness.

7.3 Opportunities
For opportunities, the scores indicate Attractiveness, meaning how attractive it would be for KREC to take advantage of the opportunity, and Probability of success, being the likelihood of KREC being able to take advantage of the opportunity. A score of 1 on attractiveness means the opportunity can not give major benefits to the company, while a score of 5 indicates an opportunity which could benefit the company greatly if exploited. A score of 1 on probability of success means the company would find it difficult to exploit the opportunity, while a score of 5 means it would be easy.

**Central government intention – Attractiveness: 5 Probability of Success: 3**
We have seen that there is great will in the central government on solving environmental problems. This is something KREC could benefit from, as the government will be more likely to take interest in their area of business, in addition to being willing to spend money on it (for example through their stimulus package). However, getting the ear of the central government might be difficult for a small, foreign company without contacts.

**Great need for environmental protection – Attractiveness: 5 Probability of Success: 5**
The environmental state of mines in China is generally quite bad. This means there are plenty of opportunities for business for KREC.

**Rapid growth in the EGS sector – Attractiveness: 5 Probability of Success: 5**
With the market expanding rapidly, the possibility of finding someone interested in KREC’s services increases. In addition, the competition will be less fierce.

**Tax reduction for environmental companies – Attractiveness: 3 Probability of Success: 5**
This will reduce KREC’s costs when operating in the Chinese market.

**Buyer bargaining power – Attractiveness: 5 Probability of Success: 3**
This is perhaps a somewhat counterintuitive opportunity. The reasoning goes that as customers have more power they become pickier, seeking companies with excellent quality of service and ability to tailor them to customer needs. These are qualities KREC
possesses. However, reaching the customers might still be a problem for KREC.

*Increased awareness – Attractiveness: 3 Probability of Success: 3*

Both in the government and in the population at large, the importance of protecting the environment seems to be increasingly accepted. This is good for firms who do environmental protection. However, it is doubtful whether it might give immediate benefits.

*Increased environmental legislation – Attractiveness: 5 Probability of Success: 3*

As KREC can also aid governments in developing guidelines, the establishing of environmental laws and regulations in the mining industry might be to KREC’s advantage, if they can become part of the process.

*Norway as country of origin – Attractiveness: 3 Probability of Success: 5*

Norway enjoys a generally positive image in China. However, Norway is not associated with mining.

### 7.4 Threats

Threats are scored on the aspects of Seriousness, being how severely a threat might hurt the company, and Probability of Occurrence, being how likely it is that a specific threat will occur. A score of 1 on seriousness means a threat will not hurt the company significantly, while a score of 5 indicates serious harm to the company’s business. A score of 1 on probability means the threat is not likely to occur, while a score of 5 means it will most certainly occur.

*Central vs. local governments – Seriousness: 4 Probability of Occurrence: 4*

Although there is will in the central government to improve the environment, it is not always easy to implement environmental policies due to resistance in local governments. Sometimes local government officials have personal financial interests in the mining
industry, and bribery might also occur, allowing the mining companies to escape environmental control.

**Government influence – Seriousness: 5 Probability of Occurrence: 1**

It is hard to escape the government’s influence when doing business in China. If the government wishes, it can make operating in China extremely difficult for KREC. It is however very unlikely they would do so, unless KREC acts irresponsibly and crosses the government’s interests.

**Entry and exit barriers – Seriousness: 5 Probability of Occurrence: 5**

Entering China will demand a lot of time and effort for KREC, in order to build and maintain relationships, and acquire knowledge about the market and culture. Without adding to their staff, it might be very difficult for KREC to spare the needed resources. In addition, it might be very difficult to obtain the required licences to operate in certain parts of the market.

The investments made in these regards will also create high exit barriers, as they are useless elsewhere.

**Cultural differences – Seriousness: 4 Probability of Occurrence: 5**

There are significant differences between the Norwegian and Chinese cultures. Without expertise on this area, KREC may fall behind competitors with more cultural knowledge, for example through insisting on operating on a transaction basis rather than a relationship basis. Even worse, they may end up unintentionally insulting a customer or partner.
### SWOT model for KREC

<table>
<thead>
<tr>
<th>Strengths</th>
<th>P / I</th>
<th>Weaknesses</th>
<th>P / I</th>
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<tbody>
<tr>
<td>Customer oriented</td>
<td>4 / 5</td>
<td>Marketing expertise</td>
<td>4 / 4</td>
</tr>
<tr>
<td>Scientific expertise</td>
<td>5 / 5</td>
<td>China expertise</td>
<td>5 / 5</td>
</tr>
<tr>
<td>Service quality</td>
<td>5 / 5</td>
<td>Strategy</td>
<td>3 / 4</td>
</tr>
<tr>
<td>Location</td>
<td>4 / 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price</td>
<td>4 / 4</td>
<td>Small company</td>
<td>5 / 5</td>
</tr>
<tr>
<td>Market network</td>
<td>5 / 4</td>
<td>Lack of network in China</td>
<td>5 / 5</td>
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<thead>
<tr>
<th>Opportunities</th>
<th>A / PoS</th>
<th>Threats</th>
<th>S / PoO</th>
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<tbody>
<tr>
<td>Central government intention</td>
<td>5 / 3</td>
<td>Central vs local government</td>
<td>4 / 4</td>
</tr>
<tr>
<td>Great need for env. protection</td>
<td>5 / 5</td>
<td>Government influence</td>
<td>5 / 1</td>
</tr>
<tr>
<td>Rapid growth in EGS sector</td>
<td>5 / 5</td>
<td>High entry and exit barriers</td>
<td>5 / 5</td>
</tr>
<tr>
<td>Tax reduction for env. companies</td>
<td>3 / 5</td>
<td>Cultural differences</td>
<td>4 / 5</td>
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<tr>
<td>Buyer bargaining power</td>
<td>5 / 3</td>
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<tr>
<td>Increased awareness</td>
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<td>Increased environmental legislation</td>
<td>5 / 3</td>
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<tr>
<td>Norway as Country of Origin</td>
<td>3 / 5</td>
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</table>

#### 7.5 Strategic Problem Definition (SPD)
The strategic problem definition is the end product of the strategic analyses and makes the foundation for the strategy. It will summarize how KREC can use their internal strengths, to meet the opportunities, improve their weaknesses and prevent the threats in the market.\footnote{Framnes, Pettersen og Thjømøe, 2006:144}

The following strategic problem definition has been suggested:

\begin{quote}
How can KREC achieve a successful entry into the Chinese market using their service quality and customer orientation to take advantage of the growing EGS sector and government will, despite their small size and lack of network and cultural expertise, while facing problems of inefficient implementation of laws and entry barriers?
\end{quote}
“A strategy delineates a territory in which a company seeks to be unique.”

-Michael Porter
Chapter 8: Strategy Analyses

Here various strategic analyses will be employed to provide insight on whether and how KREC should enter China.

8.1 Solberg’s 9 Windows

By combining the globality of the industry with KREC’s internationalization ability, Solberg’s nine windows provides insight on which strategy KREC should use.

8.1.1 KREC's internationalization ability

Here we will look at how well equipped KREC is to do international business.

*International organizational culture*

In the ACE model we learned that KREC’s organizational culture is moderately international.

*Market share*

Not much information on this was available, but KREC’s market share is assumable quite small, and was therefore characterized as “invisible” or “insignificant” in the Bakka model.

*Market network*

Although little specific information on this was available, KREC apparently has a good market network. This is evidenced by the fact that KREC is often hired as sub-contractors, and can easily increase staff when necessary.\(^{182}\)

\(^{182}\) See interview with Ingar Walder
Conclusion of internationalization ability

As KREC has a moderately international organizational culture, low market share, but an apparently good market network, KREC’s internationalization ability is moderate. This is also in quite in accord with the findings from the Bakka model, but could indicate that the firm is ready for further internationalization, as internationalization ability is somewhat above their actual level of internationalization.

8.1.2 Globality of the industry

Here the degree of globality in the industry of environmental mining consulting and education will be analyzed.

International competitive structure

The international competitive situation in this market is characterized by a multitude of highly internationalized companies, of which many are large, global companies, offering a wide variety of services. In addition there are many small companies, even one-man companies.

The competitive structure thus seems to be somewhere between potentially global and global.

Forces of globalization

Protectionist regulations

The Chinese EGS market is open for foreign investment, and companies doing environmental protection are encouraged through tax reductions. The procedures of bidding for plans to recover mines for the state is also open to private companies. However, it seems somewhat difficult for a foreign company to bid on a

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183 See chapter 7.1.1.2
184 See interview with Ingar Walder
185 See interview with expert from Zhejiang
project. There are certain criteria of qualification which a company needs to fulfil in order to be qualified for a bidding process. These criteria, or assessments of achievement scores, include for example a survey on how many successful projects a company has done during a year\textsuperscript{186}. A company needs a certain quantity of projects completed each year to remain qualified as a bidder.\textsuperscript{187}

\textit{Nationalistic attitudes of the buyer}

There seems to be a certain degree of nationalistic attitudes in the Chinese government. On one hand they might favor foreign companies for their expertise and/or technology,\textsuperscript{188} but they also tend to increasingly favor domestic companies.\textsuperscript{189} In addition there is the aspect of guanxi, which makes it difficult for outsiders to penetrate already established business networks, or to start their own.

\textit{Different preferences or traditions regarding technical solutions}

As we have seen, China has a stronger focus on economic growth than one perhaps is used to in the west, with local governments sometimes preferring monetary profit over environmental sustainability\textsuperscript{190}. This financial focus might make it more difficult to argue for implementation of better environmental management procedures and solutions, if these are expensive and yield little monetary profit.

\textit{Conclusion}

With a quite global competitive structure and minor protectionistic regulation, the globality of the industry is high.

\textsuperscript{186} See interview with expert from Zhejiang
\textsuperscript{187} See interview with expert from Zhejiang
\textsuperscript{188} See interview with Gavin Chan
\textsuperscript{189} See interview with Jinsong Gao,
\textsuperscript{190} See PESTEL analysis above, and interviews with Gavin Chan, 2010, and Jinsong Gao, 2010
8.1.3 Conclusion of analysis

With a moderate internationalization ability and a moderately high globality of industry, KREC is located in window eight: Seek global alliances. However, window seven is also of interest (see model of Solberg’s 9 windows, appendix 13).

Window seven: Prepare for possible buyout
The company is not prepared to actively compete in the global market. The larger and more internationalized firms will quell any serious attempts at competition. To protect itself against competition from these firms, the company can protect itself through seeking niches in which the larger firms do not (yet) compete, through specialization. This will enable them to gain international experience and strengthen their market position in a more protected market structure. If this is not possible, the company should try to find a suitable candidate to buy them out. However, KREC already operates with a niche strategy, providing specialized services the larger companies lack.

Window eight: Seek global alliances
The management should actively seek out alliance partners, to strengthen themselves and their provisions for internationalization. The condition must be that the company is gets help in building their network, and to protect and develop their market positions. KREC has several international partners and are cooperating with large global firms, and thus seems to be well on their way in following the advice of seeking global alliances.

Suggestions for KREC
Based on this analysis, KREC should continue with their niche strategy and seeking out cooperation partners worldwide. Entering China could be a good way to expand their global networks, providing it does not tie up too many of the company’s resources, and thus limiting their ability to maintain and build networks elsewhere. If entering China,

191 Solberg, 2009
192 Interview with Ingar Walder, 2010
193 Solberg, 2010
they should try to find a suitable partner here, providing them with specialized services which are difficult to get elsewhere. In return, this partner should help them establish good networks in China, and strengthen their position in their (niche) markets.

8.2 Country of origin effects (COO)

Perceptions are the mental associations and beliefs triggered by a country. Marketers want to use COO perceptions in the most advantageous way possible to sell their products and services.194

If Norway trigger mental associations for the Chinese customer that are positive in the company’s context, this could be significant to include within KREC’s marketing strategy. KREC could for instance emphasize Norway’s beautiful and clean environment as well as traditions of successful efforts with regards to environmental protection.

What could further be positive associations of Norway is the country known for technology and innovation.195 Norway as a brand reflects good quality and good reputation, but also high prices.196

However, there seems to be a question whether COO will affect China, because of possible lack of knowledge about Norway related to the mining industry among the Chinese.

If using Norway as a brand within KREC’s marketing strategy seems positive, however, they should be aware of underlining their competitive prices in comparison with what is associated with prices in Norway.

194 Kotler & Keller, 2006:686
195 Innovationnorway.com
196 Aker Solutions Thesis, 2009, interview with Mr. Tom Xu, Innovation Norway
8.3 STP

8.3.1 Segmentation

The following segments have been identified:

**Central government**
The central government makes the laws for environmental protection of mines, in addition to owning mines, and seems interested in bettering the environment. There does however appear to be quite established laws on mining environmental protection, and the government-operated mines have better standards than smaller, private mines. It would perhaps not pay as much as private companies, but would provide KREC with useful connections and a good reputation. They are also considered difficult to get in touch with.

**Local governments**
Local governments could roughly be considered ”mini-central governments”, meaning they operate mines and make guidelines, are interested in bettering the environment, pay less than private and have better standards in their mines, and are difficult to get in touch with, only everything is at a smaller scale – including their interest in bettering mines and difficultness to contact.

**Educational institutes**
Many universities have environmental studies, but the China University of Mining and Technology (CUMT) seems most appealing, as they focus on mining related subjects, are prestigious, and cooperate with foreign universities.\(^{197}\) Universities are relatively easy to contact,\(^{198}\) could provide good market and cultural experience, and connections in the industry. However, they might not pay much, but it would still require investments to build and maintain a relationship.

\(^{197}\) [http://www.cumtb.edu.cn/frameset/xxgk/xxgk_e.htm](http://www.cumtb.edu.cn/frameset/xxgk/xxgk_e.htm)

\(^{198}\) Although we had trouble getting through to the CUMT with emails, two of the authors had success with simply walking into their offices in Beijing.
Local competitors
Local competitors are unlikely to have KREC’s scientific expertise, and KREC could thus be an attractive partner for them. In return, they could offer market and cultural knowledge, and network. In addition, both Jinsong Gao and the Zhejiang expert explains that private companies usually pay more than the government. However, one should be aware of the problems of strategic compatibility, which often leads to joint ventures (JV’s) between Chinese and foreign companies being unsuccessful.199

International competitors
There are already several large companies doing environmental consulting in China, and selling their services through one of them as a sub-contractor or some sort of partnership is a possibility. These companies are often very big with solid turnovers, and could therefore also pay well. In addition, they might not be as guanxi-oriented as Chinese organizations, reducing the time-investments needed to build and maintain relationships. The culture barrier would presumably also be smaller, as these are highly internationalized companies, used to work with people from different cultures. It is unlikely however, that international companies could provide as much market and cultural knowledge and networking possibilities in China as local organizations.

Private mining companies
These are usually smaller and have lower environmental standards than the government’s mining companies, and might also have more money to spend. However, they are often already resisting implementation of environmental protection, bribing local officials to get away, and it would probably be very hard for KREC to convince them of buying their services.

199 Lieberthal et al., 2004
8.3.2 Targeting

International competitors
As KREC is a small company and does not wish to expand, international competitors seem to be the most attractive segment.\(^{200}\) This because they do not require as much investments and follow-up to maintain guanxi, and could provide small or sporadic but well paid projects and the culture barrier would be lower. Moreover, KREC already has experience working as a subcontractor, being hired to provide specialized knowledge. Working with international competitors also seems advisable according to Solberg’s nine windows and the Bakka model, but the latter cautions against being restricted in terms of market contact.

Other attractive segments have also been identified, and will be presented in order of attractiveness. Attractiveness is here defined in terms of how much investment is required, how easy it is to approach the segment, and profitability (in terms of money or network).

Educational institutes
This option is also quite attractive, as universities might be an excellent way to gain cultural and market knowledge, and gain contacts and reputation. However, it is unlikely to pay well, while still requiring KREC to invest time on guanxi. On the other hand, it might be possible for KREC to avoid committing to time consuming projects, and instead be hired as guest lecturers or cooperate scientifically on specialized projects. If desirable, the cooperation could later be expanded, for example to include an exchange program.

Local competitors
Targeting local competitors is seen as the third best option.\(^{201}\) This because they can provide KREC with licenses and much needed market and cultural knowledge, and could help KREC expand its network in China. It would probably also be the second best option in terms of monetary profit. The cultural barrier would however be present, as well

\(^{200}\) Also recommended by Jinsong Gao
\(^{201}\) Also recommended by the expert from Zhejiang
as possibly strategic incompatibility if they chose to make a JV. In addition, KREC must be prepared to invest quite a lot of time on building and maintaining guanxi.

Local governments
This segment requires a lot of investments, both related to guanxi, and also to acquire and keep the necessary licenses. However, the government plays a central role in the mining industry, and could provide a lot of projects. In addition, having government contacts would be an excellent way to gain market and cultural knowledge, as well as network. If KREC could acquire the necessary licences, getting a project would depend on the bidding process, and price would probably be a major issue.

8.3.3 Positioning

Two positioning strategies have been recommended, one for international competitors, and one for the Chinese market.

International competitors
KREC’s specialized knowledge would be of particular importance, as that would be what KREC could offer that the larger firms do not have. Thus, positioning KREC as an extremely specialized company would be beneficial. They should also highlight the company’s customer focus. This would imply a rather exclusive niche-position.

The Chinese market
Jinsong Gao suggests KREC adopt a “little brother” position in the market.\textsuperscript{202} This implies that KREC is not as big and powerful as their larger competitors, but easier to deal with, and cheaper. In addition, the company’s excellent scientific knowledge should be an integral part of the positioning. The following positioning aspects have thus been identified:

\textsuperscript{202} Interview with Jinsong Gao
1. KREC has specialized, world class scientists
   According to Ingar Walder, the company possesses knowledge shared by few others. This point should be emphasised.

2. KREC is customer focused
   This enables the company to provide exactly the service the customer wants, adding to customer satisfaction.

3. KREC offers impeccable service quality
   The high level of expertise combined with customer focus, makes KREC’s services top-grade. KREC’s satisfied customers are proof of this.

4. KREC has competitive prices
   Despite the high quality services, KREC manages to keep prices low. This should be mentioned, but the customers should also be given a reason for their competitive prices (KREC has lower fixed costs, less bureaucracy, or whatever the reason might be)

8.4 Strategic Alternatives

After segmenting the market and identifying the most attractive segments, the authors will now present the various strategies which could be advisable for KREC to employ.

8.4.1 Strategy 1: Educational institutes

As KREC offers educational services, targeting educational institutions in China is a viable option. We have identified Beijing University of Mining and Technology (BUMT) as the main educational institution on environmental issues related to mining.

KREC could cooperate with this university by offering guest lectures or cooperating on science projects, and perhaps an exchange program.
There are several ways to initiate contact with this university. Primarily, the company should strive to get personal contacts within the relevant field in China, who could serve as door openers. Another way is to use one of the company’s established cooperation partners or contacts, for example the UiO, or Innovation Norway, to put weight behind the company and get a foot in the door. KREC could also organize a conference or workshop or the like, inviting key persons from the BUMT and arranging social activities to establish guanxi. If contact is established, KREC should try to formalize and put weight behind the cooperation by involving an authority figure, for example a Norwegian politician. A combination of all of these should be tried, as far as possible.

**Critical success factors**

- Getting a contact person
- Investing the necessary time
- Putting weight behind the company, by involving a third party of importance
- Getting a good translator

**8.4.2 Strategy 2: International Competitors**

One option for KREC would be to market themselves towards international competitors already established in the China. As KREC already has experience with this, employing a piggyback strategy by functioning as a subcontractor is advisable. This could give KREC a foothold in the market, allowing the company to gain experience and understanding without having to invest too much in guanxi, in addition to it being likely that working for an international company would be very profitable.

On the other hand, going through an international competitor would limit market contact and thus the possibilities to learn about the market and make contacts. KREC must make sure to not be completely locked out from market contact, as pointed out in the Bakka model. Gao’s personally opinion is that Norwegian companies are the ones that KREC
really can trust. The reason for this is probably the similarities in cultural values and management and communication styles. Therefore, trying to get into China via Norwegian channels seems the preferable choice. Gao suggests approaching DNV.

KREC should also utilize its network and ask for subcontractor possibilities in China, in addition to approaching companies directly. A good company to try first could be SRK Consulting. It is already established in China, providing focused advice and solutions to clients, mainly from earth and water resource industries. For mining projects, SRK offer services from exploration through feasibility, mine planning, and production to mine closure,\textsuperscript{203} well in line with KREC’s business.

**Critical success factors**

- Find a company who is interested in KREC’s services
- Ensuring market contact

**8.4.3. Strategy 3: Local competitors**

According to the China expert, it is necessary to find Chinese people whom you can trust and work closely with. The expert from Zhejiang also recommends KREC to collaborate with a Chinese partner. He suggests for KREC to get a first-time project with Chinese partners which can be used as a “sample-project”, and if successful, it could be used to build reputation. Investing time to build guanxi is a must. The expert from Zhejiang explains the importance of using a Chinese partner’s network to expand their own network, especially in the start-up phase. A local partner could be extremely useful for KREC, in terms of gaining market experience and cultural understanding, as well as building a reputation within the Chinese market. The problem of acquiring licences would also be avoided.

However, there would also be some difficulties. Initially, the culture and language

\textsuperscript{203} SRK.com
barriers are obvious. In addition, finding a trustworthy partner might not be easy, and it is possible they would encounter some firms that want to use KREC for their own purposes. KREC must make sure that their partner agrees on the long term goals, and the benefits for each company from the cooperation. Jinsong Gao recommends having a realistic approach. By this, he means the company should start by visiting China, get an impression of the market and try to find an established company with which to cooperate.

Critical success factors

- Find a trustable partner
- Develop mutually beneficial and agreeable terms of cooperation

8.4.4 Strategy 4: Local governments

As the Chinese government is very involved into mining industry and provides a large number of projects to mining environmental consulting companies as well as making laws, targeting local governments is a viable option. Both helping them develop guidelines and consulting work are applicable services.

For consulting work, KREC would need to acquire the necessary licences to be able to participate in the bidding process, which would be very difficult. Moreover, despite the bidding process, having a good network is always beneficial, especially if entering a less developed province, where the market system might not be well established. Getting a personal in the government would be easy. One way could be to go through governmental contacts in Norway, or perhaps the EU. The expert from Zhejiang is of the opinion that working towards the government would be very difficult for KREC.

The matter of low income from governmental projects further complicates this course of action. However, there would be possibilities for a large number of projects, and KREC would definitely enjoy a good reputation and possibilities for expanding their network.

204 Interview with expert from Zhejiang
If attempting this option, KREC must at all times keep in mind the advice of having a governmental mindset, i.e. aligning to government interests, helping them achieve their goals. Targeting a more developed province such as Zhejiang is advisable.205

**Critical success factors**

- Obtaining all necessary certifications (for consulting)
- Getting the right contact person (especially if doing guidelines)
- Understanding the Chinese government’s mentality and goals

### 8.4.5 Strategy 5: Not enter China

An entry into the Chinese market would require a lot of time in order to build and maintain the necessary relationships, and acquire market knowledge and cultural understanding, in addition to perhaps the required licenses. Due to the amount of time and effort necessary to get sustainable business in China, it might be wise for KREC not to enter the market at this time.

Embodiment in the organization is important for the internationalization ability of a company. However, Ingar Walder has stated they have no concrete plans to enter China, and they do not seem particularly interested in committing to the task. If the company does not do more than perhaps one or two random assignments for Chinese customers, it might seem insincere and lose credibility and trust in the market. Relationships and networks are essential in China, and to enter a relationship or network and then pulling out could very well lead to the counterpart being unwilling to do business with KREC in the future, and this reputation could spread quick through word of mouth.

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205 Interview with expert from Zhejiang
PART 6 - Recommendation & Conclusion

“Life is the art of drawing sufficient conclusions from insufficient premises.”
- Samuel Butler
Chapter 9: Recommendation

The aim of this thesis has been to find out whether Kjeøy Research & Education Center should enter the Chinese market for environmental consulting and education in the mining industry, and if so, how the company should proceed. Here the authors will present their recommendations for KREC.

9.1 Primary Recommendation

Of the five alternative strategies, the authors have decided to recommend KREC to not enter the Chinese market. Since KREC is a very small company with no concrete plans of China entry, it is unlikely that they have the resources or commitment to do the necessary investments in relationship building and market and culture research.

9.2 Secondary recommendation

However, if KREC should decide to enter China, the authors have made additional recommendations.

The entry strategy which would require the least amount of investment would be to target international companies, working as a subcontractor. The authors recommend first trying to approach DNV, as suggested by Jinsong Gao.

If DNV has use for KREC’s services, it would be an attractive partner because of the cultural similarities in addition to their long market experience and good reputation in China. Alternatively, KREC could approach SRK or another international consulting company operating in the environmental mining field, directly or through KREC’s established network.
9.2.1 Marketing mix

The following marketing mix is suggested for this strategy:

**Product**
KREC should try to identify what areas of knowledge they have that their customer does not have, and emphasize the related services. They should of course take care to listen to the needs of their customer, and be sure that all the instances in the GAP models are aligned with this, i.e. that the service meets the expected quality. They should also try to differentiate their services, going beyond their customer’s expectations.

Their in-house training is a good example of how to do this. The customer expects consulting, and instead they get knowledge that reduces the need for further consulting, and thereby future costs. If targeting educational institutions, this could be done for example through innovative lectures or teaching methods.

**Price**
The rarity of KREC’s specialized knowledge should enable them to take premium prices.

**Promotion**
KREC should first try to approach any international companies that are currently in China and with which KREC has connections, for example from past conferences or workshops. Approaching unfamiliar companies directly is also a viable option. KREC should emphasize its scientific expertise and customer focus when contacting potential customers, and provide proof of earlier successful projects and cooperations. Underlining KREC’s Norwegian background is also advised.
**Place**

Wherever the customer or project is located.

**People**

KREC consists of three employees who are scientists with expertise knowledge within their field. However, as KREC is a service provider, employees should also receive some fundamental service training. The employees should naturally always behave well towards the customer, and make sure to be properly dressed, on time, skilled communicators, etc., providing the proper performance clues.  

**Physical evidence**

All physical objects presented by KREC should be streamlined with KREC’s positioning, as far as possible. It is important to send the right message, and that to show that KREC is the supplier of the material. A slogan should be created, underlining the scientific expertise and customer care. This should be present on education or instruction material, for example. Also, the logo should reflect these values. In addition, KREC could try to get pens or other accessories with the company’s name on it distributed among the customers, to facilitate brand awareness and recall. The website should be well designed and professional, with symbols such as the logo and slogan clearly visible – something which also applies at KREC location in Norway and elsewhere. It should also be revised by a professional web design company,

When meeting with potential customers or partners, the opportunity should be taken impress, using context and performance clues. For example, a conference room in high-end hotel; delicious finger food; quality suits and business cards are all elements that KREC could use to signal quality. However, KREC should take care not to overstep legal and ethical standards regarding corruption, as well as drawing the line within economically acceptable boundaries.

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206 see chapter 4.1.1
Process
As KREC’s positioning was suggested to emphasize scientific expertise and customer focus, it is very important that KREC establish good service processes, to avoid service gaps and customer dissatisfaction. Clear systems for customer communications should be established, and customer inquiries should have priority in the organization. Swift, polite and solution oriented answers to these should be the norm. All feedback should be noted, filed, analyzed and used to improve the company. The entire company should be trained in these processes, so there is no confusion as to what level of service should be given to customers, and how to respond to feedback. Appointing key account managers for the various customers would also be wise, to make the relationship more personal and thus improve communication.

9.2.2 Goals

These are suggestions to goals KREC should strive towards if choosing to enter China piggybacking an international competitor. They are based on the assumption that this strategy would be used as a stepping stone for further penetration into the Chinese market.

Short term, 1 – 2 years

- Improve the website, according to professional standards
- Arrange at least one conference or workshop with participants from the target segment
- Complete at least two projects in China

Medium term, 3 - 5

- Arrange at least one conference or workshop with participants from both international competitors and Chinese people from the other segments (see 9.3 below)
- Complete at least four more projects in China
- Translate website into Chinese
- Establish a profile on Alibaba.cn
- Get at least four personal Chinese contacts from the industry, and one from the government

Long term, 5 years and onward

- Get at least three more personal contacts from the industry, and one more from the government
- Expand into at least one more segment
- Hire at least one new person to be responsible for China relations
- Complete at least two projects each year in China, gradually shifting from international competitors to Chinese customers

9.3 Further recommendations

However, if KREC is willing to invest more in China entry and perhaps expand their organization, they should consider a more direct entry mode.

9.3.1 China University of Mining and Technology

Targeting the CUMT seems the easiest, as they already cooperate with foreign scientists, and seems open to cooperating with KREC if the company can provide them with additional knowledge.²⁰⁷ KREC could invite people from the CUMT to attend one of their conferences or workshops, and make personal relationships through this. Remember to make time for social activities.

Alternatively, KREC could try to go through the Norwegian government or the University of Oslo. One more thing that could be tried is simply visiting the CUMT in person. This might however seem unprofessional and perhaps even rude. When contact is

²⁰⁷ See interview with XX
established, formalizing it through involving a person of importance is advised, for example by having a formal opening ceremony with a speech from a Norwegian minister or the like.

9.3.2 Local competitors

This option is slightly more difficult than approaching the CUMT, but could yield more money and provide more market knowledge. The best way to make contact would be through an intermediary, for example someone from Norway who has contacts in the environmental mining industry, or related industries. Innovation Norway would probably be the best way to go, but possibly NGI could also be an alternative. Another way could be to visit China in person, get a feel for the market and culture, and try to approach a company directly.

9.3.3 Local governments

This would probably be the most difficult of the three. If working on consultation projects for recovery or treatment of mines, KREC would have to invest heavily to acquire and keep the necessary licences. Even then results would not be guaranteed, as KREC would have to compete with other companies in the bidding process. However this would also yield the most in terms of market experience.

If targeting the government for developing guidelines, a personal contact would be required. Going through the Norwegian government would be the best way of acquiring such, if KREC can find someone there with contacts in a Chinese local government, preferably in a developed province. Organizations such as Innovation Norway could also be wise to try. If targeting a less developed province, guanxi becomes more important, and KREC would probably quickly lose out in favour of local companies with closer ties to the government. Corruption could also be a problem.
9.3.4 Marketing mix

The authors have constructed the following marketing mix to be suitable for approaching Chinese customers

**Product**
Same as for international competitors. However, if cooperating with a Chinese partner, it becomes especially important to ensure that KREC and the partner have the same ideas regarding the content of the services.

**Price**
The authors suggest a differentiated price strategy: One for private companies, and one for governmental companies and institutions.

Concerning the government, the Zhejiang expert suggests KREC do not demand too high prices. China has lower service costs than Norway, so KREC needs to provide lower prices in China. A concrete example can be found in the report from Zhejiang. This report states that for abandoned mines in serious condition, the budget for environmental treatment of a mine is between 400 000 to 500 000 RMB.\(^{208}\) This includes both planning and treatment costs.

Jinsong Gao also agrees that private companies pay more than the government. It is therefore recommended to take higher prices if targeting private companies. Gao also said that sometimes private companies do not pay money or at least delay to make the payment. Therefore, offering discounts or other incentive mechanisms for on time payment towards private companies would be a good strategy.

**Promotion**
As KREC are new in the Chinese mining environmental consulting market, there is no

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\(^{208}\) Plan of abandoned mines treatment in Zhejiang from 2009 - 2015
brand awareness for their brand in China. Therefore promoting themselves well to potential customers becomes vital. Building KREC’s reputation in China is very important.\(^{209}\) There are many promotion strategies that could be very beneficial for KREC to use, to build brand awareness and positive brand attitude.

In general, KREC should continue the practice of doing targeted marketing\(^{210}\) adjusted towards the customer or partner. The China expert suggests for KREC to arrange or participate in seminars or conferences, inviting Chinese stakeholders and marketing KREC as a Norwegian company with expertise within their field. They should arrange social activities for key people, to build relationships. He further suggests to put some money in making a high and official profile by involving a third party of significance, such as a Norwegian government official. Providing good reference cases is also important.\(^{211}\) For example, if targeting the government, the successful cooperation with the Bolivian government should be emphasized.

KREC should use a personal contact to help promote the company towards the right instances (which may very well be the contact’s own organization). This could be done directly, by finding a Chinese contact themselves, through a third party like the UiO or the Norwegian government, or through a strategic partner.

KREC should continue using the website for promotion, but should improve it and translate it into Chinese. They should also consider creating a company profile on Alibaba.cn, a website that among other things connects businesses in China.

In addition to targeted marketing, it would be beneficial for KREC’s reputation if they could publish some scientific articles (translated into Chinese) in mining related newspapers, magazines or websites. These are most important newspaper, magazines and

\(^{209}\) Interview with expert from Zhejiang Institute of Geology & Mineral Resources
\(^{210}\) See interview with China expert
\(^{211}\) See interview with Jinsong Gao
website authors identified in mining industry:

- ChinaMining.Org (http://www.chinamining.com.cn/)
- China Mining Industry Newspaper
- China Mining Industry (Magazine)

Also, physical objects should contribute to promoting KREC (see below).

**Place**
The place depends on which customer KREC is going to target.

If KREC is going to target local governments, the best location will perhaps be rich provinces such as Zhejiang. Rich provinces have more money to spend on mining environmental related projects, and also have better market systems for the bidding process,\(^{212}\) reducing the need for extensive guanxi investments.

If KREC decides to enter via a piggyback strategy, or through partnering with a Chinese company or institution, the location should be where the customer or partner is located.

If KREC decides to open an office in China, it should be designed with the company’s positioning in mind, offering the proper context clues. The same goes for their location in Norway, if they find room for improvement there.

**People**
KREC should keep in mind that in China, professional behavior includes maintaining relationships.\(^{213}\) For example, it is respectful to engage the top management in the China operations. The management must expect to invest a lot of time and effort in maintaining the relationship with the customer, including frequent visits to China. They should also

\(^{212}\) Interview with expert from Zhejiang
\(^{213}\) see chapter 7.2.3.2
study Chinese business culture, so as to not accidentally insult their customer, and be able to act appropriately.

Finally, they should also make sure to hire capable interpreters (or have these supplied by the customer).

**Physical evidence**
Same as for international competitors.

**Process**
When dealing with a Chinese customer or partner, KREC should have the proper processes in place to ensure that the services are delivered successfully. The authors recommend KREC to have clear divisions of responsibility, for example letting all communication with the partner or customer go through one person, so as to avoid confusion, facilitate efficient communication and a good relationship. This person should have rapid access to translator services, if needed.

Furthermore, having a good system for customer feedback is advised, so that any complaints the customers may have can be dealt with promptly – and also positive feedback, which can be used for promotion on the website or as future reference cases.
Chapter 10: Conclusion

The Chinese mining industry is huge, and there is great need of environmental improvement of the mines, and government will to do this. However, because of the need to invest a lot of time in building and maintaining relationships and acquiring knowledge about the market and culture in China, the authors recommend that KREC does not enter the market at this time.

However, if KREC is willing to make the necessary commitments, and choose to enter China, the authors are of the opinion that the company should seek to enter through a piggyback strategy, i.e. to be hired as a subcontractor to a larger firm already operating in China.

Selling educational services to universities, mainly the CUMT, is also an option that should be considered, in addition to cooperating with a Chinese partner or working towards local governments. In case of entry, whatever the mode, KREC should take care to build good relationships and expand their network, and learn about the market and culture.
Chapter 11: Reflections

11.1 Data collection

Reliability and validity
Concerning data collection of mainly primary data we encountered some problems in terms of reliability and validity. This seems mainly to be biases in interviews from persons involved with the government and information about the government. This might have affected the analyses and strategic recommendations to some degree.

Lack of internal information
Unfortunately, we have not had the close contact with our contact person in KREC, Ingar F. Walder, that we had hoped for, which affected the force of the internal analyses.

Interviews
Getting in contact with relevant people proved more difficult than imagined. The authors agree that a more aggressive approach would have been beneficial.
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Appendix

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Appendix 1: Interview with China expert

March 24th, 2010

Q: Where do you feel China is going regarding environmental issues?

A: Economic growth is a priority. On the other hand, they are building new windmills every day, and are leaders in environmental development. There is a lot of political will to solve these problems. People are dying, and China has enormous water problems. So the issue is kind of split. The most interesting developments will probably take place in China, but at the same time the worst cases are here. Everything is going on at the same time. The Chinese government is very concerned with stability and keeping people content. It is probably here you will find the greatest will to improve the environment, and they are often interested in buying solutions to their problems. Gradually, this also spills over into the private sector, but there’s a slight lag there.

Q: In your opinion, what are the most relevant macro-trends for a firm wishing to enter the market for environmental goods and services in China?

A: It is important to focus on the government, and that you have the best solutions or technology. You must also be aware of the Chinese culture and approach and create relationships with the right people. If you are aiming at the private sector, you must be more focused on the commercial aspects, in short: Money, fast.

Q: What is your impression of the level of education on environmental issues in general and in the mining industry?

A: I don’t know. Perhaps quite low; the awareness is quite low in the general population, so I guess the education on these issues is quite low as well. Environmental education is perhaps a sort of niche-field.
Q: What are your thoughts about environmental legalization in general and in the mining industry? What about the implementation of the laws?
A: There are huge problems with implementation, but not on legalization. Mines are opened without legal permission. Coal for example is very important for China, and opening a coal mine is very attractive business. The legalization is not followed up on. The central government is probably the most interested in the environment.

Q: How should one proceed to build a good relationship with the government? Are there any shortcuts to approach the government?
A: Get Chinese contacts which have Chinese contacts. A good way is perhaps to start with other Norwegians. Use Norway, for example through politics. It could be smart to go via a Chinese university – perhaps you’ll find the right kind of people there. Work on many areas, and see what works out.

Q: How does one proceed to get a cooperation with a Chinese university? How did BI proceed to get in contact with Fudan?
A: BI did it in a smart, Chinese way. A BI employee worked through a Chinese personal contact, built a good relationship and talked about different possibilities with him. They worked with Nordic Center [at Fudan], and involved Gro Harlem Brundtland to make it more official and solid. First they got a personal contact, then the official top-down approach. This is actually a very good way to go about it. What you do in the beginning is important, and you must act fast. If you do not have any personal contacts, try going via a Norwegian university or something. You have to get to someone with whom you can have a personal conversation. Use other people’s contacts.

Q: Are there any significant differences between doing business with the government, research institutions and private companies?
A: The private sector is fast, rough, and focused on profit. But there are close ties between government and private sectors. It could be wise to ride both horses. Following the money together with a Chinese company who has contacts is not a bad idea.

Q: Do you think it’s probable that Chinese research institutions or the government would be interested in KREC’s services?
A: Hard to say without more knowledge about the company and the specific market, but in general I’d say it’s hard for such a small company to succeed.

Q: What would be the greatest hindrances to get a deal with the government, a research institution, or a private company?
A: That you’re too small and insignificant. You need contacts! But it’s not so easy if you’re small, even if your knowledge/technology is good.

Q: In case KREC should enter a JV with a Chinese organisation, what do you think would be the greatest challenges?
A: There would probably be many challenges. It’s necessary with a partner to cooperate with, but not necessarily in a JV. You have to balance your business model with success, don’t be naive!

Q: Do you have any other suggestions for a company like KREC? How would you proceed if you were in their shoes?
A: Do research. Where is there need? And where is there willingness to pay? How can you get the right contact? It’s necessary to find Chinese people who can help, and whom you can trust. And work closely with them. The commercial part is important. Good technology/knowledge is not enough.

Q: How should they market themselves?
A: A small Norwegian company must think smart, and do targeted marketing. Advertisements are useless. Get contacts within the right milieus in the universities. Arrange or participate in seminars or conferences. Invite Chinese stakeholders, and present your company and technology. Also, include a social part. Put some money in making a high profile – arrange activities for the right people.

Q: Do you have any suggestions for other people and/or companies we should contact?

A: Perhaps DNV?

(Wishes to be anonymous)
Appendix 2: Interview with Gavin Chan

25.03.10

Q: Can you tell us a little bit about yourself, and your studies?

A: My name is Gavin, Chinese name Chan Yan Bing. I major in environmental science, and am about to finish a four year bachelor. The program I attend at university has three major directions, Environmental Science, Environmental engineering, focusing on solid waste and waste water, and Environmental Management, which focuses mainly on main stakeholders and government. I have also done a project for WWF with my professor about volatile organic compounds. This is basically a chemical reaction with sunlight that creates gases that are harmful to people. This air pollution is either caused by us or by plants, we were investigating the origins. I have also participated in activities related to environmental groups.

Q: Do you know the specifics of these [KREC’s] fields of research, if so, can you give us a brief introduction?

A: Don’t know so much about the specifics. Read an article about mining environmental issues in my studies, but it was very superficial. Especially in coal, you find lots of small mine fields with bad working conditions and much overtime. Heavy metals in coal that when burned go into the air and with prolonged exposure can lead to lung problems, diseases (cancer). Government wants to improve the standards of mines. Large companies would have better standards. The government would like to present a clean Chinese mining environment.
Q: What are the major universities / research institutions on environment and mining in China?

A: Don’t know. But most big universities have a department of environmental sciences, but it is not so attractive in China, as a career path. This might change quickly, but for the time being the focus is elsewhere, namely on the Copenhagen conference and CO2 emissions, if anywhere. Tongji and Jiaotong universities have environmental majors and other relevant areas of research / departments.

Q: How good do you feel the general education / awareness of environmental problems is in China? What about environmental mining issues?

A: There is a basic lack of fundamental environmental knowledge – people leave doors open while leaving air-conditioning running. Also, even though you see trashcans where you should put different kind of trash in different places, people mix them together. Also, people sometimes put money first, even though they say they want to save the environment.

Q: What do you feel are the major environmental issues in China? How important are mining issues in comparison?

A: China has huge CO2 emissions, but the numbers look less intimidating when considering emission average per person. Nowadays green expos and so forth (Olympics) are very significant. In many cases reputation precedes results, and a show will be put on to please the international environment while the actual situation is worse than many realize. A large portion of environmental transgressions are anonymous and not easily discovered or dealt with.
Q: What do you think are the biggest challenges for China when it comes to creating an environmentally sustainable society?

A: The big city environment is improving, but smaller towns are getting left behind, and the populace is starting to feel the effects. In my hometown the water used to be green (not your Scandinavian blue), but now it smells as well! Also my father told me that when he was in Shanghai twenty years ago, the Suzhou River was black. Now, it is yellow. So it is better, but still polluted.

Environment and economy go hand in hand and are both important. We have a huge population with equally huge needs, and pollution is inevitable. We should be focusing on labour workers, working conditions, harmony, environment and more freedom in general. We will want to think ahead. The system and people have to change a little bit. This means the general level of knowledge needs to be raised considerably. But changing the public views takes time.

Q: What is the government's attitude towards environmental protection of mines? How is it prioritized compared to other environmental issues?

A: The central government always advocates the environment, while local governments tend to conclude that presently the money cannot be spared, due to more pressing issues. One might wonder what plan the local governments have with the saved funds. Mining is an important environmental area. The biggest problem is the Government Issue. There is too much of a focus on money; the central government wants change, but it also wants to maintain good relations with local governments. Mining companies have to pay the government for waste. Some, however, avoid payment; either by corruption or by dumping the waste somewhere.

Q: Any suggestions for a company like KREC? Should they target government (guidelines & education), private companies (consulting and education), research institutions (education) or others for their services?
A: Foreign expertise could potentially help solve things in a better or more complete fashion. For example in Shaanxi you probably have lots of universities focusing on mining – but mostly other aspects than environment, like engineering, but universities probably care more about their prestige than providing education on environment in itself.
Appendix 3: Interview with expert from
Zhejiang Institute of Geology & Mineral Resources

April 12th, 2010

Q: What is your impression of the environmental condition of mines in China?

A: Overall I can say that, 20 years ago China hasn’t attached importance to environmental protection and environmental treatment of mines. The focuses at that time were pure mining and productivity. However now, the situation changed, government is very concerned of environmental protection and environmental treatment of mines. China has formulated a series of measures to ensure the conditions of mines’ environment. These are:
2. Plan of mining
3. Plan of treatment

China now is very concerned of treat environment of these two kinds of mines.
1. Mines left of by history which we cannot find who is in charge of the mine
2. Ongoing mines which are in extreme bad conditions and we need to stop the mining process immediately

Q: What is the process of deciding which mines need to be recovered? Who decides this?

A: First related departments report to departments of Ministry of Land and Resources on which mine needs to treat. Then departments of Ministry of Land and Resources report to Central government. Last central government decides which mine needs to treat and appropriate funds. This is a much planned process. I can use Zhejiang as an example. Zhejiang is one of the best places on environmental protection and treatment of mines. We make very good long-term plan on which mine needs to treat. In order to make a plan,
we need to calculate mine’s mineral resources, assess environment and have long-term view on what to do in each year. The government usually appropriate huge funds to us. Departments of Ministry of Land and Resources manage these planes.

**Q:** Regarding the decision process of mine recovery, who has the final responsibility of implementation?

A: Then they need to invite bids from technology companies. There are both state-owned technology companies like our institute and private companies.

**Q:** So there are private technology companies of mining environmental protection in China. What kinds of criteria and certifications do people need in order to start a private company? And who issues these certifications?

A: They need to get certification of mineral construction, it includes;
1. Construction certification, issued by departments of Ministry of Construction.
2. Landscaping certification, issued by departments of Landscaping.
   (This might only suit a construction company, not for the company who makes the environmental treatment plan. And KREC can be the one makes plan but not construct).

**Q:** I heard that mine’s environmental conditions, concerning private mining companies, are much worse than state-owned companies. What is your impression?

A: Actually in Zhejiang private companies are better. State-owned companies have lower effectiveness and you know sometimes are difficult to govern. But private companies are easy to govern.

**Q:** There seems to be institutes of geology & mineral resources nearly in every province. What do they do?
A: For institutes, of course we need to develop new technologies, we can do the mine’s environmental treatment construction or design the plan of environmental treatment of mines.

**Q:** You mentioned environmental treatment construction and treatment design, are these two different?

A: Yes. Designing plan is to design the plan of how to treat mine’s environment, but construction is to implement this plan.

**Q:** So Plan and Construction will be performed by different companies?

A: Yes. Departments of Ministry of Land and Resources will place the bid of plan on the Internet. First companies need to bid on design the treatment plan. The winner can design the plan. Then Departments of Ministry of Land and Resources place bid of construction on Internet to find the company to construct, in other words implement the plan.

**Q:** So you mean first one company to design the plan of treatment and then another company to construct treatment according to this plan?

A: Yes, if in the construction process, the company wants to change anything, needs to contact the original company that designed the plan.

**Q:** So what do private mining companies do regarding environmental treatment of mines? Do they also report to Departments of Ministry of Land and Resources? Or will they find the technology companies themselves?

A: They need to find by themselves. Don’t need to invite bid or something. Mines I said need to invite bid are the two types I mentioned before. (1. Mines left of by history which we cannot find who is in charge of the mine, 2. Ongoing mines which are in extreme bad
conditions and we need to stop the mining process immediately). Not include ongoing mines of private companies except if they have very bad conditions.

Q: So they have both state-owned technology companies and private technology companies. What is your impression on their differences?

A: First I need to say, when coming about compete on the bids. It is totally equal. Chinese government is very open on market economy. They will not prefer to state-owned companies and they are fair. Differences will be: State-owned technology companies are more trustful and mostly have better technology. But as you can see, like our institute, designing plan of mines’ environment treatment or construction are just two small parts of our job, therefore we have higher cost. In the other hand private companies always have low cost and they can provide lower price.

Q: So how is the mining environment related to technologies in China? Are they very good at this field? Do we need to collaborate with foreign institutes to develop or import technology?

A: China is very good at this field and we have advanced technology. We don’t actually collaborate with foreign institutes, but we do import some new technologies. Usually by students who studied abroad, and of course we will send workers to foreign countries to learn new technologies, especially Japan.

Q: How about mining universities? Any cooperation?

A: Not usually.

Q: How about private companies? Do you collaborate together to develop new technology?
A: Not so often. We do sometimes entrust private companies to help us to develop one part of new technology, but not the whole one.

Q: What is your impression on the mining environment related to education in China?

A: Not so good I need to say. Now students always want to finish study as fast as possible, not so focus on quality. Also I can say for any student graduate from mining university, he or she needs at least 5 years to start work in this field, as they need to learn a lot of other things they haven’t learned from university.

Q: As I mentioned, the company KREC we are writing for, do you have any suggestions for them?

A: They should collaborate with a Chinese partner. And make a good project maybe use their technology. This project must suit for Chinese situation, not too expensive. Then they can use this project as sample project and build their reputation. In the beginning they need use the network of this Chinese partner. If they have some technologies China do not have, then might be easy for them.

Q: How about KREC cooperating with universities?

A: This might be difficult. Universities do not have a subject on mining environmental protection. People study only one part of this field, not a whole package.

Q: How about working with government?
A: I don’t think this will be easy for them. China does already have very good guidelines on environmental related provision of mines.

**Q: Is there any specific place which might be suitable for KREC’s initial entry, in China? Maybe provinces are not as rich as ZheJiang? Maybe they lack good technology?**

A: I recommend KREC to start from rich places like ZheJiang. Poor places don’t have so many projects as government does not so attach importance to these places. Therefore they don’t have so many projects you can bid for. Also in rich place like ZheJiang we have better free market system. Technologies will be the same, as bids are placed on the Internet, every companies can bid for the projects

**Q: What will be the direction in coming years?**

A:
1. Government will focus on treating mines left of by history.
2. Environmental protection of ongoing mines.
3. Improve provisions of mining
Appendix 4: Interview with Jinsong Gao

March 19th 2010

Q: From your experience, what would be the most relevant cultural, legislative, technological, financial etc Chinese trends that we need to know about?

A: To answer this question, it is very important to understand who the typical clients for KREC are. To analyze information about KREC’s revenue structure is a way to find out how much percentage income for this company comes from each different client and which can further help to identify who will be most important clients for KREC in China. Of course it doesn’t mean that you should simply copy KREC’s model from other countries to China, but you have to aware the company’s strength, and map these internal strengths with external market situation. It is very important to get more information about this company, three employees’ profile, capability statement and reference cases. It will be very different to market a five billion dollar service and a five hundred thousand dollar service. Be aware that the service price will be much lower in China compare with Norway. Then you should know what the company position is; can they really provide service that local players cannot? And what is that? If you talk about Chinese government for example, then it is really depend on what kind of solutions and services you can provide. Chinese government now turns to more and more prefer local companies because of two reasons. First foreign companies need to convince that they know something that local players do not. Second foreign companies need to convince Chinese government to pay a price much higher than local companies. To know more about company’s capability and to know more about needs of potential customers, then you can make a deal. This is the nature of business. To convince KREC to provide more information is also crucial for your further work on thesis.

Q: What are your impressions of the general awareness of mining related environmental issues in China?
A: It varies from area to area, from region to region. Overall speaking general awareness of environmental issues in China is increasing. However the willingness to pay for environmental protection is still low. It is still kind of moral issue, not kind of thing people are willing to pay. I think people are more focus on safety issues than environmental issues in mining industry because safety issues are more straightforward.

Q: What are your impressions of the environmental standards in the mining industry?

A: We have environmental standards here in China. There is a service called Environmental Assessment. But I am not sure these standards are good enough. Environmental situation in mining industry is very bad. There is a new regulation from last year trying to kick out private mines because of bad environmental conditions. Environmental conditions in public mines might okay.

Q: What are your impressions of the level of education on environmental issues in general and in mining-related studies (engineering, geology, etc.)?

A: They are focus on their subjects. I think they will interest to learn some environmental knowledge.

Q: As KREC is also providing environmental education, do you think it is an easy way for KREC to enter China?

A: I think it will not difficult for a consulting firm to get project and earn money in China, but to make stable business in China, they need to have strategically planning.

Q: What are your thoughts on environmental legalization in general and in the mining industry? Success of implementation? Major problems?
A: First of all, incentives for local government are quite low. Second it lacks of reasonable ways measure and evaluates the result.

Q: How does a firm build relationships with the government? Are there any "shortcuts", or back ways into the government (say via a university, trade organisation, etc.?)? What are the best ways to approach the government?
A: Chinese government has been changing for last 30 years. If 30 years ago you know somebody happened to have guanxi with government, then you can get access to government. Now it is not totally changed, but changed a lot. Now two things you need to know to access to Chinese government. First thing you need to understand their task, their mentality and what they want to achieve. Therefore it is not only about relationship. Second you still need personal relationship. Therefore KREC needs to provide services match government goals and at same time find right person.

Q: Chinese government is now already cooperating with some big international consulting companies. Why would they choose to collaborate with some consulting firm they don’t know compare with these big firms for new projects.
A: Of course Chinese government would like to hire someone they do know. However if KREC can provide something these firms do not know, then Chinese government needs KREC’s service. That is why it is very crucial to know what we know, otherwise you cannot best match each customer.

Q: Are there any significant differences between doing business with government/research institutions and private companies?
A: Actually there are quite a lot differences. Usually you don’t get big revenue from government. For example, for a same project you can get 5 billion from private companies, but only 500 thousand from government. Another difference is decision flows. Government is more defensive and no one wants to make a mistake. Therefore their
decision flow is very much conservative and defensive. Enterprises are performance-driven; they will make decision to help them stand out. One good thing to work with government is that it is so symbolic. For big project even you get only one thousand for working with government, you can get reputation and possibilities. Then you can use this experience to convince your enterprises customers to use your services. Another thing is that government really does pay your money. Sometimes enterprises do not pay your money or at least delay to pay your money.

Q: As you said government is more defensive, marketing strategy will be if they do not do this, then bad things will happen?
A: It is universe for consulting firms. You make your clients painful and then give them solutions. But you have to be honesty, and really help your clients to find out what is their problem and give them solutions.

Q. What do you think about the likelihood that Chinese research institutions/government would be interested in KREC's services?
A: It is easy for them to do as sub-contractor, because they are too small. They can do part job for a big project. I suggest them try to come up with other big companies.

Q: You think they should contact partner before they contact their clients?
A: They should do at the same time.

Q: What do you think will be major problems to get contact with right Chinese person?
A: You have to still be Norwegian, but a little bit Chinese. If you are more Chinese than Chinese people, then they will be scared.
Q: So you mean the main problem will be culture?

A: I would say is your understanding of China, not necessary culture. You don’t need to accept, but you have to understand. If you do not accept, at least you know what you are not going to accept. That is very important.

Q: If KREC enters into a JV with a Chinese partner, what will be the biggest challenge?

A: Trust. Usually in JV, foreign partner is afraid of intellectual property issue and the marketing issue. If Chinese partner controls the sales channel, then they will control the whole market. You can see that actually foreign partner supplies knowledge and the Chinese partner provides customers. The knowledge might transfer to the Chinese partner, but Chinese customers may not transfer to the foreign partner as they speak Chinese.

Q: How can a foreign company build trust in JV?

A: It is really depend on people. If you find the right person you can really trust then things will go right. Right people can make things right.

Q: Who do you think would be the most promising target customer for KREC? Government, research institutions, or private companies?

A: I think it is the government.

Q: Any other suggestions for a company like KREC? How would you go about business if you were in their shoes?

A: I suggest them to take realistic approach. Start from visiting China. Find a partner like Nord konsult or DNV these Norwegian companies. Because these are the people KREC really can trust.
Q: How should they market themselves (Marketing strategy)?

A: I suggest KREC to go for universities and do some research with them. This will give them a long-term impact and also a good way to test that do they really have something Chinese companies do not have. They should try to position themselves as a big brother to big companies in the same field. Last they should approach government first. They need to know what they want to get from China before they can make a commitment.

Q: Any suggestion on who we should contact?

A: DNV
Appendix 5: Interview with Ingar F. Walder

April 22
d, 2010

Q: What kind of services does KREC provide?

A: KREC can offer services within the mining environmental issues for government, mining companies, and consulting firms. The services include: developing of regulations and guidelines for government or internal use of mining companies on evaluation, sampling and handling of mine waste; provide in house training programs; provide training programs (short courses, certificate programs and master/PhD) at KREC’s location in Norway; perform waste characterization to evaluate short-term and long-term handling of waste, and provide short and long term tests and research to obtain optimal closure design.

Q: What is KREC best at doing?

A: The above issues are where we are best.

Q: What are KREC’s weak points?

A: We do not do what we are not good at, that we find others to do through our international network.

Q: Which prices do you take for the different projects?

A: We do not have any fixed prices; price is always based on the project.

Q: To what degree of the value chain is the company responsible? Who is responsible for the remaining part?

A: This depends on the project. We may be up to 90 % maybe on the lower side 30-40%
Q: How much training do the mining companies generally need? Do they need a new position of responsibility within the company to maintain the solutions?

A: How much training that is needed depends on the knowledge level in the company. It is often necessary to have at least one person taking care of a new way of treating the environmental issues. The *In house* short courses that we give are not only for the environmental staff working for the company, but for the engineering as well as the exploration-production geologist to be more aware of the environmental issues and how everyone can be a part of improvements. The staff that is going to work on implementing new ways of approaching the environmental issues commonly needs more training or using consultants to perform the continued work. The latter choice is in the long run commonly more expensive.

For the regulators the training is often at a level of a few short courses to understand the problems, however, they are going to oversee the mining companies, to evaluate if they are performing the work properly.

Q: What else is needed to implement KREC’s solutions? (e.g. investments?)

A: To implement solutions at closing may be large investments, depending upon the characteristics of the waste material and how the waste material has been deposited. There are seldom *off the self* solutions available. If better understanding of the environmental affects of an operation is achieved at an early stage of an operation the environmental cost can be strongly reduced.

Q: How much time is usually needed to do analysis inside mines?

A: Characterization of waste can take from a few weeks to more than a year it all depends on the material and what is necessary to do with it.
Q: **How is the extent of KREC’s capacity? (About how many new projects could KREC be able to employ in China during a one-year period?)**

A: We have currently little capacity to take on new projects, however, we are working on increasing the staff. Usually it takes 6-12 months to sell in projects with governments or the industry. However, we can easily increase the staff if needed for characterization work. Organizing short courses is commonly 3-6 months, unless clients are coming to the courses we are giving in Norway. The program is under development.

**Q: What kind of technology is KREC using? How is this technology compared to the competitor’s? Any selling points?**

A: We have a different way of thinking than most of the large companies. We want the companies to have better knowledge in house and thereby do more of the work themselves, while the large consulting companies want to do the work themselves.

**Q: What do KREC need of information/facilitation from the clients?**

A: Hard to say.

**Q: Are there any supportive solutions/systems which can be used in order to promote purification of mines?**

A: For the third world countries, there are many different support systems via, UNDP, UNEP, EU, and national aid program. Some of these programs are also valid for China. The Scandinavian countries have no direct support system for operating mines, unless it can be done via product development and Invovasjon Norge funding or Forskningsrådet. With some creativity there are always possible to find support systems for environmental improvements.
Q: Tell us about your company, KREC. How many employees are there?

A: We are at the moment three employees including me, and seeking one more employee.

Q: What about turn-over, economic precautions of expansion etc.?

A: We do not need much investment for expansions; however, we do not want to develop a large company.

Q: Why did you choose particularly Bolivia, USA and Scandinavia as locations for your projects?

A: Bolivia was based on an opportunity and originally a request from URS to join their team. We have later on gotten many contracts directly with the government of Bolivia, paid by Danish Aid. The work in USA started with me at the end of my PhD study in New Mexico, USA, which I completed in 1992. We have continued working for clients, which I started out with at that time and added new ones after giving short courses both as in house and open.

Q: What are your experiences towards customer satisfaction and such?

A: We have so far never heard anything negative from any clients, or participants from our short courses and workshops. Several have said about short courses, and workshops that it have been the best that they have ever attended.

Q: How do you market your company? (Direct e-mails? Word of Mouth? Trade shows, relations? Marketing department/manager?)
A: We do not have a very specific marketing strategy. We are focusing on research primarily for the private industry. To develop research projects for a client, it is necessary to know the business of the client well. You learn that it is commonly necessary to perform consulting for the client for some time. The easiest way of getting clients is for us to organize short courses and workshops. We have over the years given many courses in Europe, and North- and South America, and we are developing course program at KREC. Marketing of courses and workshops are commonly via different scientific organizations and mining organization and direct email through e-mail lists developed over the years. Announcing the activity on the web site is a must.

Q: What are KREC’s experiences concerning multicultural collaborations?

A: We usually work with people from different cultures and have experience from Bolivia working with natives and the Spanish based population there; we have worked in Greenland dealing with Inuits. Our newest student/employee is from Cameroon.

Q: How is the general knowledge about Chinese culture/business culture within the company?

A: General knowledge about China culture is little.

Q: What are the most important/largest companies within the industry where KREC is operating?

A: URS Corporation, Golder and Associates, SRK Corporation, In Norway it is NIVA.

Q: Which companies is KREC considering as its most significant competitors?

A: This depends on where a possible job is. There are always small relatively local companies that will bid together with the large corporation. For EU contracts there are
often very different constellations and the competitors may be organizations with little mining environmental background but they have experience with getting EU contracts. We have for several such EU contracts been asked to be a sub-contractor.

**Q: Does KREC know about any competitors already in China?**

A: No.

**Q: How fierce is the competition?**

A: When mining companies seek help there are usually 4-5 companies bidding on contracts. Commonly will a mining company use a consultant on contract after contract only requesting price for new jobs.

**Q: How large are the average companies operating with purifying of mines?**

A: Companies are in all sizes from single persons to large international corporations with offices all over the world (e.g. Golder and Associates, URS Corporation). These companies have mining environmental issues as a part of the business. We have worked as a sub contractor to some of these large companies because they often lack the specialists even though they are big.
Appendix 6: Telephone interview with expert from Zhejiang

30th May, 2010

Q: What kind of services does a mining environmental consulting company usually provide in China? Are there some other services expect the two specific plans? (Plan of environmental protection and Plan of environmental treatment)

A: There are a series of services a mining environmental company can provide except these two plans. From prospecting, recovering, treating to assessing and treating of geologic hazard.

Q: KREC is a Norwegian company which can perform mining environmental consulting services, what kind of services do you think they can provide in China? Can they perform designing of these two plans (Plan of environmental protection and Plan of environmental treatment)?

A: First you need to know that all I am going to say is based on the situation in Zhejiang. Ok. I need to say that it is very difficult for a foreign mining environmental consulting company enter into the Chinese market. I have been looking at several Japanese mining environmental consulting companies. They are actually very good. But problem is that they need to match Chinese criteria and standard according to relevant laws. It is not easy. We have many different regulations. For example, for a mining environmental consulting company, they need have certain amount experts in different areas. There are many annual surveys. These surveys are very strict. For example each year, there is an assessment on achievement score. This means how many projects a company has done in the whole year. You must have certain quantity of projects you have done, otherwise you are not qualified anymore. There are many these kinds of conditions a company needs to match. Sometimes you just forget one or two things, but then you are not qualified anymore. I won’t say it is impossible, but very difficult. Even a company comes from outside Zhejiang, it will not easy. They need have lot of documents.
Q: The government use an inviting bid procedure to find mining environmental consulting companies which can do projects, is this inviting bid procedure also open for foreign companies? How about the mentioned two plans? Can KREC bid for projects on those?

A: Yes, most projects we use bidding system, you can look at our website. There are many bids on it. For a foreign company to bid, they need match many criteria first, same as all I mentioned before. It is difficult. Of course these two plans also use bidding system. For a company can bid, they also need experience from before, which means they need provide sample of projects they have done before.

Q: How about these 2780 abandoned mines in Zhejiang? Who is going to do the treatment service for these mines? Local government? Or do you use the bidding system here as well?

A: We will use bidding system.

(Due to limited time provided by the interviewee, it did not allow the interviewer to ask for further details, and thus certain answers might be somewhat deficient)
Appendix 7: Telephone interview with professor from China University of Mining and Technology

May 13th, 2010

Q: How is the situation concerning mining environmental related education in your school? Are there many students who want to study this subject? How will the situation be for the coming years, will there be fewer or more students?

A: There are many students I will say. I think for coming years, situation will be the same.

Q: Regarding your impression, what seems to be the biggest problem within mining environment in China?

A: Policy. Different areas have different policies. We do have good technology now, but implementation is not so good.

Q: So you mean the implementation from local governments? Or central government?

A: Local governments.

Q: Are there many mining environmental companies in China? How is the competitive situation here?

A: Sorry, I am not so familiar with this area.

Q: Does your university cooperate with foreign universities?
A: We do have some professors from other countries; also we do some scientific research with foreign professors.

Q: So you mean, your university will normally hire foreign experts or professors, but is not directly cooperating with foreign universities?
A: We have directly cooperation with foreign universities. The field I am in now, there is not so much cooperation, but other fields, I think there are some.

Q: Why does your university need this kind of cooperation? In what kind of situation do you need to cooperate with foreign universities?
A: For some areas or maybe some technologies we are not so good at, then we might need some cooperation. We can also do scientific research together with foreign universities. For example areas like atmospheric pollution, is really difficult.

Q: What kind of cooperation forms does your university have? Do you import foreign professors teaching students on specific areas, do you do scientific research together, or do you send students to these foreign universities to study also?
A: We have all these three cooperation forms. We have foreign professors here, we do collaborate on scientific research with foreign universities, and we also have students studying abroad.

Q: How are money issues within cooperation? Who pays for cooperation?
A: I am not so familiar in this area.

Q: What’s your impression on the difference between Chinese professors and foreign professors?
A: I recommend your group read articles both from Chinese professors and foreign professors in my university. You will find out that, Chinese professors are very deep in one area. But for foreign professors, their articles always cover many different topics. So I can say, they are wider but not so deep in each area as Chinese professors.

Q: How does your university start to cooperate with foreign universities? How did you find each other?

A: We know them sometimes.

Q: You mean if you have a friend, who works at a foreign university, then you might introduce him to cooperate with your university?

A: This kind of situation happens. Also we meet other universities or professors in seminars, conferences and academic exchange conference. If we find they have something we need, then we might have cooperation with them.

Q: Our group is working for a Norwegian mining environmental company, KREC. They have courses and in-house training programs. If they want to offer their education service in China, maybe cooperate with your university, do you have any suggestion for them? How should they start?

A: First, very important is that they should let us know them. We can get known them in seminars and conferences. They can arrange academic exchange conference, and invite us. Then we can get known each other. They should enlarge their promotion areas. Also they should have good PR strategy. Then if they have some expertise or technology we need, there will be cooperation.
Appendix 8:

Gaps Model of Service Quality

Source: http://images.google.com
Figure 3: Solberg’s 9 windows, Theory

<table>
<thead>
<tr>
<th>Seek new areas of business</th>
<th>Prepare for globalization</th>
<th>Strengthen your global position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consolidate position in established markets</td>
<td>Consider expanding into new markets</td>
<td>Seek global alliances</td>
</tr>
<tr>
<td>Stay in your home market</td>
<td>Seek niches in international markets</td>
<td>Prepare for possible buyout</td>
</tr>
</tbody>
</table>

*Globality of industry*
## Appendix 10

### Figure 4: The Bakka model, Theory

<table>
<thead>
<tr>
<th></th>
<th>Trial export</th>
<th>Extensive export</th>
<th>Intensive export</th>
<th>Multinational marketing</th>
<th>Global marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motivation for export</strong></td>
<td>Operative</td>
<td>Operative</td>
<td>Strategic/Operative</td>
<td>Mainly strategic</td>
<td>Mainly strategic</td>
</tr>
<tr>
<td><strong>Choice of markets</strong></td>
<td>Neighbouring/random countries</td>
<td>Many markets</td>
<td>Market concentration</td>
<td>Market expansion</td>
<td>Consolidation in the triad</td>
</tr>
<tr>
<td><strong>Market share</strong></td>
<td>Firm is &quot;invisible&quot;</td>
<td>Insignificant</td>
<td>Increasing</td>
<td>Large in selected markets</td>
<td>Large in key markets</td>
</tr>
<tr>
<td><strong>Entry strategy</strong></td>
<td>&quot;Piggy back&quot;</td>
<td>Agent</td>
<td>Sales office in main markets</td>
<td>Licensing, production</td>
<td>Production, alliances</td>
</tr>
<tr>
<td><strong>Economic results</strong></td>
<td>Marginal or negative</td>
<td>Marginal or negative</td>
<td>Positive</td>
<td>Mutually dependent on home market</td>
<td>Price leader. Main source of income</td>
</tr>
</tbody>
</table>
Appendix 11

Table 3: Chinese pollution control related investments 2004-2007

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Urban Environmental Infrastructure</td>
<td>1141.2</td>
<td>1289.7</td>
<td>1314.9</td>
<td>1467.5</td>
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<tr>
<td>Gas supply</td>
<td>148.3</td>
<td>142.4</td>
<td>155.0</td>
<td>160.1</td>
</tr>
<tr>
<td>Centralized heating</td>
<td>173.4</td>
<td>220.2</td>
<td>223.6</td>
<td>230.0</td>
</tr>
<tr>
<td>Drainage works</td>
<td>352.3</td>
<td>368.0</td>
<td>331.5</td>
<td>410.0</td>
</tr>
<tr>
<td>Gardening and Greening</td>
<td>359.5</td>
<td>411.3</td>
<td>429.0</td>
<td>525.6</td>
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<td>Environmental sanitation</td>
<td>107.8</td>
<td>147.8</td>
<td>175.8</td>
<td>141.8</td>
</tr>
<tr>
<td>Environmental Pollution</td>
<td>308.1</td>
<td>458.2</td>
<td>483.9</td>
<td></td>
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<tr>
<td>Waste water</td>
<td>105.6</td>
<td>133.7</td>
<td>151.1</td>
<td></td>
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<tr>
<td>Waste gas</td>
<td>142.8</td>
<td>213.0</td>
<td>233.3</td>
<td></td>
</tr>
<tr>
<td>Solid wastes</td>
<td>22.6</td>
<td>27.4</td>
<td>18.3</td>
<td></td>
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<tr>
<td>Noise pollution</td>
<td>1.3</td>
<td>3.1</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>Other pollution</td>
<td>35.7</td>
<td>81.0</td>
<td>78.3</td>
<td></td>
</tr>
<tr>
<td>Environmental Investment for New Projects (sub-cat: New Projects, Expansion, Tech. Improvement)</td>
<td>460.5</td>
<td>640.1</td>
<td>767.2</td>
<td></td>
</tr>
<tr>
<td><strong>Total Investment ¥ (100 million) = 6863.8 (2004-06)</strong></td>
<td>1909.8</td>
<td>2388.0</td>
<td>2566.0</td>
<td>n.a.</td>
</tr>
<tr>
<td><strong>USD (100 million) = 845.17 (2004-06)</strong></td>
<td>231.10</td>
<td>291.86</td>
<td>322.21</td>
<td></td>
</tr>
<tr>
<td><strong>EUR (100 million) = 678.17 (2004-06)</strong></td>
<td>186.01</td>
<td>235.41</td>
<td>256.75</td>
<td>n.a.</td>
</tr>
</tbody>
</table>


Appendix 12

Table 4: Estimation of investments in EGS in China towards 2020

<table>
<thead>
<tr>
<th>Market</th>
<th>Expected Investments</th>
<th>Period</th>
<th>Annual Average Market Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renewable Energy</td>
<td>265.0 billion</td>
<td>2008-2020</td>
<td>22.00 billion</td>
</tr>
<tr>
<td>Pollution Reduction</td>
<td>80.0 billion</td>
<td>2008-2010</td>
<td>40.00 billion</td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Old buildings</td>
<td>325.0 billion</td>
<td>2008-2020</td>
<td>27.00 billion</td>
</tr>
<tr>
<td>New buildings</td>
<td>600.0 billion</td>
<td>2008-2020</td>
<td>50.00 billion</td>
</tr>
<tr>
<td>Wastewater Treatment</td>
<td>150.0 billion</td>
<td>2005-2015</td>
<td>15.00 billion</td>
</tr>
<tr>
<td>Water Supplies and Wastewater Treatment</td>
<td>100.0 billion</td>
<td>2005-2015</td>
<td>10.00 billion</td>
</tr>
<tr>
<td><strong>Aggregated total 2008-2020</strong></td>
<td><em><em>$1.5</em>-1.944 trillion</em>*</td>
<td></td>
<td><strong>$162 billion</strong></td>
</tr>
<tr>
<td><strong>Aggregated total in Euro (€)</strong></td>
<td><em><em>€1.1</em>-1.4 trillion</em>*</td>
<td></td>
<td><strong>€118.4 billion</strong></td>
</tr>
</tbody>
</table>

Appendix 13

Table 7: Solberg’s 9 Windows, Analysis

<table>
<thead>
<tr>
<th>Seek new areas of business</th>
<th>Prepare for globalization</th>
<th>Strengthen your global position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consolidate position in established markets</td>
<td>Consider expanding into new markets</td>
<td>Seek global alliances</td>
</tr>
<tr>
<td>Stay in your home market</td>
<td>Seek niches in international markets</td>
<td>Prepare for possible buyout</td>
</tr>
</tbody>
</table>

*Globality of industry*
Appendix 14

Figure 5: The Bakka model, Analyses.

<table>
<thead>
<tr>
<th></th>
<th>Trial export</th>
<th>Extensive export</th>
<th>Intensive export</th>
<th>Multinational marketing</th>
<th>Global marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation for export</td>
<td>Operative</td>
<td>Operative</td>
<td>Strategic/Operative</td>
<td>Mainly strategic</td>
<td>Mainly strategic</td>
</tr>
<tr>
<td>Choice of markets</td>
<td>Neighbouring/</td>
<td>Many markets</td>
<td>Market concentration</td>
<td>Market expansion</td>
<td>Consolidation in the triad</td>
</tr>
<tr>
<td></td>
<td>random countries</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market share</td>
<td>Firm is “invisible”</td>
<td>Insignificant</td>
<td>Increasing</td>
<td>Large in selected markets</td>
<td>Large in key markets</td>
</tr>
<tr>
<td>Organization</td>
<td>“One man show,”</td>
<td></td>
<td>Export division. Agents</td>
<td>International division. Sales office</td>
<td>Global or transnational organization. Sales office</td>
</tr>
<tr>
<td></td>
<td>part time. Distributor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entry strategy</td>
<td>&quot;Piggy back&quot;</td>
<td>Agent</td>
<td>Sales office in main markets</td>
<td>Licensing, production</td>
<td>Production, alliances</td>
</tr>
<tr>
<td>Economic results</td>
<td>Marginal or negative</td>
<td>Marginal or negative</td>
<td>Positive</td>
<td>Mutually dependent on home market</td>
<td>Price leader. Main source of income</td>
</tr>
</tbody>
</table>