

Foreign market selection model in the ground engineering slurries industry

Instituto Superior de Ciências do Trabalho e da Empresa



**PROPOSING A MODEL FOR FOREIGN MARKET
SELECTION IN THE
GROUND ENGINEERING SLURRIES INDUSTRY:
THE SPECIAL CASE OF GROUND TECH**

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English abstract

SMEs that develop their business in niche markets need to look to opportunities in other markets (foreign countries) in order to be able to sustain overtime the business growth. This work proposes a model for foreign market selection in the industry of Ground Engineering soil stabilisation slurries. This study based on the Hollensen's international market selection model, the author proposes an adapted and expanded model for foreign market selection. Above all, the aim of this work is to propose a practical implementation of the model in order to support decision making for foreign market selection.

Keywords: International Business, International Management, International Marketing, Foreign Market selection,

JEL Classification : M10 - Business Administration, General; M16 – Business Administration, International Business Administration

Portuguese abstract

As PME's que desenvolvem o seu negócio num nicho de Mercado, precisam de procurar oportunidades em outros mercados (países estrangeiros) no sentido de garantir um crescimento sustentado do negócio ao longo do tempo. Este trabalho, propõe um modelo para selecção de mercados internacionais, na indústria dos fluidos de estabilização de solo para uso em Geotecnia. Com base no modelo de selecção de mercados internacionais de Hollensen, o autor propõe um modelo adaptado e expandido para selecção de mercados internacionais. Acima de tudo, o objectivo deste trabalho é propor uma implementação prática do modelo no sentido de suportar a decisão de selecção de mercados internacionais

Keywords: International Business, International Management, International Marketing, Foreign Market selection,

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1. Project scope and framework

The scope of this project is the support decision process of market selection work of GROUND TECH's internationalization process.

GROUND TECH's has developed innovative soil stabilization polymer based slurry for the special foundations industry (a sub sector of the construction industry). This novel solution reduces the time and cost of special foundations projects.

The company unique solution is based on patented products (by GROUND TECH) and technical services on site. The combination of unique products and technical services on site gives to GROUND TECH a unique position and advantage worldwide.

GROUND TECH's business is mainly in the civil engineering infrastructures, i.e. bridges (motorways and railways), seaports and airports.

This project aims to contribute to a market selection decision process based on objective and supported data. In small and medium enterprises (SME) sometimes the decision process is based on decision maker perceptions and emotions. This work aims to reduce the effect of countries perception based on the decision maker experience or perception, and support the decision process with a systematic market selection approach in order to achieve a better international performance for the firm.

SME's that take a systematic approach to internationalization have better performance than the companies that do an unsystematic approach. Yip and Biscarri (2000) developed a study of 68 recently internationalized U.S. firms that show a correlation between better performance and a highly systematic internationalization process approach.

In SME the resources are scarcer than in a Multinational company, so the market selection decision process should have a systematic approach in order to reduce the failure risk. In this sense, this work will contribute to support GROUND TECH's management market selection and resources allocation.

Market selection in the context of this work means the selection of a country to develop a sustainable business for 10 to 15 years, with a local team and local facilities. One time basis approach like an important bridge or airport project are interesting for GROUND TECH's business but are out of scope of this work. This works intends to set the basis for a robust market selection decision making.

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The forecasted economic data used in this work is strongly influenced by the world financial and economic crisis. So, all forecasted data, should be analyzed in terms of relative position between countries and not the absolute values. We believe that the absolute values are strongly influenced by the crisis, but the relative positions between countries shouldn't have many differences even though with the crisis effect.

This work focuses the market selection process for GROUND TECH's business innovative soil stabilization slurry. Although the entry mode is very important for the business success, it is not in the scope of this work and should be developed in further studies.

2. GROUND TECH's background, facts and strategy

Due to the confidentiality of the information GROUND TECH is not the real name of the company.

2.1. Vision, Mission, and Goals

Vision:

To be the leading soil stabilization solution provider in major infrastructure projects worldwide.

Mission:

GROUND TECH is a global company whose mission is to improve the efficiency of the drilling and excavation processes in the foundation industry, through the application of unique products and techniques. Continuously researching to improve our client's competitive edge, our goal for a sustained development is also, why all of our products are environmentally friendly.

Goals:

To develop a new product and/or soil stabilization technique each year;

To start a new market (country) each 2 years;

To do a project in a new country every year.

The company was founded in 2004 and has a capital stock of 270,000 euros. The partners are Belgium, Portuguese and Spanish. The firm has offices in Madrid, Lisbon and London and projects in several countries.

The consolidated revenue in 2008 was 2,5 million euros and the firm has doubled revenue each year since foundation.

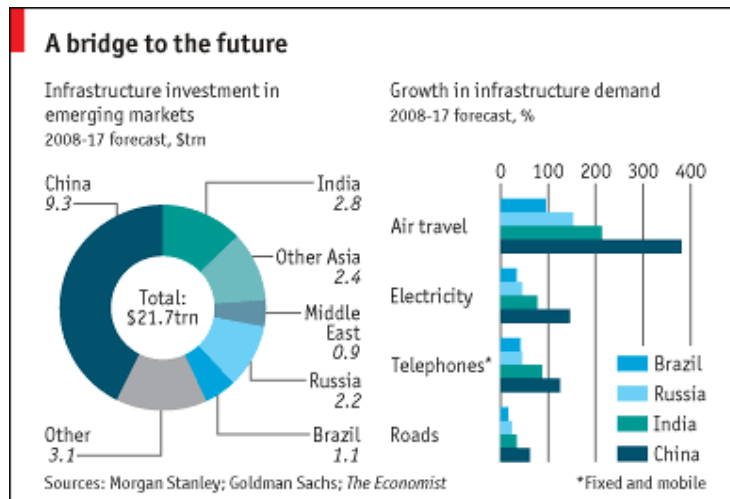
2.2. The business opportunity

GROUND TECH has developed an innovative soil stabilization solution, based on unique products and techniques, which reduce time and cost of special foundations projects.

GROUND TECH's business opportunity is mainly in infrastructure project, where special foundations have an important role. In these projects, GROUND TECH's helps special foundation contractor reducing projects time and cost.

According to the Economist the biggest infrastructure investment is underway in the following 10 years (Economist 2008). Over half of the world's infrastructure investment is now taking place in emerging economies, where sales of excavators have risen more than fivefold since 2000. In total, emerging economies are likely to spend in 2008 an estimated \$1.2 trillion on roads, railways, electricity, telecommunications and other projects this year, equivalent to 6% of their combined GDPs—twice the average infrastructure-investment ratio in developed economies. Compounding 2008 figures, Morgan Stanley predicts that emerging economies will spend \$22 trillion (in today's prices) on infrastructure over the next ten years.

Figure 1 – Economist and Morgan Stanley infrastructure investment forecast in emerging markets 2008 -17.



Source: Economist (2008)

2.3. GROUND TECH’s strategy competitive advantage and scope

According to Porter, M. (Porter 1990), there are 4 main competitive strategies:

- Cost leadership;
- Cost focus
- Differentiation
- Differentiation focus

Figure 2 – Porter’s generic competitive strategies

		Competitive Advantage	
		Lower cost	Differentiation
Competitive scope	Broad target	Cost Leadership	Differentiation
	Narrow target	Cost focus	Differentiation focus

Source: Porter (1990)

GROUND TECH has an important differentiation in a targeted market segment, soil stabilization in the special foundations market. The company serves better than competitors the special need of a narrow strategic market.

GROUND TECH in the Porter competitive strategy model is clearly a company with a differentiation focus strategy.

The competitive advantage of the company is based on unique products and know-how that increases customer production. Using GROUND TECH’s solution customers are able to finish works before the planned schedule. There are several examples of sites with an important delay, which recovered lost time and were on track again using GROUND TECH’s solutions.

2.4. GROUND TECH's internationalization process model, a born global company

GROUND TECH is a born global company, according to Knight (1997) who defines a born global company as a “company which, from or near its foundation, seeks to derive a substantial proportion of its revenue from the sale of its products in international markets”.

Born global companies (Moen 2002) targets niche markets and industry specific opportunities. These companies generally produce leading-edge technology products for international niche markets such as scientific instruments or machine tools. They compete on quality and value created through innovative technology and product design. The mainstream born global company is close to its customers, flexible and able to adapt its products to the rapidly changing needs and wants of international customers.

On the other hand the Uppsala model describes a gradual development pattern based on lack of knowledge and uncertainty associated with the decision process model that will lead to an internationalization process of gradual steps. This process may be found in the firm's distribution method and would be evident from an examination of the psychic distance of a firm's export markets.

Born global companies don't follow the gradual steps of the Uppsala model. They use from the beginning of the internationalization process several steps at the same time or a combination of these according to markets and customer needs. In this sense GROUND TECH is clearly a born global company. Since the beginning, GROUND TECH addressed foreign markets and allocated resources for the internationalization process (for instance, international registration of trademarks and patents). The firms management is also strongly committed since the beginning with the internationalization process. GROUND TECH has developed at the same time several of the gradual steps that usually are described in the “traditional” internationalization models, for instance foreign direct investment in Spain creating a Spanish company to address customers of this market, export for several countries and the use of local agents in other countries.

3. Methodology

3.1. The case study theory context

In order to address the objectives of this dissertation that is to propose a model for foreign market selection in the ground engineering slurries industry, the author conducted a review of the relevant literature about the topic followed by a comprehensive in depth analysis of Ground Tech. In this context, a case study and therefore case study research methodology is used where mainly “how” research questions emerge once examining contemporary events where the relevant behaviours cannot be manipulated. The case study adds two sources of evidence: direct observation of the events being studied and contacts with the person involved in the events. In addition, Yin (2003) posits that a case study is an empirical enquiry that research a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident. This is indeed the context of this study.

Overall, this research study is qualitative in its nature, but can also be considered as investigational as it allows creating insight on the subject of a suitable model for foreign market selection in a specific industry, while using qualitative and quantitative data. In fact this study uses quantitative data from reliable and updated sources (see table 1).

On the other hand, regarding the collected qualitative data, qualitative research may not be able to be used to make generalizations (which is often the situation when adopting a case study strategy (Yin, 2003)).

Last but not least, setting out by Ground Tech, as the author tried to emphasize this case study as significant and complete data, displays sufficient evidence composed in an engaging manner, while considering alternative perspectives (Yin, 2003).

3.2. Hollensen's methodology

In this study we have used Hollensen's methodology (Hollensen 2004) for countries/markets selection which is divided in two screenings:

- Preliminary
- Fine-grained

3.2.1. Preliminary screening

In the preliminary screening countries are selected primarily according to external screening criteria (the state of the market). There will be a number of countries that can be excluded in advance as potential markets. To accomplish this item in the preliminary screening we have considered eliminatory indicators that will cut off several countries according to criteria established.

In the fine-grained screening countries are analyzed in terms of company competitive strength and country attractiveness.

When we use variables with an eliminatory indicator, there is a cut off value that will eliminate countries that does not comply with the value defined

When we use variables with a ranking indicator, the countries will not be eliminated, but a rank is done. Based on that rank, each country is scored from 1 to 20.

A preliminary screening variables table is used, where each of the 5 variables has the same weight, and the preliminary rank is done based on the total score from 1 to 100 (the sum of the five variables scored from 1 to 20).

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The preliminary screening was organized based on two sets of indicators:

Eliminatory indicator – if the country doesn't comply with the value for that criteria will be eliminated. This means that the indicator is critical for market selection.

Ranking indicator – these criteria doesn't eliminate, but will suggest a country ranking. This means that the indicator is important to rank, but is not critical to market selection.

Eliminatory indicator, proposed variables:

- Country rating
- Business climate
- Population
- Country surface

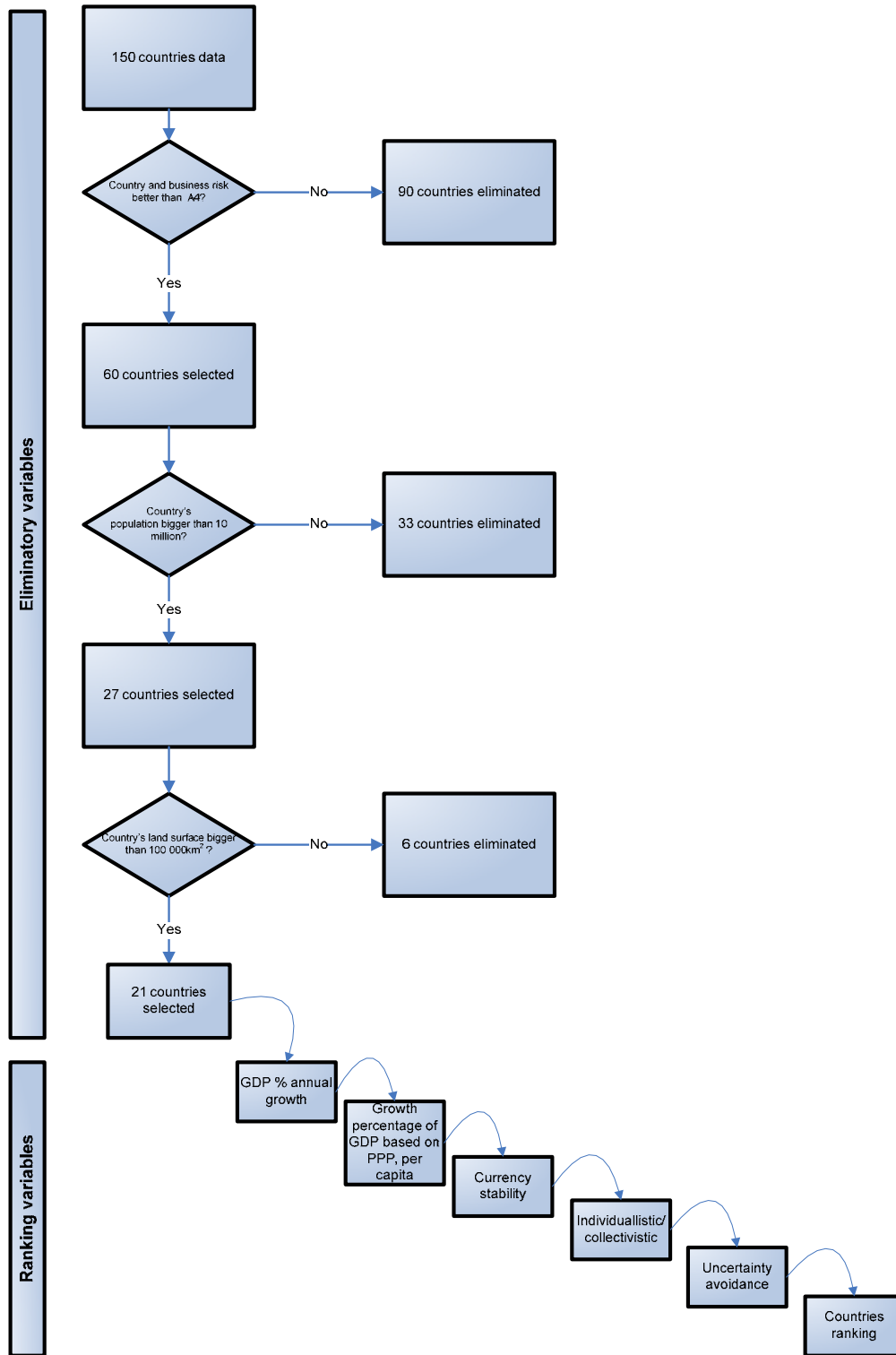
Ranking indicator, proposed variables:

- GDP growth forecast, annual percentage change, constant prices
- GDP growth based on PPP per capita, current US Dollars
- Currency stability,
- Individualism cultural dimension
- Uncertainty avoidance cultural dimension

The use of eliminatory and ranking indicator is not included in Hollensen's model. These indicators and the variables considered in each indicator are proposed by the author according to his experience. The Hollensen model was adapted and expanded by the author resulting in a different model for foreign market selection.

The flow chart below proposes a set of variables to be used on this project, based on the eliminatory or ranking criteria.

Figure 3 – Preliminary screening variables flow chart



Source: The author

3.2.2. Fine-grained screening

We will find two sets of variables in the fine-grained screening, one is the country attractiveness and the other is the competitive strength.

The country attractiveness has 5 variables, where based on countries ranking, each country is scored from 1 to 20. Each of the 5 variables has the same weight and total country attractiveness is scored from 1 to 100.

The competitive strength has only 2 variables that are scored from 1 to 50 (based on country ranking). These 2 variables have the same weight and total competitive strength is scored from 1 to 100 (the sum of the two variables scored from 1 to 50).

Country attractiveness will be evaluated using the following data:

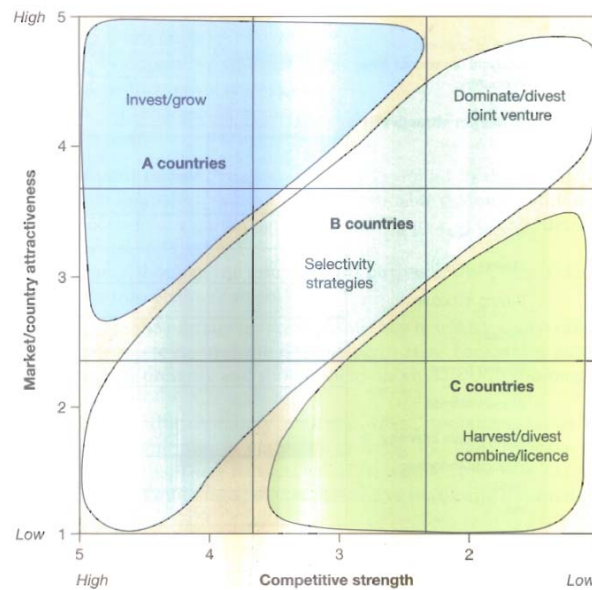
1. Number of potential customers
2. Tariffs for GROUND TECH's products
3. Corporate taxes
4. Forecasted investment in civil engineering infrastructures
5. Market size, GROUND TECH 5 years forecasted sales

Competitive strength will be evaluated using:

1. Correlation between bentonite production and potential infrastructure investment
2. Environmental concern (environmental performance index)

On the next page we may find a chart with the Hollensen model where we have the country attractiveness axe and competitive strength axe.

Figure 4 – Hollensen fine-grained screening model



Source: Hollensen (2004)

According to country attractiveness and competitive strength values countries are positioned in the chart as:

A countries – Invest

B countries – Dominate/divest/ joint venture, selectivity strategy

C countries – Divest

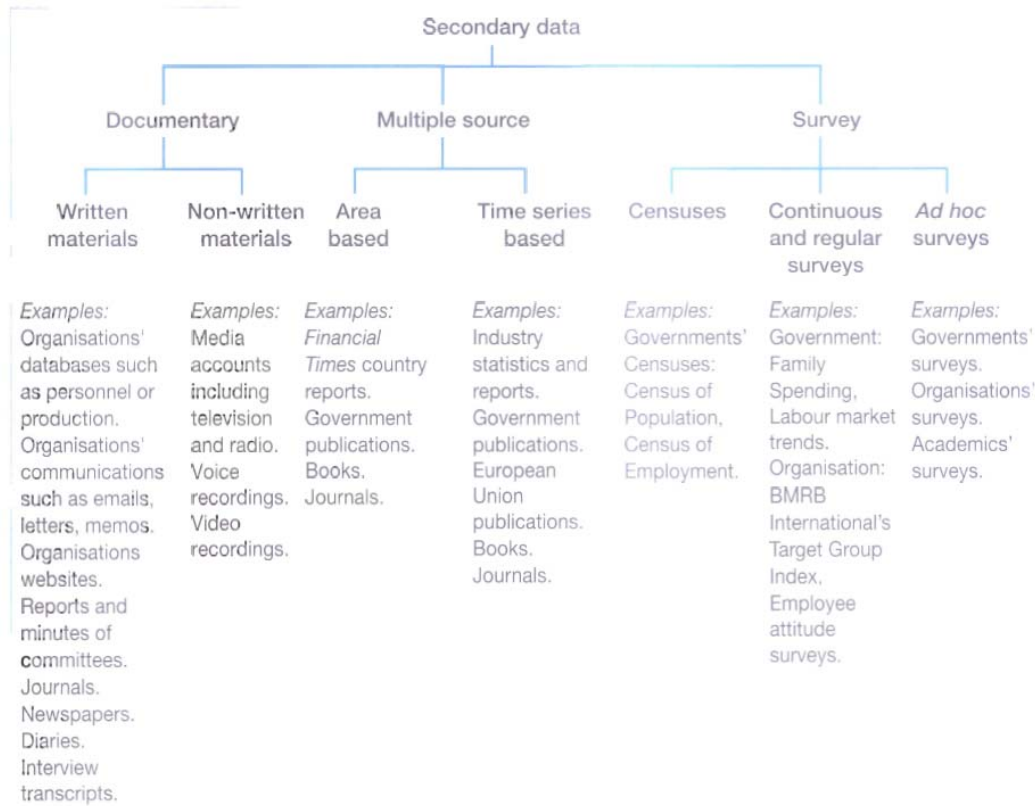
3.3. Data

3.3.1. The use of secondary data

Data used in this work was multiple source secondary data. There are 3 main types of secondary data (Saunders 2007):

- Documentary
- Multiple source
- Survey

Figure 5 – Types of secondary data



Source: Saunders (2007)

Secondary data may have the following advantages and disadvantages (Saunders 2007):

Advantages of secondary data

May have fewer resource requirements

For many research questions and objectives the main advantage of using secondary data is the enormous saving in resources, in particular time and money. In general it is much less expensive to use secondary data than to collect data itself

Unobtrusive

If data is needed quickly, secondary data may be the only viable alternative. In addition, they are likely to be higher-quality data than could be obtained by collecting directly to the source. Using secondary

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data within organizations may also have the advantage that, because they have already been collected, it provides an unobtrusive measure.

Longitudinal studies may be feasible

For many research projects time constraints mean that secondary data provide the only possibility of undertaking longitudinal studies. This is possible either by creating own data or by using an existing multiple source data set (this was the choice used in this work)

Can result in unforeseen discoveries

Reanalyzing secondary data can also lead to unforeseen or unexpected discoveries. Combining data may result in new findings that would not be reached by the analysis of separate data.

Permanence of data

Unlike primary data, secondary data generally provide a source of data that is both permanent and available in a form that may be checked relatively easily by others, resulting in a more open way to public scrutiny.

Disadvantages of secondary data

May be collected for a purpose that does not match the specific project need

Primary data is collected with a specific purpose in mind, secondary may have been collected for a different purpose, and consequently the data may be inappropriate for the specific needs of the project.

Access may be difficult or costly

Where data have been collected for commercial reasons, gaining access may be difficult or costly.

Aggregations and definitions may be unsuitable

The fact that secondary data were collected for a particular purpose may result in other, including ethical problems. As part of the compilation, process data will have been aggregated in some way. This aggregation while meeting the requirements of the original research may not be suitable for other

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researches. The definitions of data variables may not be the most appropriate for other research studies.

3.3.2. Secondary data sources

The secondary data sources used in this work are described in table 1.

Table 1 – Secondary data sources

Data sources			
Stage	Type	Variables	Source
Preliminary screening	Eliminatory	Country rating	Coface country rating (2008)
		Business climate	Coface country rating (2008)
		Population	IMF World Economic Outlook, database April 2009
		Country surface	World fact book 2008 CIA
	Ranking	GDP growth forecast	IMF World Economic Outlook, database April 2009
		GDP growth based on PPP per capita	IMF World Economic Outlook, database April 2009
		Currency stability	Economist Intelligence Unit, February 2009
		Individualism cultural dimension	Hofstede (1991)
Fine-grained screening	Country attractiveness	Uncertainty avoidance cultural dimension	Hofstede (1991)
		Number of potential customers	The author, internet search
		Tariffs for GEO's products	European Union Market Access database
		Corporate taxes	Delloite, International tax and business guide 2009
		Forecasted investment in civil engineering infrastructures	The author, based on Economist and KHL indicators
	Competitive strength	Market size, GEO 5 years forecasted sales	The author, based on analogy for existing markets
		Correlation between bentonite production and potential infrastructure investment	The author, based on the British Geological Survey (2000-2006)
		Environmental concern (Environmental performance index)	Environmental performance index, Yale University

Source: The author

4. Preliminary screening

4.1. Political and economic environment

There is no generally accepted definition of political risk (Agarwal & Feils, 2007) since there is a lack of agreement on its conceptual and operational domain. In formulating the framework of political risk factors several authors emphasize the need to consider not only political but also economic variables (Alon & Martin, 1998; de la Torre & Neckar, 1998; Monti-Belkaoui & Riahi-Belkaoui, 1998; Overholt, 1982; Simon 1984) to search “for what one might call the potential for trouble”. These studies suggest a strong correlation between a country political risk, economic environment and the international entry performance of a firm in that country.

Political and business risk indicators are based on COFACE data. COFACE is one of the leading companies that evaluate country and business risk. COFACE was chosen as a source because it covers 150 countries, has updated and reliable information and it's free. Other options like Dun&Bradstreet are also good as COFACE, but the information is not available for free.

GROUND TECH is now established in 2 markets (Portugal and Spain). With some many markets available to choose it makes sense to choose a new market with low or mid risk indicators. Due to the large number of available countries to choose, the political and business risk should be used has a criteria to eliminate countries below A4 rating

4.1.1. Country rating (political and economical risk)

Indicator type: eliminatory

This indicator rates the overall risk of the country, taking in consideration the economic, financial and political prospects for that country, the business climate and the overall companies' payment behaviour in each country. This indicator has 7 levels, A1, A2, A3, A4, B, C, and D, where A1 is the best rate and D is the worse.

For a better understanding, the COFACE definition of A1 and A4 rating can be found below:

A1 rating - The political and economic situation is very good. A quality business environment has a positive influence on corporate payment behaviour. Corporate default probability is very low on average.

A4 rating - A somewhat shaky political and economic outlook and a relatively volatile business environment can affect corporate payment behaviour. Corporate default probability is still acceptable on average.

In annex 10.1, detailed information can be found regarding the methodology and ratings definition.

The company internationalization process is based on incremental steps. Risk must be well managed in terms of resources allocation to the company's internationalization process. The internationalization process should be focused on the best opportunities; this means that the resources should be allocated to the market with less risk and better chances to deliver a good outcome.

4.1.2. Business climate (Business risk)

Indicator type: eliminatory

The business climate indicator comprises 2 modules:

- The quality of information available on companies and legal protection given to creditors (creditor protection and debt collection efficiency) based on COFACE experience
- The institutional environment, that reflects the quality of the country institutions whose strengths and weaknesses can affect companies

In annex 10.1, detailed information can be found regarding the methodology and ratings definition.

Considering that B country rating classifies countries as:

“Political and economic uncertainties and an occasionally difficult business environment can affect corporate payment behaviour. Corporate default probability is appreciable”;

and B business climate classifies countries as:

“The business environment is mediocre. The availability and the reliability of corporate financial information vary widely. Debt collection can sometimes be difficult. The institutional framework has a few troublesome weaknesses. Intercompany transactions run appreciable risks in the unstable, largely inefficient environments rated B;

It's proposed in this work to eliminate all countries with a country rating and business climate rating of B or less.

The total COFACE rating sample has 150 countries. We find 60 (40% of the sample) countries that comply to the rule of a COFACE rating better than A4 (including) in country risk and business climate.

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So the countries selected at this stage will be:

Table 2 - 60 Countries selected based on minimum A4 rating for country risk and business climate.

A1	BUSINESS CLIMATE	Country @rating		A2	BUSINESS CLIMATE	Country @rating
Germany	A1	A1		Chile	A2	A2
Australia	A1	A1		Cyprus	A2	A2
Austria	A1	A1		Czech Republic	A2	A2
Belgium	A1	A1		Estonia	A2	A2
Canada	A1	A1		Greece	A2	A2
Denmark	A1	A1		Hong Kong	A2	A1
Finland	A1	A1		Hungary	A2	A3
France	A1	A1		Israel	A2	A4
Ireland	A1	A1		Italy	A2	A2
Japan	A1	A1		Luxembourg	A2	A1
Netherlands	A1	A1		Malta	A2	A2
New Zealand	A1	A1		Portugal	A2	A2
Norway	A1	A1		Slovakia	A2	A3
Singapore	A1	A1		Slovenia	A2	A1
Spain	A1	A1		South Korea	A2	A2
Sweden	A1	A1		Taiwan	A2	A1
Switzerland	A1	A1				
United Kingdom	A1	A1				
United States	A1	A1				

A3	BUSINESS CLIMATE	Country @rating		A4	BUSINESS CLIMATE	Country @rating
South Africa	A3	A3		Brazil	A4	A4
Bahrain	A3	A3		Bulgaria	A4	A4
Botswana	A3	A2		India	A4	A3
Costa Rica	A3	A4		Morocco	A4	A4
Croatia	A3	A4		Mexico	A4	A3
Kuwait	A3	A2		Namibia	A4	A3
Latvia	A3	A3		Oman	A4	A3
Lithuania	A3	A3		Panama	A4	A4
Malaysia	A3	A2		Romania	A4	A4
Mauritius	A3	A3		Trinidad and Tobago	A4	A3
Poland	A3	A3		Tunisia	A4	A4
Qatar	A3	A2				
Thailand	A3	A3				
United Arab Emirates	A3	A2				

Source: COFACE Country Rating (2008)

Data sources:

Macroeconomic and demographic data was consulted at the IMF (International Monetary Fund) World Economic Outlook database April 2009. Besides IMF, United Nations also have macroeconomic data for all countries. The IMF was chosen as a source because its information is more updated (April 2009) compared with United Nations (2007 or 2006 for some countries).

So, IMF is the more updated source for macroeconomic forecasts covering countries worldwide. Countries land surface data, doesn't exist in IMF database, we have used the American government agency Central Intelligence Agency (CIA) because its information is accurate, reliable and easily available on the internet.

4.2. Population

Population plays an important role when selecting new potential markets. For instance the Market Potential Index from Michigan State University uses the population factor as a variable to determine the market size. In the overall market opportunity index (Cavusgil 1997), population is also referred as an important variable to determine the market size and is used as a rough estimation of market potential. Although the entire country may not be targeted by any one company, total population indicates the relative importance of that country's market.

Indicator type: eliminatory

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Population is a very important indicator to select a market. A small population country will not be likely to have a big development for decades in civil engineering and building. Having in mind that a population smaller than Portugal population will be difficult to sustain a company for a long period of time, countries with a population smaller than 10, 657 millions (Portuguese population) should be eliminated.

Table 3 - Countries with a population bigger than 10,657 million in the year 2009 and a country and business climate rating better than A4 (including).

Country	Population 2009 (Millions)
India	1,207.5
United States	307.4
Brazil	194.4
Japan	127.6
Mexico	107.4
Germany	82.0
Thailand	67.1
France	62.6
United Kingdom	61.2
Italy	59.8
South Africa	49.2
Korea	48.7
Spain	46.2
Poland	38.1
Canada	33.6
Morocco	31.9
Malaysia	27.8
Australia	21.6
Romania	21.4
Chile	17.0
Netherlands	16.8
Greece	11.2
Belgium	10.8
Portugal	10.7

Source: IMF World Economic Outlook, database April 2009.

4.3. Country surface (km²)

Indicator type: eliminatory

GROUND TECH's business is mainly civil engineering (motorway or railway bridges, seaports and airports). A country with an area smaller than Portugal will not be likely to have good chances for a sustainable business. According to this indicator the countries previously identified were selected by the criteria of having a land surface bigger than 100 000 km² (Portugal has 91 951 km²).

Table 4 – Countries with land surface bigger than 100 000 km²

Country	Surface land (km ²)
United States	9,161,923
Canada	9,093,507
Brazil	8,456,510
Australia	7,617,930
India	2,973,190
Mexico	1,923,040
South Africa	1,219,912
Chile	748,800
France	640,053
Thailand	511,770
Spain	499,542
Morocco	446,300
Japan	374,744
Germany	349,223
Malaysia	328,550
Poland	304,459
Italy	294,020
United Kingdom	241,590
Romania	230,340
Greece	130,800

Source: World Fact Book 2008 CIA

4.4. GDP

It is widely accepted that GDP growth is an important variable to assess the economic growth of a country.

The Market Potential Index from Michigan State University, uses the real GDP growth rate as a variable to determine the market growth rate.

GDP is the sum of all final goods and services produced for the market in a given time period, with each good or service valued at its market price (Schiller 1997), in this study we compare the GDP growth rate (constant prices) between countries. It is more likely that a country with a bigger GDP growth rate will have more resources to invest in infrastructure. Later we will analyze not only the growth rate but the relation between infrastructure investment and GDP absolute value per country. Of course we should not consider only this variable, because the resources available for infrastructure investment will depend on several other variables. So the GDP growth, like any other variable, should not be analyzed alone, but together with other variables, according to the methodology proposed in this study.

Indicator type: ranking

The growth of Gross Domestic Product (GDP) for the following years, will determine the ability of governments to invest in the countries infrastructures in a sustainable way. GROUND TECH's business strongly depend on infrastructures investment, with a focus on civil engineering projects, so it will be more likely to have a sustainable business in a market with a good GDP growth forecast. All forecasted data is strongly affected by the financial and economic crisis that the world is facing. The International Monetary Fund, World Economic Outlook (2009, April data) should be viewed as a tool to help the market selection. The forecast data is used to help the decision making based on the relative comparison of data, and not the absolute figure of each indicator. The absolute figures of each indicator are strongly affected by the crisis, but the relative analysis can be done and should give relevant data for market selection. Countries are scored according to Compound Total Growth Rate (CTGR) that was calculated based on GDP forecast, percentage annual growth (constant prices) between 2009 and 2014, for annual information purposes the Compound Annual Growth Rate (CAGR) may also be found in table 4.

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The table below shows GDP forecast for years 2009 - 2014, annual percentage change, constant prices.

Table 5 – GDP forecast for years 2009-2014 annual percentage change, constant prices, for countries selected based on previous indicators. CTGR- Compound Total Growth Rate, CAGR – Compound Annual Growth Rate

Country	GDP Forecast						CTGR	CAGR	Score
	(% annual growth)								
	2009	2010	2011	2012	2013	2014	2009-2014	2009-2014	
India	4.52	5.61	6.89	7.59	7.95	8.04	48.05%	6.76%	20
Morocco	4.40	4.40	5.40	5.90	6.00	6.00	36.69%	5.35%	19
Chile	0.11	3.03	3.90	4.80	5.02	5.02	23.86%	3.63%	18
Malaysia	-3.50	1.34	4.05	5.50	6.00	6.00	20.62%	3.17%	17
Thailand	-2.97	1.04	4.00	5.00	6.00	6.00	20.29%	3.13%	16
South Africa	-0.32	1.90	3.91	4.33	4.49	4.40	20.12%	3.10%	15
Mexico	-3.67	1.02	4.73	5.48	5.33	4.90	18.78%	2.91%	14
Poland	-0.75	1.26	3.98	4.37	4.36	4.34	18.76%	2.91%	13
Romania	-4.14	-0.04	5.00	7.21	5.37	4.07	18.28%	2.84%	12
Brazil	-1.30	2.17	3.04	3.43	3.78	4.49	16.53%	2.58%	11
Canada	-2.54	1.16	2.46	3.83	3.39	2.46	11.10%	1.77%	10
United States	-2.75	-0.05	3.53	3.64	3.28	2.45	10.36%	1.66%	9
Australia	-1.45	0.65	1.93	2.85	2.91	3.05	10.26%	1.64%	8
Greece	-0.20	-0.60	1.10	1.60	2.00	2.54	6.57%	1.07%	7
United Kingdom	-4.09	-0.40	2.12	2.94	2.79	2.78	6.10%	0.99%	6
France	-2.95	0.41	1.68	1.95	2.23	2.34	5.67%	0.92%	5
Japan	-6.20	0.52	2.17	3.17	2.81	2.53	4.76%	0.78%	4
Spain	-3.04	-0.71	0.85	1.33	1.62	1.99	1.96%	0.32%	3
Germany	-5.61	-1.00	1.48	1.83	1.97	2.20	0.62%	0.10%	2
Italy	-4.45	-0.39	0.71	1.35	1.60	1.90	0.58%	0.10%	1

Source: IMF World Economic Outlook, database April 2009

4.5. GDP (Growth percentage of) based on PPP, per capita

Statistics on GDP per capita are a fundamental measure of a country's economic development (Schiller 1997). In this study we have not used just the GDP per capita, to measure the country's economic development, but the growth percentage based on PPP. This way we believe that we may forecast the goods and services that the population will buy in the future, which will lead to an inevitable infrastructure investment to support demand and economic growth.

Indicator type: ranking

GDP based on Purchasing Power Parity (PPP), per capita, gives us information on the purchasing power of the population of each country. We may compare data between countries because the indicator already reflects the PPP of the population of that country. Countries with a higher growth forecast for this indicator are more likely to have a population that will have more purchasing power to buy cars (which leads to motorway investment), buy imported goods (new motorways, railways and seaports investments will be needed) and travel (which creates the need to invest in airports, seaports, railways and motorways).

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Table 6 – GDP based on PPP, per capita, current US Dollars, forecast for years 2009 - 2014, and annual percentage change for years 2010 - 2014, for countries selected based on previous indicators. CTGR- Compound Total Growth Rate, CAGR – Compound Annual Growth Rate.

Country	GDP based on PPP, Per capita Forecast (US Dollars)						GDP based on PPP, Per capita Forecast (annual % change)							Score
	2009	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	CTGR	CAGR	
India	2,873	3,005	3,187	3,433	3,730	4,056	4.60%	6.06%	7.73%	8.62%	8.76%	41.18%	7.14%	20
Romania	12,214	12,299	13,036	14,231	15,341	16,337	0.70%	5.99%	9.17%	7.79%	6.49%	33.75%	5.99%	19
Morocco	4,519	4,673	4,885	5,176	5,516	5,881	3.40%	4.54%	5.96%	6.57%	6.60%	30.12%	5.41%	18
Poland	17,524	17,825	18,654	19,766	21,039	22,398	1.72%	4.65%	5.96%	6.44%	6.46%	27.82%	5.03%	17
Thailand	7,975	8,013	8,299	8,754	9,366	10,025	0.48%	3.56%	5.49%	7.00%	7.03%	25.71%	4.68%	16
Mexico	14,018	14,075	14,682	15,559	16,542	17,519	0.41%	4.31%	5.98%	6.32%	5.91%	24.98%	4.56%	15
Chile	14,461	14,778	15,261	16,035	16,960	18,000	2.19%	3.26%	5.07%	5.77%	6.13%	24.47%	4.48%	14
Malaysia	13,477	13,487	13,878	14,608	15,523	16,500	0.08%	2.90%	5.26%	6.26%	6.30%	22.44%	4.13%	13
South Africa	10,070	10,195	10,538	11,034	11,627	12,245	1.23%	3.37%	4.71%	5.37%	5.31%	21.59%	3.99%	12
Japan	32,298	32,638	33,581	35,211	36,975	38,748	1.05%	2.89%	4.85%	5.01%	4.79%	19.97%	3.71%	11
Brazil	10,154	10,289	10,533	10,924	11,423	12,029	1.33%	2.38%	3.71%	4.56%	5.31%	18.46%	3.45%	10
Canada	38,154	38,478	39,363	41,175	43,097	44,724	0.85%	2.30%	4.60%	4.67%	3.78%	17.22%	3.23%	9
United States	45,550	45,254	46,663	48,591	50,652	52,393	-0.65%	3.11%	4.13%	4.24%	3.44%	15.02%	2.84%	8
Germany	33,804	33,638	34,383	35,580	37,030	38,641	-0.49%	2.22%	3.48%	4.08%	4.35%	14.31%	2.71%	7
France	33,334	33,445	34,046	35,060	36,372	37,788	0.33%	1.80%	2.98%	3.74%	3.89%	13.36%	2.54%	6
Greece	30,689	30,570	31,057	31,990	33,237	34,727	-0.39%	1.60%	3.00%	3.90%	4.49%	13.16%	2.50%	5
Australia	36,642	36,583	37,040	38,176	39,559	41,060	-0.16%	1.25%	3.07%	3.62%	3.79%	12.06%	2.30%	4
United Kingdom	35,286	34,881	35,402	36,541	37,838	38,808	-1.15%	1.49%	3.22%	3.55%	2.56%	9.98%	1.92%	3
Spain	29,596	29,305	29,545	30,199	31,108	32,183	-0.98%	0.82%	2.21%	3.01%	3.46%	8.74%	1.69%	2
Italy	29,274	29,080	29,255	29,889	30,767	31,785	-0.66%	0.60%	2.17%	2.94%	3.31%	8.58%	1.66%	1

Source: IMF World Economic Outlook, database April 2009.

4.6. Currency stability/foreign exchange exposure

The foreign exchange exposure is a measure of the potential that a firm's profitability, cash flow and market value will change because of a change in exchange rates (Moffet 2004).

There are 4 types of foreign exchange exposure:

- Transaction;
- Operating;
- Accounting;
- Tax.

Tax exposure will be analyzed later in this study (item 5.1.3).

Transaction exposure, measures changes in the value of outstanding financial obligations incurred prior to a change in exchange rates. Typical exposures are accounts receivable and payable, as well as backlog and quotation exposures.

Operating exposure, measures the change in present value of a firm resulting from a change in its future operating cash flows due to an unexpected change in exchange rates.

Accounting exposure is the potential for accounting derived changes in owners' equity and consolidated income that occur because of the need to translate foreign currency denominated financial statements of foreign subsidiaries into a single currency to prepare worldwide consolidated financial statements.

The 3 foreign exchange exposures above depends on the exchange rate changes. The level of company exposure will depend on the entry mode, but for this study we should focus on the variable that affects all types of exposures cited, the exchange rate change.

To analyze the impact of exchange rates in market selection we may have several different approaches (ie, past volatility, analysis of the macro-economics factors that lead to exchange rates changes, analysis of several models to forecast exchange rates). We have chosen in this study a simple, comparable and reliable method, the Economist Intelligence Unit, February 2009, forecast for real appreciation of foreign currency against euro (% year on year). We are

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ware, that this method has a lot of limitations, but for a SME market selection, it seems to be the most updated and reliable variable to have in account. Every investor recognizes the importance of exchange rate changes, but no one can fully assure a good model to predict future variations.

Indicator type: ranking

Table 7 - Real appreciation forecast of foreign currency against euro, for 2009 and 2010, year to year.

Country	Real appreciation of foreign currency against euro % year on year forecast		Score
	2009	2010	
	Canada	-1.60%	
Poland	-13.60%	4.00%	19
India	5.30%	2.70%	18
United Kingdom	-11.30%	2.50%	17
Romania	-7.70%	0.90%	16
France	-0.10%	0.10%	15
Greece	1.20%	-0.40%	14
Spain	0.70%	-0.60%	13
Italy	1.10%	-0.80%	12
Malaysia	-0.10%	-0.80%	11
Morocco	1.40%	-1.00%	10
Germany	0.30%	-1.10%	9
Brazil	-14.00%	-2.10%	8
Thailand	-1.30%	-3.40%	7
Australia	-16.80%	-3.50%	6
United States	9.00%	-3.60%	5
Japan	23.60%	-4.90%	4
South Africa	1.00%	-5.50%	3
Chile	-6.00%	-7.60%	2
Mexico	-13.10%	-8.50%	1

Source: Economist Intelligence Unit, February 2009

Year 2009 data presented above is just for comparison purposes. The score was obtained based on 2010 data. It's not likely that GROUND TECH will have commercial transactions in year 2009 in the new market, so the investment process for starting in the new market will be in 2010.

4.7. Sociocultural environment

Hofstede (1980, 2001) conducted perhaps the most comprehensive study of how values in the workplace are influenced by culture. He not only proposes the concepts of power distance, uncertainty avoidance, individualism, masculinity and long term as five dimensions in his national culture paradigm, but also implemented extensive surveys to quantify different countries along these dimensions. All dimensions are scored with a 0 (low) to 100 (high) scale. Replications of Hofstede's original study found that there are no significant changes in these country scores (Hofstede, 1994).

In this study we have chosen uncertainty avoidance and individualism cultural dimension that according to Yaveroglu (2002) show more evidences to have a big correlation with the introduction of new products and technologies (which is GROUND TECH's business)

4.7.1. Individualism cultural dimension

This dimension refers to the way people live together. Individualism "pertains to societies in which the ties between individuals are loose: everyone is expected to look after himself or herself and his or her immediate family" and collectivism "pertains to societies in which people from birth onwards are integrated into strong, cohesive in groups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty" (Hofstede,1991 p. 51).

In an individualist society the self-concept, autonomy and personal achievement is important. The individual is emotionally independent from organizations or institutions, and there is belief in individual decisions. In such a society, we would expect people to be more open to try new innovations based on their own individual judgments. They will not depend on others to make decisions. Therefore, we would expect these societies to be higher on innovation. Therefore:

Societies that are high (low) on individualism will be high (low) on innovation.

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In a collectivist society, there is high interdependence and belief in group decisions. It is important that everybody achieves the same success towards a common goal. Due to this high need for sharing and interdependence, we expect the word of mouth effect to be greater in collectivist societies, leading to a greater coefficient of imitation. Everyone will immediately adapt an idea innovated or adapted by a group of people in collectivist societies. Therefore:

Societies that are low (high) on individualism will be high (low) on imitation. (Yaveroglu, 2002)

Although the Yaveroglu study was done for business to consumer products, we believe that the same conclusion may be applied in the business to business GROUND TECH's market.

Indicator type: ranking

The consequences of this study for GROUND TECH's business will be:

In a high score individualistic country, GROUND TECH's product will be fast adopted, compared with low score countries. Countries with a low score, doesn't mean that it should be avoided. In these countries the market penetration will take more time, but once inside one or two representative customers, other customers will tend to imitate and adopt GROUND TECH's technology.

In this study we prevail countries with a culture that will fast adopt new technologies (individualism high score), which means that the time to achieve a sustainable business in that market will be shorter compared with the countries that have a collectivistic society (individualism low score).

Table 8 - Country ranking according to Hofstede individualistic/collectivistic score

Country	Individualistic/ Collectivistic	Score
United States	91	20
Australia	90	19
United Kingdom	89	18
Canada	80	17
Italy	76	16
France	71	15
Germany	67	14
South Africa	65	13
Poland	60	12
Spain	51	11
India	48	10
Morocco	46	9
Japan	46	9
Brazil	38	7
Greece	35	6
Romania	30	5
Mexico	30	5
Malaysia	26	3
Chile	23	2
Thailand	20	1

Source: Hofstede (1991)

4.7.2. Uncertainty avoidance cultural dimension

Uncertainty avoidance was defined as “the extent to which the members of a culture feel threatened by uncertain or unknown situations” (Hofstede, 1991, p. 113). Uncertainty avoidance relates to the way in which societies respond to uncertainties embedded in everyday life.

A society low on uncertainty avoidance tends to accept uncertainty without much discomfort, takes risks easily, and shows greater tolerance for opinions and behaviours different from its own.

A society with high on uncertainty avoidance is more rigid. There is a stronger need for predictability, which reflects itself in explicit rules, or structured situations. There is less ambition for advancement and a resistance against change. In countries that are high on uncertainty avoidance people avoid risk, are rigid, and there is resistance to change. Therefore, instead of buying a new product, members of a high uncertainty avoidance culture

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may wait for their peers, which in this case may be other societies, and try the product only after it reaches a certain level of penetration. That is, in such a case the effects of external influences, which are captured by the coefficient of innovation p , will be lower. In countries that are low on uncertainty avoidance change is well accepted. Ambition for advancement and risk taking is higher. Therefore, it is expected that these countries will be more receptive of new technologies, and high on innovation. (Yaveroglu, 2002)

Although the Yaveroglu study was done for business to consumer products, we believe that the same conclusion may be applied in the business to business GROUND TECH’s market.

Indicator type: ranking

GROUND TECH has a innovative technology to stabilize soils in the special foundations industry.

This means that countries with a culture more open to “break traditional rules” are likely to be more open to try new technologies. A customer from a country with a low uncertainty avoidance score will be more likely to try GROUND TECH’s technology than a customer from a country with a high score.

Table 9 – Country ranking according to Hofstede uncertainty avoidance index

Country	Uncertainty avoidance	Score
United Kingdom	35	20
Malaysia	36	19
India	40	18
United States	46	17
Canada	48	16
South Africa	49	15
Australia	51	14
Thailand	64	13
Germany	65	12
Morocco	68	11
Italy	75	10
Brazil	76	9
Mexico	82	8
Chile	86	7
France	86	7
Spain	86	7
Romania	90	4
Japan	92	3
Poland	93	2
Greece	112	1

Source: Hofstede (1991)

4.8. Preliminary screening ranking results

We have scored each ranking indicator, according to the ranking in each variable (in a scale from 1 to 20).

Below we may find a matrix where we sum each score variable and find a total score (maximum score 100). In this preliminary screening, we may find the countries sorted by total score, and start to figure out which ones may be more interesting in the market selection. But these variables are not enough, to do a proper market selection, more insight should be done (for instance, identification of potential customers, tariffs, corporate taxes, etc). The fine screening, we'll be done in the next chapter, so we may have a more detailed view of all the factors influencing the market selection process.

Table 10 – ranking on the countries data, based on 1 to 20 score, according to the values of each of the 5 ranking variables used.

	Country	GDP Forecast (% annual growth)	GDP based on PPP, Per capita Forecast (annual % change)	Currency Stability	Individualistic/Collectivistic	Uncertainty avoidance	Total
Rank		score	score	score	score	score	score
1	India	20	20	18	10	18	86
2	Canada	8	9	20	17	16	70
3	Morocco	19	18	10	9	11	67
4	United Kingdom	6	3	17	18	20	64
5	Malaysia	17	13	11	3	19	63
5	Poland	13	17	19	12	2	63
7	United States	9	8	5	20	17	59
8	South Africa	15	12	3	13	15	58
9	Romania	12	19	16	5	4	56
10	Thailand	16	16	7	1	13	53
11	Australia	8	4	6	19	14	51
12	France	5	6	15	15	7	48
13	Brazil	11	10	8	7	9	45
14	Germany	2	7	9	14	12	44
15	Chile	18	14	2	2	7	43
15	Mexico	14	15	1	5	8	43
17	Italy	1	1	12	16	10	40
18	Spain	3	2	13	11	7	36
19	Greece	7	5	14	6	1	33
20	Japan	4	11	4	9	3	31

Source: The author

5. Fine-grained screening

After the preliminary screening, it's important to gather more information in order to do a fine-grained screening. Again all data used in this screening is secondary data.

At this stage we need to go in further detail in each country evaluating the country attractiveness and GROUND TECH's competitive strength to replace the traditional soil stabilization products

At this stage we have a limitation of using secondary data. More insight should be done in the selected countries, namely competitors' products prices, customers satisfactions with traditional providers, etc.

5.1. Country attractiveness

5.1.1. Number of potential customers

The number of potential customers will contribute to the attractiveness of that country for GROUND TECH's business. A bigger number of potential customers will increase the probability of working with some percentage of them. A small number of customers will increase the risk of customers controlling and in some cases determining provider's prices.

Table 11 – Number of potential customers per country

Country	Number of potential customers	score
United States	36	20
Japan	34	19
Germany	28	18
Brazil	27	17
France	25	16
India	23	15
United Kingdom	21	14
Italy	20	13
Mexico	18	12
Spain	17	11
Canada	15	10
Poland	13	9
Australia	12	8
Thailand	10	7
South Africa	9	6
Malaysia	8	5
Romania	7	4
Greece	6	3
Chile	4	2
Morocco	3	1

Source: The author internet search of the companies websites

5.1.2. Tariffs for GROUND TECH's products

GROUND TECH will export products from Europe, so all the international trade should have in account the tariffs to be paid to import products. GROUND TECH products are divided in 3 main groups (Group 1, 2 and 3) according to the international classification of Harmonized Codes.

The source for tariff data was the European Union, market access database. The Market Access Database is an important operational tool of the European Union's Market Access Strategy, supporting a continuous three-way exchange of information between the EU institutions, Member States and European business. The Market Access Strategy is a key pillar of the EU's Trade Policy which aims to reduce the obstacles faced by European exporters of goods and services.

Countries in the table below were sorted by tariffs and importance of products group (products group 1 is more important than 2, group 2 is more important than 3).

Table 12 – Tariffs for each country and products group, sorted by products group importance.

Country	Group 1	Group 2	Group 3	score
	tariffs for each products			
France	0.00%	0.00%	0.00%	20
United Kingdom	0.00%	0.00%	0.00%	20
Germany	0.00%	0.00%	0.00%	20
Italy	0.00%	0.00%	0.00%	20
Malaysia	0.00%	0.00%	0.00%	20
Spain	0.00%	0.00%	0.00%	20
Poland	0.00%	0.00%	0.00%	20
Greece	0.00%	0.00%	0.00%	20
Mexico	0.00%	0.00%	0.00%	20
Morocco	0.00%	0.00%	0.00%	20
Romania	0.00%	0.00%	0.00%	20
Chile	0.00%	0.00%	0.75%	9
Canada	0.00%	0.00%	6.50%	8
South Africa	0.00%	0.00%	7.60%	7
Japan	3.90%	2.80%	0.00%	6
United States	4.20%	5.30%	4.00%	5
Australia	5.00%	5.00%	5.00%	4
Thailand	5.00%	5.00%	5.00%	3
India	7.50%	7.50%	10.00%	2
Brazil	14.00%	2.00%	14.00%	1

Source: European Union Market Access Database.

5.1.3. Corporate taxes

Corporate taxes have an important role for the investor that is selecting new markets. The higher the tax burden, the higher should be the business and profitability forecast for that country. For the purposes of this study we need to find corporate taxes (and surtaxes), reliable and comparable data for all countries in this study. To achieve this purpose we have used Delloite, International tax and business guides (2009)

Table 13 – Corporate taxes (and surtaxes) for each country

Country	Corporate taxes	score
Romania	16.0%	20
Chile	17.0%	19
Poland	19.0%	18
Canada	19.5%	17
Malaysia	25.0%	16
Spain	25.0%	16
Greece	27.0%	14
United Kingdom	28.0%	13
Mexico	28.0%	13
South Africa	28.0%	13
Australia	30.0%	10
Thailand	30.0%	10
Morocco	30.0%	10
Italy	31.4%	7
Germany	33.0%	6
Brazil	34.0%	5
France	34.4%	4
United States	35.0%	3
India	40.0%	2
Japan	42.0%	1

Source: Delloite, International tax and business guide 2009

**5.1.4. Forecasted investment in civil engineering infrastructure
(motorways, railway, airports and seaports)**

To forecast the civil engineering infrastructure investment we have used to main indicators:

1. In emerging economies, according to the Economist, (Economist 2008) countries invest on average 6% of GDP in civil engineering infrastructures
2. In advanced economies, according to the World Construction Report 2009 (KHL 2009) countries invest on average 3.1% of GDP in civil engineering.

For calculation purposes we have used the IMF forecast, GDP constant prices billions USD.

We have used IMF classification for advanced and emerging economies as follows:

Table 14 – Countries classification in advanced or emerging economies according to IMF

Country	IMF classification
Australia	Advanced economies
Canada	
France	
Germany	
Greece	
Italy	
Japan	
Spain	
United Kingdom	
United States	
Brazil	
Chile	
India	
Malaysia	
Mexico	
Morocco	
Poland	
Romania	
South Africa	
Thailand	

Source: IMF World Economic Outlook, database April 2009.

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Based on the IMF countries GDP forecast and the average percentage of infrastructure investment on GDP depending on the country classification as an advanced or emerging economy, we have forecasted in the table below the potential infrastructure investment in billions USD for each country.

Table 15 – Potential infrastructure investment, based on average GDP (constant prices billions USD) percentage investment according to advanced and emerging economies indicator

Country	Potential infrastructure investment (billions USD)							score
	2009	2010	2011	2012	2013	2014	Total	
United States	434.08	435.94	450.48	468.99	491.82	513.43	2,794.75	20
Japan	154.78	147.28	147.08	151.43	157.34	164.32	922.23	19
Germany	94.87	93.66	94.67	96.67	98.94	101.37	580.18	18
Brazil	76.11	76.00	80.24	84.96	89.85	95.70	502.87	17
France	77.47	77.58	79.86	82.75	86.29	89.87	493.82	16
India	71.14	71.16	76.32	83.11	91.25	100.35	493.34	15
United Kingdom	62.22	62.38	64.89	68.50	72.37	76.36	406.72	14
Italy	61.62	61.22	62.04	63.60	65.54	67.76	381.80	13
Mexico	49.63	50.08	53.24	57.33	61.85	66.35	338.49	12
Spain	43.31	42.74	43.48	44.46	45.74	47.36	267.11	11
Canada	38.11	38.38	39.48	41.41	43.50	45.63	246.50	10
Poland	24.18	24.02	25.06	26.37	27.76	29.22	156.60	9
Australia	23.41	22.78	22.86	23.65	24.41	25.79	142.89	8
Thailand	16.11	16.24	17.47	18.76	20.34	21.96	110.89	7
South Africa	14.60	14.17	14.97	15.93	16.92	17.91	94.50	6
Malaysia	12.75	12.92	13.78	14.90	16.19	17.59	88.12	5
Romania	9.99	9.59	10.70	12.32	14.10	16.05	72.74	4
Greece	10.08	9.97	10.31	10.71	11.20	11.77	64.04	3
Chile	8.15	7.86	8.62	9.86	10.63	11.18	56.29	2
Morocco	5.08	5.29	5.73	6.24	6.80	7.39	36.54	1

Source: The author

5.1.5. Market size, GROUND TECH 5 years sales forecast (method: by analogy)

Based on the sales achieved (3 years achieved sales, plus 2 years forecast) in Spain, we have developed a relation between Spanish market sales and potential infrastructure investment for Spain in each year.

We may find in table 12, the forecast sales factor for the Spanish market.

Table 16 – Forecast sales factor based on Spanish market sales divided by the potential infrastructure investment in each year

Year	1	2	3	4	5
Forecast sales factor	1.79E-05	3.73E-05	6.15E-05	7.72E-05	9.12E-05

Source: The author

The 5 years sales forecast for each market will be done using an analogy method, based on the Spanish market experience. Of course, this has an important limitation, because sales in other markets may not occur exactly the same way as in Spain, but for a relative comparison purpose we may find this method acceptable (we use the same sales forecast factor for all countries).

Note: the excel table above uses the notation E-05, which is equivalent to 10^{-5}

Table 17 – Five years potential revenue, based on Forecast sales factor and potential infrastructure investment

Country	Potential Revenue (Thousand EUR)						
	Year	1	2	3	4	5	Total
United States	5,859	12,622	21,655	28,519	35,186	103,842	20
Japan	1,980	4,121	6,992	9,124	11,261	33,478	19
Germany	1,259	2,653	4,464	5,737	6,947	21,059	18
Brazil	1,022	2,248	3,923	5,210	6,558	18,961	17
France	1,043	2,238	3,821	5,004	6,159	18,264	16
India	956	2,138	3,838	5,291	6,877	19,101	15
United Kingdom	838	1,818	3,163	4,197	5,233	15,249	14
Italy	823	1,738	2,937	3,801	4,644	13,943	13
Mexico	673	1,492	2,647	3,586	4,547	12,946	12
Spain	575	1,218	2,053	2,653	3,246	9,744	11
Canada	516	1,106	1,912	2,522	3,127	9,183	10
Poland	323	702	1,217	1,610	2,003	5,854	9
Australia	306	641	1,092	1,416	1,767	5,222	8
Thailand	218	489	866	1,179	1,505	4,259	7
South Africa	190	420	735	981	1,227	3,554	6
Malaysia	174	386	688	939	1,205	3,392	5
Romania	129	300	569	817	1,100	2,915	4
Greece	134	289	494	650	807	2,373	3
Chile	106	242	455	616	766	2,185	2
Morocco	71	161	288	394	507	1,421	1

Source: The author

The table above is presented in EUR, all original data is in USD. To convert USD to EUR we have considered the Exchange rate EUR/USD 1.3315 according to exchange rate changes, all data in EUR should be updated.

5.2. Competitive strength

5.2.1. Correlation between Bentonite production and potential infrastructure investment

It will be more likely to have lower bentonite prices in countries with a local production that may supply all the bentonite demand for the ground engineering industry. If the bentonite price in that country is very low, it will be more difficult for GROUND TECH to replace this traditional technology.

Table 18 – Correlation between bentonite production in each country and potential infrastructure investment (2009) in that country per billion USD

Country	2006 (tonnes)	Correlation between bentonite tonnes / billion USD of potential infrastructure investment 2009	score
France	0	0	50.0
United Kingdom	0	0	50.0
Canada	0	0	50.0
Malaysia	0	0	50.0
Thailand	1,200	74	40.0
Chile	632	78	37.5
Romania	20,299	2,032	35.0
South Africa	32,878	2,252	32.5
Japan	450,000	2,907	30.0
Spain	160,000	3,694	27.5
Germany	363,998	3,837	25.0
Poland	93,880	3,883	22.5
Brazil	419,214	5,508	20.0
Italy	341,099	5,535	17.5
Australia	135,000	5,767	15.0
India	590,000	8,293	12.5
Mexico	435,273	8,770	10.0
United States	4,620,000	10,643	7.5
Morocco	71,544	14,087	5.0
Greece	1,100,000	109,117	2.5

Source: Correlation the author; bentonite production: British Geological Survey (2002-2006)

Bentonite production is not the only indicator regarding the final price; local extracting industry conditions may have a strong influence in the price. For instance, United States and China are big bentonite producers, but the product price in each country has a 3 fold

difference (USA is more expensive). The transportation has also a big impact on price; because bentonite is a heavy product and is used in bigger quantities per kg compared to GROUND TECH's technology (1 ton of Polymud is equivalent to 50 ton of Bentonite).

5.2.2. Environmental concern

To measure the environmental concern of each country it was selected the 2008 Environmental Performance Index from Yale University et al.

The 2008 Environmental Performance Index (EPI) brings a similar datadriven, fact-based empirical approach to environmental protection and global sustainability.

Policymakers in the environmental field have begun to recognize the importance of incorporating analytically rigorous foundations into their decision making. However, while policymakers are calling for increased intellectual rigor in environmental planning, large data gaps and a lack of time-series data still hamper efforts to track many environmental issues, spot emerging problems, assess policy options, and gauge effectiveness. The EPI seeks to fill these gaps and, more broadly, to draw attention to the value of accurate data and sound analysis as the basis for environmental policymaking.

The EPI focuses on two overarching environmental objectives:

- reducing environmental stresses to human health;
- promoting ecosystem vitality and sound natural resource management.

These broad goals also reflect the policy priorities of environmental authorities around the world and the international community's intent in adopting Goal 7 of the Millennium Development Goals (MDGs), to "ensure environmental sustainability." The two overarching objectives are gauged using 25 performance indicators tracked in six well-established policy categories, which are then combined to create a final score.

The environmental concern of each country strongly influences GROUND TECH's business. The main GROUND TECH's competitor bentonite (traditional soil stabilization slurry) is a contaminant. Bentonite is widely used all over the world, but in countries with high environmental concerns, several use restriction applies, for instance the disposal must be done

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in appropriate landfills for contaminant products and it's severe restricted or forbidden in marine works, rivers or environmental classified areas. In these situations, special foundation companies will use casing or GROUND TECH's solution.

In countries with a higher EPI score it will be more likely to have GROUND TECH's solutions acquiring a biggest (and faster) market share.

Table 19 – Environmental Performance Index (2008) scores for each country

Country	EPI	score
France	87.8	50.0
Canada	86.6	47.5
United Kingdom	86.3	45.0
Germany	86.3	42.5
Japan	84.5	40.0
Italy	84.2	37.5
Malaysia	84.0	35.0
Chile	83.4	32.5
Spain	83.1	30.0
Brazil	82.7	27.5
United States	81.0	25.0
Poland	80.5	22.5
Greece	80.2	20.0
Mexico	79.8	17.5
Australia	79.8	15.0
Thailand	79.2	12.5
Morocco	72.1	10.0
Romania	71.9	7.5
South Africa	69.0	5.0
India	60.3	2.5

Source: Yale University, Environmental Performance index 2008

5.3. Fine-grained screening results

We have considered the country selection criteria based on the previous defined fine-grained variables. For that we have used Hollensen's country attractiveness/competitive strength matrix. Below we may find the tables used to do the Hollensen's matrix.

Again, like preliminary screening, each variable was scored from 1 to 20, and the total score of the 5 variables is from 1 to 100. This way each of the five variables has the same weight. Below we may find total score and ranking of country's attractiveness.

Table 20 - Scores result for country attractiveness variable

	Country	Number of potential customers	Tariffs	Corporate taxes	Potential infrastructure investment	Market size years sales forecast	5	Total
Rank			score	score	score	score		score
1	Germany	18	20	6	18	18	18	80
2	United Kingdom	14	20	13	14	14	14	75
3	France	16	20	4	16	16	16	72
4	Spain	11	20	16	11	11	11	69
5	Mexico	12	20	13	12	12	12	69
6	United States	20	5	3	20	20	20	68
7	Italy	13	20	7	13	13	13	66
8	Poland	9	20	18	9	9	9	65
9	Japan	19	6	1	19	19	19	64
10	Brazil	17	1	5	17	17	17	57
11	Canada	10	8	17	10	10	10	55
12	Romania	4	20	20	4	4	4	52
13	Malaysia	5	20	16	5	5	5	51
14	India	15	2	2	15	15	15	49
15	Greece	3	20	14	3	3	3	43
16	Australia	8	4	10	8	8	8	38
17	South Africa	6	7	13	6	6	6	38
18	Chile	2	9	19	2	2	2	34
19	Thailand	7	3	10	7	7	7	34
20	Morocco	1	20	10	1	1	1	33

Source: The author

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In competitive strength we have used just two variables, so we have scored them from 1 to 50, in order to obtain a total competitive strength score from 1 to 100. Each variable has the same weight. Below we may find scores total result for competitive strength variable.

Table 21 – Scores result for competitive strength variable

	Country	Correlation between bentonite production and potential infrastructure investment	Environmental concern	Total
Rank		score	score	score
1	France	50.0	50.0	100
2	United Kingdom	50.0	45.0	95
3	Canada	50.0	47.5	98
4	Malaysia	50.0	35.0	85
5	Japan	30.0	40.0	70
6	Chile	37.5	32.5	70
7	Germany	25.0	42.5	68
8	Spain	27.5	30.0	58
9	Italy	17.5	37.5	55
10	Thailand	40.0	12.5	53
11	Brazil	20.0	27.5	48
12	Poland	22.5	22.5	45
13	Romania	35.0	7.5	43
14	South Africa	32.5	5.0	38
15	United States	7.5	25.0	33
16	Australia	15.0	15.0	30
17	Mexico	10.0	17.5	28
18	Greece	2.5	20.0	23
19	India	12.5	2.5	15
20	Morocco	5.0	10.0	15

Source: The author

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The result from competitive strength and country attractiveness total score may be found in the table below. Using this data we will design the country attractiveness/competitive strength matrix figure (Figure 5).

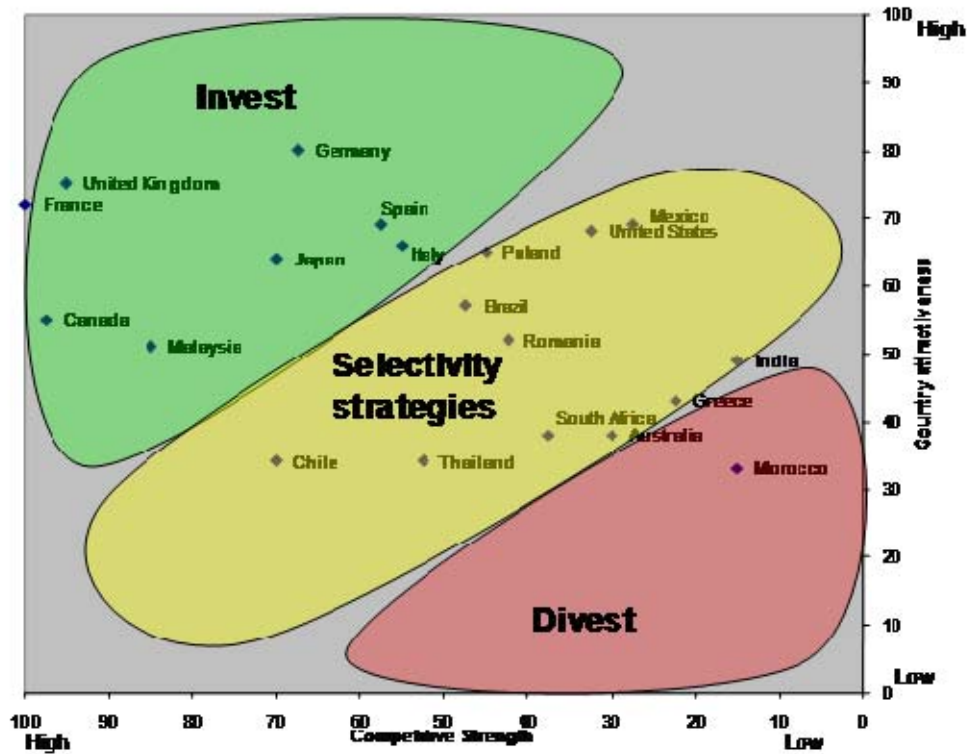
Table 22 – Scores result for the country attractiveness/competitive strength matrix, from Hollensen

country	Competitive strength	Country attractiveness
Germany	68	80
United Kingdom	95	75
France	100	72
United States	33	68
Japan	70	64
Italy	55	66
Spain	58	69
Mexico	28	69
Poland	45	65
Brazil	48	57
Canada	98	55
India	15	49
Malaysia	85	51
Romania	43	52
Australia	30	38
South Africa	38	38
Greece	23	43
Chile	70	34
Thailand	53	34
Morocco	15	33

Source: The author

Table 22 data is represented in the figure 6 below, according to Hollensen matrix.

Figure 6 – Hollensen’s country attractiveness/competitive strength matrix



Source: The author

According to Hollensen matrix, GROUND TECH’s future market will have the following classification:

Primary markets – Invest

These markets will offer the best opportunities for a long-term strategic development. In these markets the company may want to establish a permanent presence and should then for embark on a thorough research and further studies to evaluate opportunities.

Secondary markets – Selectivity strategies

These markets have good opportunities but also some constrains (i.e. USA; high corporate taxes that will reduce the company net income, Brazil; high tariffs that will reduce products gross margin due to customs, India; low environmental concern that will reduce the need for

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GROUND TECH's environmental friendly products). These markets should be handled in a very pragmatic way due to the potential constraints identified. A comprehensive marketing study based on primary data should be done to further evaluate opportunities in secondary markets.

Tertiary markets - Divest

In tertiary markets GROUND TECH's should not invest due to the low attractiveness and competitive strength in those countries, but nevertheless short term and opportunistic initiatives may be acceptable, for instance, a stand alone project like a new airport or bridge.

6. Conclusions and recommendations

In countries to invest (according to Hollensen matrix) GROUND TECH already has offices in Spain and United Kingdom. In the remaining countries more insight should be done using primary data.

To confirm attractiveness, primary data should obtain on:

Potential Customers – In 2 or 3 target countries of primary markets presentation meetings with a selected number of customers to evaluate first impressions regarding GROUND TECH's technology and obtain local market information

Tariffs and Corporate Taxes – An international law office should be hired in order to obtain further information regarding tariffs, taxes, social security and labour law.

Infrastructure investment – In 2 or 3 target countries of primary markets, primary data should be obtained regarding the infrastructure government investment plan for the following years .

GROUND TECH's 5 years sales forecast – Based on primary data, GROUND TECH's 5 years sales forecast should be done

To confirm competitive strength, primary data should obtained on:

Bentonite – Bentonite prices, availability and competitors' service level to potential customer should be researched.

Environmental concern – Environmental practices of potential customers should be studied. It's more important to know about customers practices that than the countries environmental law. For instance in Spain there are very restricted environmental law, but the average Spanish customers practices are not according to the law. On the other hand in Brazil the

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environmental law is not so restricted, but customers concerns and practices are more according to the law.

GROUND TECH's has very good opportunities in advanced and emerging economies countries with strong potential for long term and sustainable growth, such as the countries classified "invest" in Hollensen matrix. Primary data should be obtained in these countries to fully support GROUND TECH's decision.

7. Limitations and suggestions for further studies

One of the limitations of this study is that data used is secondary data. The decision on the market selection should be confirmed using primary data for target countries.

Another limitation is that macro-economic forecast is strongly influenced and changing due to the existing crisis, we believe that countries relative comparisons done are correct even tough with the present crisis. We have experienced significant changes in macro-economic forecast in the recent months, (i.e., IMF has changed significantly countries GDP forecast from 2008 October to 2009 April outlook), so the October 2009 IMF Outlook, should be analyzed before any significant investment.

A significant limitation of this study is not having enough data to forecast the human resources training time in each destination. In some countries there is a lack of qualified human resources to fulfil GROUND TECH's staff needs.

According to our experience in Europe, each trainee needs a minimum of 6 months to have a basic understanding of GROUND TECH's the technology. To reach an advanced level, each technical consultant usually takes 2 to 3 years. The civil engineering human resources availability and skills in each country may have an important impact in the company development in that market.

Infrastructure forecasted investment is based on GDP average, because there is no detailed forecasted data for each country. The average used may not fully represent the forecasted investment for each country and this may have some variation from country to country. Before investment decision, more data should be obtained in order to know with detail the forecasted infrastructure investment in that country.

All the infrastructure forecasts are also strongly influenced by the economic crisis and government stimulus worldwide. In most cases, government are investing more in infrastructure than the average in order to stimulate economic growth.

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The entry mode is out of the scope of this study, but it's also a critical factor for the success of the company in the international market. A detailed study of the most appropriate entry mode should be done after the market selection.

As a final remark, this work maybe adapted and used by other companies of similar industries to support the foreign market selection decision process. This work maybe be considered as a contribution for other researchers to develop foreign market selection models

8. Annexes

8.1. COFACE Country rating methodology

In assessing country risk, most ratings consider a country's overall liquidity and solvency. Coface has always been distinguished for basing risk assessments on its own microeconomic experience. Besides the macrofinancial and macro-political outlooks, payment experience on companies is thus included among the factors considered in determining Coface @ratings for countries and sectors. To improve the accuracy of corporate credit risk assessments, however, Coface has sought to give greater consideration to the business environment. In assessing credit risks it is indeed equally important to know whether a company's accounts faithfully reflect its actual financial situation and whether the legal system can provide fair and efficient recourse in case of payment default. By making a new business climate rating available to everyone from 2008, Coface wishes to share its experience in measuring the true business climate in all countries worldwide.

The new rating is underpinned by the Coface worldwide network and expertise rooted in its experience with risk underwriting, business information, and receivables management.

How Coface developed the new rating

The new rating is intended to assess overall business environment quality in a country. More specifically, it reflects whether corporate financial information is available and reliable, whether the legal system provides fair and efficient creditor protection, and whether a country's institutional framework is good for companies.

Like Country @ratings, the new ratings fall on a scale with seven levels in increasing order of risk where A1 represents least risk:

A1, A2, A3, A4, B, C, D.

The business climate rating comprises two modules:

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1) The core of the new rating rests on the Coface experience with the *quality of information available on companies and the legal protection given to creditors*. The module was developed based on the responses by Coface entities worldwide to a questionnaire covering:

- the quality and availability of financial information (legal framework for financial statement publication, availability, accessibility, and reliability of corporate accounts, and so on)
- creditor protection and debt collection efficiency (rating grids for summary legal procedures, ordinary legal procedure, court costs, bankruptcy procedures, for example)

The above ratings may be compared to other sources like the "**institutional profiles**" **database maintained by the French Ministry of Finance** and validated by an internal committee to ensure homogeneous and consistent responses.

2) The above ratings based on the Coface experience is supplemented *by a module on institutional framework quality*. This module reflects the quality of institutions whose strengths and weaknesses can affect companies. The parameters considered include, for example, public service effectiveness (government, education, health, infrastructures), regulatory quality, respect for the law, and extent of corruption.

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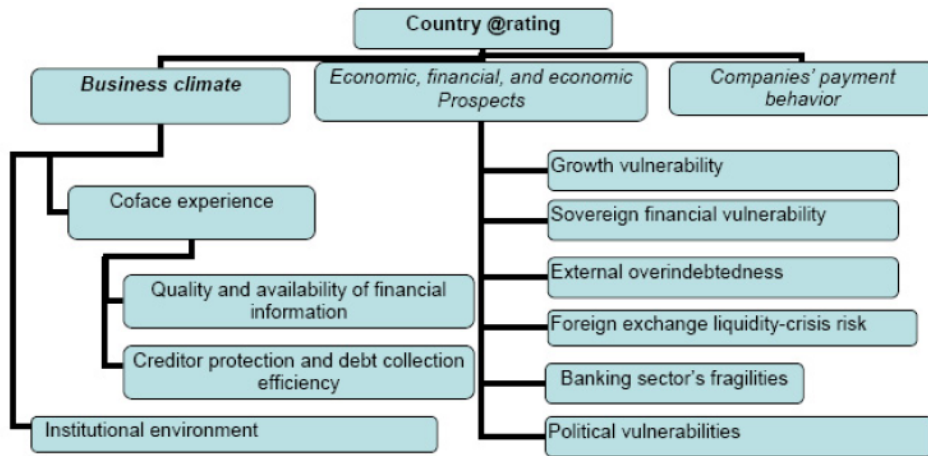
The calculations are based on data from external sources notably including:

- the government effectiveness indicator maintained by the World Bank Institute based on the quality of public services provided and on civil service efficiency
- the HDI, or human development index, a composite statistical index created by the United Nations to rank countries according to their qualitative development based on the average of three quantitative indices reflecting respectively health/life expectancy, knowledge or education level, and standard of living
- an infrastructure quality index (energy, transport, telecommunications) published by the World Economic Forum in its "Global competitiveness report"
- a regulatory quality indicator (World Bank Institute) that reflects the possible existence of policies contrary to the smooth running of a market economy (like prices controls or poor bank oversight), and the apparent influence of local regulations on foreign trade and the business climate.
- a rule of law indicator (World Bank Institute) reflecting the confidence of economic agents in their judicial system, legal system efficiency and transparency.
- an indicator of corruption (World Bank Institute) reflects the apparent extent of corruption, defined as misappropriation of public property for private purposes.

The above indicators and indices are generally based on information derived from company surveys.

The new business climate rating will henceforth be a component of Country @ratings beside macro-economic and political data and the Coface payment experience.

Figure 7 – COFACE Country rating framework



Source: Coface country rating (2008)

Business climate rating definition

The new rating is intended to assess overall business environment quality in a country. More specifically, it reflects whether corporate financial information is available and reliable, whether the legal system provides fair and efficient creditor protection, and whether a country's institutional framework is favourable to intercompany transactions.

A1 - The business environment is very good. Corporate financial information is available and reliable. Debt collection is efficient. Institutional quality is very good. Intercompany transactions run smoothly in environments rated A1.

A2 - The business environment is good. When available, corporate financial information is reliable. Debt collection is reasonably efficient. Institutions generally perform efficiently. Intercompany transactions usually run smoothly in the relatively stable environment rated A2.

A3 - The business environment is relatively good. Although not always available, corporate financial information is usually reliable. Debt collection and the institutional framework may have some shortcomings. Intercompany transactions may run into occasional difficulties in the otherwise secure environments rated A3.

A4 - The business environment is acceptable. Corporate financial information is sometimes neither readily available nor sufficiently reliable. Debt collection is not always efficient and the institutional framework has shortcomings. Intercompany transactions may thus run into appreciable difficulties in the acceptable but occasionally unstable environments rated A4.

B - The business environment is mediocre. The availability and the reliability of corporate financial information vary widely. Debt collection can sometimes be difficult. The institutional framework has a few troublesome weaknesses. Intercompany transactions run appreciable risks in the unstable, largely inefficient environments rated B.

C - The business environment is difficult. Corporate financial information is often unavailable and when available often unreliable. Debt collection is unpredictable. The institutional framework has many troublesome weaknesses. Intercompany transactions run major risks in the difficult environments rated C.

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D - The business environment is very difficult. Corporate financial information is rarely available and when available usually unreliable. The legal system makes debt collection

8.2. 2008 Environmental Performance Index

Fueled by advances in information technologies, data-driven decision making has transformed every corner of society, from business to sports. In the government domain, quantitative performance metrics have reshaped policymaking in economics, health care, and education. The 2008 Environmental Performance Index (EPI) brings a similar fact-based and empirical approach to environmental protection and global sustainability.

While data and analysis of environmental problems have improved in recent years, serious gaps and a lack of time series data still hamper efforts to use quantitative indicators to spot emerging problems, assess policy options, and gauge the effectiveness of government programs. The EPI seeks to fill this gap and to highlight the value of indicator-based environmental decision making.

The EPI focuses on two overarching objectives:

- (1) reducing environmental stresses on human health
- (2) promoting ecosystem vitality and sound natural resource management.

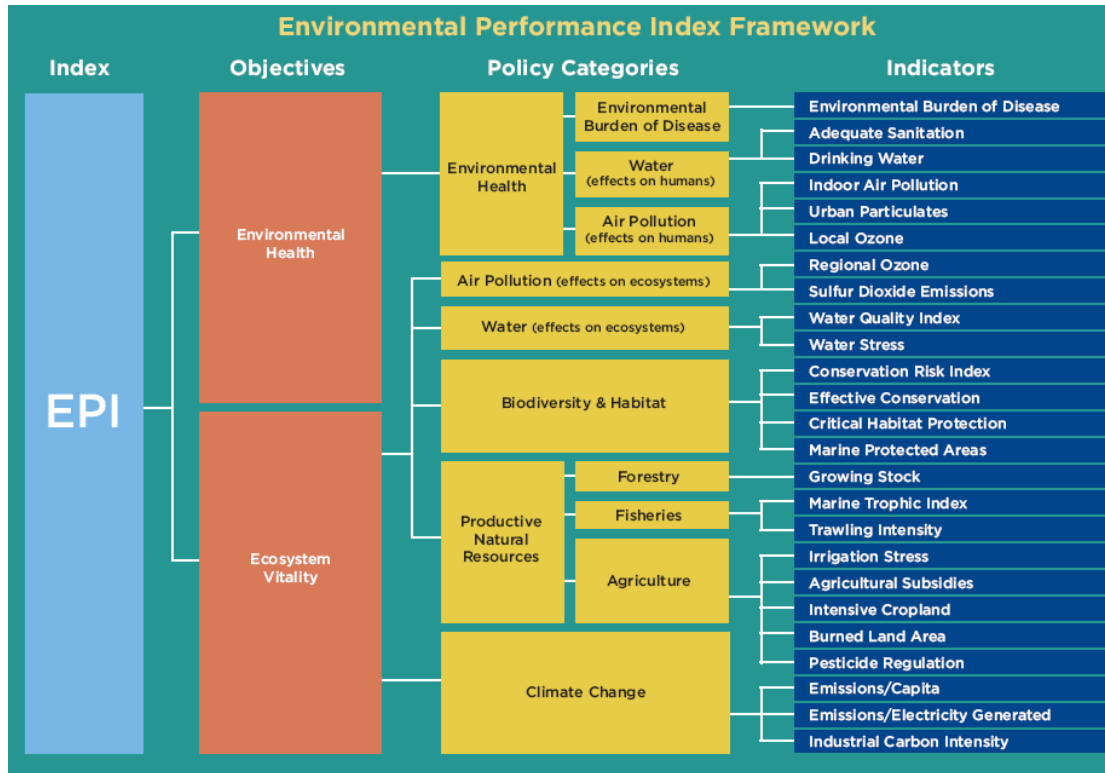
These broad goals reflect the policy priorities of environmental authorities around the world as well as the environmental dimension of the Millennium Development Goals (MDGs). Success in meeting these objectives is gauged using 25 indicators of on-the-ground results tracked in six well-established policy categories.

The 2008 EPI deploys a proximity-to-target methodology that quantitatively measures country-scale performance on a core set of environmental policy goals for which every government can be –and should be–held accountable. By identifying specific targets and measuring the distance between the target and current results, the EPI provides an empirical foundation for policy benchmarking and a context for evaluating national performance.

It must be stressed that the EPI's real value lies not in the numerical rankings but rather from careful analysis of the underlying data and performance metrics. With results displayed by

issue, policy category, peer group, and country, the EPI facilitates the identification of leaders and laggards, highlights best policy practices, and identifies priorities for action. More generally, the EPI provides a powerful tool for steering environmental investments, refining policy choices, and understanding what drives policy outcomes.

Figure 8 – Environmental Performance Index Framework



Source: Yale University, Environmental Performance index 2008

Policy Conclusions

Several policy conclusions emerge from the 2008 Environmental Performance Index and analysis of the underlying indicators:

- Environmental decision making can be made more data-driven and rigorous. Notwithstanding serious data gaps and methodological limitations, the EPI demonstrates that environmental results can be tracked, quantitatively facilitating policy analysis.

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- Environmental challenges come in many forms. Some issues arise from resource consumption and pollution associated with economic activity. In this regard, developed countries or nations that are industrializing face the most severe harms. Other threats derive from a lack of basic environmental amenities. With regard to these issues, developed countries have greater capacity to make the needed investments while developing nations face significant funding constraints.
- Wealth correlates highly with EPI scores. But at every level of development, some countries achieve results that exceed their income-group peers. Further analysis of these peer group leaders suggests that good governance contributes to environmental outcomes.
- Top-ranked countries have invested in water and air pollution control and other elements of environmental infrastructure and have adopted policy measures to mitigate the harms caused by economic activities. Low-ranked countries generally have not made investment in environmental public health and have weak policy regimes.
- The EPI utilizes the best available global datasets on environmental performance, but the overall data quality and availability is alarmingly poor. The absence of broadly-collected and methodologically-consistent indicators for even the most basic metrics, such as water quality—and the complete lack of time series data for most countries—hampers efforts to shift pollution control and natural resource management onto more empirical foundations.
- To address these gaps, policymakers should (1) invest in environmental data monitoring, indicators, and reporting, (2) set clear policy targets on the full range of important issues, and (3) under gird environmental protection efforts with performance metrics at the global, regional, national, state/provincial, local, and corporate scales.

The 2008 EPI represents a “work in progress” intended to stimulate debate about appropriate metrics and methodologies for evaluating environmental performance. As existing conceptual, methodological and data challenges are overcome, better metrics will emerge—and a more refined EPI will be possible.

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