ABSTRACT

This study aims at offering a perspective on how exploitation of mineral resources may lead to development in Greenland. The variable that has been considered is investment in human capital, which means a set of knowledge, skills and competences that are useful for economic activity. Both at individual and at national level, it is widely recognized that knowledge and skills are fundamental for success. The research makes use of a deductive approach and interpretative and explanatory inferences; whereas the aim of the study is mainly predictive. Furthermore, qualitative data have been collected and analysed through a comparative case-oriented research design. The act of increasing somebody's skills, knowledge and competences is the result of investment in human capital. Scholars agree on the positive impact of human capital on development, even though they explain the process through different models. A case study on three specific mining areas in resource-rich countries has been chosen to facilitate the understanding of how mining affects development. The cases include the Northwest Territories (Canada), Western Cape (Australia) and Alaska (U.S.A.). After analysing some studies carried out in those areas, a certain relationship between mineral resource exploitation, human capital and development emerges. The first consideration is that in the three cases, human capital is given prominence, even though the term is never directly mentioned. While pursuing the aim of economic development, the stakeholders engage in practices that include investment in human capital. The government, local population and mining corporations share the same environment and a common goal, even though they have different capabilities and means for attaining it. Moreover, it is not possible for them to act independently; hence developing a structured cooperation can be the best way of exploiting everyone's capacity and obtaining better results. Thirdly, the mining companies strategically engage in investment in human capital as part of their CSR strategy, since they have realized the importance of behaving as social responsible actors. Fourth, some activities are advisable in order to make sure that the development brought about by mining extraction will be sustainable after the closure of the mines, for example the private sector should develop independently from the mines. These findings should be taken into consideration in order to plan proper investment in human capital in Greenland taking advantage of the possibilities offered by natural resource exploitation.

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1. INTRODUCTION

Natural resources are a great asset for a country's economy, even though – as many studies have already shown – a tricky one, in particular for developing countries. In the period between 1960 and 1990, the GDP of resource-rich developing countries has grown on average at a two-three times slower pace compared to resource-poor countries (Auty, 2004, p. 3). The literature is rich in explanations for the so-called "natural resource curse". For example, according to the Dutch disease theory, natural resources cause the national currency to become stronger and consequently non-resource sectors to be less competitive (Van der Ploeg, 2011, p. 375). Other scholars suggest that owing to resource abundance, the quality of institutions suffers; for example, corruption spreads out, the public sectors expands and policy makers resist modernization and use the generated wealth to remain in power. There are also many other internal and exogenous theories belonging to the field of political science and economics that have been able to explain some countries' economic underperformance (Van der Ploeg, 2011, p. 381).

On the other hand, some states have been able to avoid the resource curse and create economic growth and development. A well-known example thereof is Botswana, a diamond rich country that has been able to exploit its resources well and move from a poor to middle-income economy since its independence from Great Britain (Collier, 2007, p. 50). These positive models provide a hope for developing countries that have natural resources as their main and only option for growth. This is the case in Greenland, which now relies on its fishing sector, but is looking forward to exploiting its underground minerals. The country is currently at the crossroads: it is willing to speed up the process of independence from Denmark and it needs reforms in order to make its economy self-sustainable without the Danish support. For this reason, the Greenlandic political class and civil society are planning to boost the economy with the extraction of mineral resources. A recent report published jointly by the Universities of Copenhagen and Greenland has described different possible scenario for Greenland's future. The possibilities that should be avoided are the following. The first one is maintaining the status quo because it will lead to a budget deficit due to increased public expenditure, hence making independence and development impossible (The Committee, 2014, p. 17). The other one is the exploitation of minerals by means of short-sighted policies. Ore extraction may lead to a balanced economy within a short period, however the mines would be exhausted after a few decades. In this scenario, Greenland would end up with fewer assets and the same budget problems after the end of the extraction period. For this reason, Greenland should plan the mineral exploitation as part of a long-term solution to economic sustainability (The Committee, 2014, p. 19). In this regards, the acquisition of human capital plays a fundamental role for the local communities. Their chances for a sustainable development rely on their ability to create value out of the natural resource extraction by attainment and circulation of knowledge.

This project aims at unveiling the way in which Greenland can pursue development, while exploiting its mineral resources. Since much as been already said about the economic and financial relations between resources and development, here the focus will be on human capital development in connection with resource exploitation with the aim of creating sustainable growth. The lessons about how Greenland should finalize it will be taken from the experience of other countries who have already dealt with the same situation. The issue is very current since it has recently been the source of much debate both in Greenland and in Denmark, as well as attracting the interest of international investors. The study also attempts to cover a neglected aspect of the literature on Greenlandic mineral resources by focusing on the related human development. As a student of Development and International Relations studies, I find it particularly challenging to discuss the issue of development and natural resources in relation to a developing country,

which is not situated in the South, as it is most often the case in this discipline. Nevertheless, the patterns can be similar and much can be learned and applied to the Arctic country case.

1.1. Problem formulation

The following problem formulation will be addressed throughout the project with the aim of exposing the issue, analysing and providing an answer:

> *To what extent and how can investment in human capital – in a context of mineral resource exploitation – boost development in Greenland? Why should this approach be taken into consideration?*

As already clarified before, the scope of the research question should be reduced to include only the aspects of the future impact of mineral resource exploitation that can contribute to increase human capital. As a result, there will be no in depth research on how and when the mineral resources will be extracted, the process of independence from Denmark or the economic and fiscal policies that the Self-Government should pursue.

In order to better understand the issue at stake, clarify the research question and address it properly, further questions will now be raised, which will be answered in the course of the project. First of all, questions concerning the methodology of the project must be addressed. Which methods better suit the issue? Which kind of data will be used? How and why will they be collected and collated? Which type of inference will be made and how will the analysis be structured? Which is the aim of the project and how will it be structured? Moreover, all the reasons that motivate the decisions concerning methodology need to be explained. What are their limitations? These and further questions will be discussed in the Methodology section.

The next questions relate to the problem formulation and aim at clarifying it: which natural resources are we talking about? Is their exploitation already started or is it bound to happen in the near future? Is there a quantity enough to have a relevant impact on the development of Greenland? What is the level of development in the country? What are the obstacles to development, if any? Which actors are involved in the issue? Is it possible to focus on the Greenlandic ones neglecting foreign intervention? An answer to all these questions can be found in the Background information section.

The following inquiry will be about defining how to approach the issue; in particular, which kind of theory will be more helpful in shedding light on the problem. How is the theoretical debate structured? What is its relationship with development and natural resources? Moreover, how will the theory be applied to the Greenlandic case? These topics will be discussed in the theory section first and then in the analysis and discussion part.

During the empirical analysis section the problem formulation will be confronted directly together with the aid of a few sub-questions. Which case studies have been chosen? Can the human capital theory contribute to explain the behaviour of the stakeholders? What can we deduct? In the second part of the analysis a discussion will be carried out, in which the results from the empirical section will be confronted with the Greenlandic case with the aim of providing suggestions for policies that create social value. What will be the result of the comparison? What can we infer from the comparison of the analysis section? What may be the impact of resource exploitation in Greenland? Is it possible to have sustainable resource-based development in the country? Can we deduct a general pattern on the relationship between natural resource exploitation and development in developing countries?

After clarifying the research question and sub-questions, it is fundamental to establish which research design and methodology best fit it. Information about them is provided in the following section.

2. METHODOLOGY

This chapter contains all the relevant methodological background for better understanding this project. Hence, it includes both research methods, i.e. "the set of techniques recognised by most social scientists as being appropriate for the creation, collection, coding, organization and analysis of data", and the methodological aspect, i.e. the process of interpreting data and arguing in defense of it (Bellamy et al., 2012, p. 9-12). The information has been divided into four sections: research approach, type of data, type of analysis and final project structure.

2.1. Research approach

When planning the research design, it is important to choose first if a deductive or inductive approach better addresses the research question. Afterwards we must decide the scope of the study, which means whether we want to produce a description, interpretation or an explanation, and hence the type of inferences that we will be using. This can be deducted from the kind of question that composes the problem formulation. Once these basic decisions are made, it is possible to select the type of data that will be required and the way in which they will be analysed (Bellamy & 6, 2012, p. 82).

- **Deductive approach**

The approach that will be used to address the previously described research question is deductive. The term implies that the research will set off with a hypothesis formulated on the basis of a theory, that will be confirmed or discredited in the course of the analysis by the collected data. This process is also called "theory-then-research method" or "hypothesis testing approach" (Thyer, 2010, p. 33). In this particular case, the starting point is the human capital theory, whose description and explanation can be found in the theoretical chapter of this project. From it, I have derived the following hypothesis: investment in human capital can, in certain cases, be a strategy for the development of a country. Consequently, I have collected data on resource-rich countries that can help me to conclude whether the hypothesis is true of false. In case it is proved true, I will discuss whether how those countries have invested in human capital and whether their positive experience is applicable to the Greenlandic case. A deductive approach has been preferred because much literature already exists on the correlation between human capital and development, which could not be ignored. Thus, it has been used to formulate the hypothesis and the knowledge created by this project will build on it. Scholars have different opinions on the relationship between human capital, development and natural resources; hence the conclusions of this research will possibly confirm some of those or create a new point of view. It must be acknowledged that the deductive approach has its limitations, indeed the scope of the research is limited to verifying the hypothesis and many other relevant factors are excluded (Bellamy & 6, 2012, p. 77). For example, the development of Greenland by means of resource exploitation can be boosted by sustainable fiscal policies, social capital or other factors. It has been a conscious choice to limit the research to the impact of human capital in order to analyse this variable more in depth, even though I am aware that it is not sufficient to provide an exhaustive picture of Greenland's possibilities for development.

- **Type of inferences**

According to Bellamy et al. (2012)

> *"Making warranted inferences is the whole point and the only point of doing social research. The contribution to knowledge of any research consists in the inferences that can be made from it. Inferences are the principal products; they provide support for findings and they are what makes findings into findings rather than speculations or raw data."*

Thus, inferences - defined as "the process of making claims about one set of phenomena that cannot be directly observed" - are fundamental for any research in social sciences. There are three main kinds of inferences: interpretative, descriptive and explanatory depending on their purpose (Bellamy & 6, 2012, p. 13). During the course of this project, interpretative and explanatory inferences are used. Interpretation is required while handling the concept of human capital in order to find out which practises constitute an investment in it. Moreover, to determine whether the resource-abundant countries described in the empirical section are eligible for a comparison with Greenland involves interpretative inferences because similar features should emerge. Besides, historical interpretation is needed for the whole process of deducing a common pattern from past country-specific practises of investing in human capital in order to provide suggestions for policies in Greenland. Finally, thanks to explanatory inference the relationship between investment in human capital and development in resource-dependent states will be clarified.

As far as the scope of the research is concerned, it is possible to say that the project aims at elaborating predictive propositions, i.e. explain something about future state of affairs. In order to make predictions in social science "one stipulates a set of circumstances – a predictor – that is held to correlate with the outcome" (Gerring, 2001, p. 125). The desired prediction is about how the government of Greenland should act in order to obtain development out of mineral resource exploitation with regards to investment in human capital. The predictor will be deduced from past policies carried out by other countries, which had to cope with minerals extraction. The conclusions of this research could be considered as policy suggestions for Greenland, even though I am aware that the prediction is not 100% certain. The policies that were pursued by other countries in order to create development could be inapplicable in Greenland because of other variables that have not been considered here. In any case, it is still relevant to try to learn lessons from past experiences.

2.2. Type of data

A mainly qualitative research will be carried out, which means that the data will be analysed to uncover their meaning and that the research aims at understanding and interpreting the experience of resource- abundant countries so as to extrapolate suggestions for the Government of Greenland. Hence, complex rich data are employed, in particular secondary data such as existing research literature on the topic, texts from interviews, handbooks and news as well as unstructured interviews. The role of the researcher is to acknowledge the subjectivity of the data and provide an interpretation by immersing into the literature (Outhwaite & Turner, 2007, p. 580).

The main steps of handling data have been the following:

- *"Data collection. Procedures for capturing what is important for answering the research question from the data that have been created. They may involve scanning text for particular themes, codes or content or undertaking counts or more advanced quantitative procedures (…).*

- *Data organization. Procedures for laying out whole sets or series of data, that have either been created, collected and coded by the researcher for the purpose of the project, or been taken from other sources (…).*

- *Data analysis. Procedures for manipulating data so that the research question can be answered, usually by identifying important patterns." (Bellamy & 6, 2012, p. 10)*

Once the initial problem formulation was settled, the step of data collection could start. At the beginning, it involved the search for relevant data in library archives, databases, Internet websites and search for possible interviewees. Afterwards, the data have been scanned with the aim of uncovering information related to the issues of Greenland natural resources, the country's political, social and economic features. At this point it emerged that the original problem formulation, which inquired about the possible future impact of natural resources on the development of Greenland, was too broad for the scope of this project and that a few scholars had already made predictions to answer it. Hence, the angle of the contribution of investment in human capital was introduced in the research question because there was substantial evidence that the theory could be applied to the research topic. Then, further data were collected and scanned about other resource-rich countries and their policies to invest in education, training and other knowledge creation methods. The relevance of the collected data was evaluated in terms of its pertinence to the research question and the other sub-questions, whereas the authors of the secondary data were investigated so as to understand their subjective point of view.

The two main problems that hindered the data collection were the language and the status of Greenland. Indeed, it has been hard to find related literature in English because most of it is in Greenlandic or Danish. The country does not attract much international attention for issues of local development, about which the only active stakeholders are Greenlanders and Danes. Owing to the fact that Greenland is not an independent state, but a remote member of the Kingdom of Denmark, there is not much data on it and it does not enter international classifications such as the Human Development Index or the Corruption Perception Index. All the above reasons have caused a lack of extensive data to be collected for this project. A limitation of the data collection is that mainly secondary sources were used, since it was not possible to carry out structured interviews as initially planned. Hence, the project relies on already existing literature and their subjectivity was taken into consideration. To increase the reliability of the research, short unstructured interviews were carried out and were useful in confirming or confuting the other data. Moreover, most of the information present in this project was confirmed by at least two different sources.

After the collection, I was engaged in the organization of the data. During this phase, I divided all the information according to their topic and the specific chapter of the project that they would belong. Besides, I summarized them providing reference to their source. Finally, the information was analysed by gathering all the similar data together and confronting it with elements of the human capital theory and comparing the experience of different countries. The aim of this step was to obtain knowledge to be used to answer the problem formulation. Further information about the analysis method is available in the following paragraph.

2.3. Type of analysis

The analysis is carried out using a comparative case-oriented research design.

> *"This design aims to make comparisons between a relatively small number of cases (small-N research). It compares the behaviour of theoretically important variables across cases, but also uses within-case analysis to explore how these similarities and differences relate to the specific context and dynamics of each case" (Bellamy & 6, 2012, p. 80).*

In line with a good case-oriented research design, a small number of cases has been chosen out of all the revised literature. They are the Northwest Territories in Canada, Western Cape in Australia and Alaska in the

United States. These cases were selected because they provide examples of how remote communities are affected by large-scale mining. It emerges also how developed and prosperous countries manage the interactions with mining companies and local communities and which kind of problems can emerge. Moreover, two of case are located in Arctic regions; hence their environmental features are very similar to the Greenlandic one. Given that the case-studies are English-speaking countries, more extensive literature was available about them in English, and it was possible to analyse original texts produced by local sources. These three cases are described in the first part of the analytical chapter making use of studies and other kind of existing literature. Afterwards the theory of human capital is used as a tool to uncover what kind of investment in human capital takes place in the cases if any, as well as how and why it does. During this phase, similarities and differences among the cases emerge and are analysed. In the final part of the analysis, the findings from the three cases are applied to the Greenlandic one in a systematic way in order to understand to what extent and how investment in human capital can represent a way towards development and why it should be advisable.

As it is deductible, the analysis section contains a mixture of between-cases and within-case analysis: to begin with, differences and similarities among elements are analysed in each case study, as it is typical for within-cases analysis; afterwards those elements are compared across different cases. This approach has been chosen because its results are considered to be more comprehensive than a simple within-case analysis of the Greenlandic country, even though that is still the main case under consideration. A possible limitation of this approach is that a within-case analysis would have been more specific on the features of Greenland, even though it would have lacked the perspective of other countries. On the other hand, more cases could have been taken into consideration so that differences and similarities could emerge with greater precision. However, I have opted for three cases in order to avoid an overload of information and be able to analyse more in depth the data.

2.4. Final project structure

In this section, I explain how the final project is structured in order to clarify the links between the different parts.

The project starts with an introduction, which has the aim of introducing the reader to the broad topic of natural resources and development and of collocating the issue of Greenland within the debate. The possible scenarios for the future of Greenland serve to show the relevance of finding a correct way of dealing with natural resources in order to create development. The research question and the sub-questions are relevant because can be collocated within this current debate. The answer to the research question can be found in the conclusion section; however, it is taken into consideration throughout the whole project.

Indeed, the background information section has the purpose of providing the reader with all the relevant information for properly understanding the issue at stake in the problem formulation. First, it offers an overview about natural resources in Greenland and afterwards about the level of development of the country. The latter can be deduced from the information about Greenland's economy, politics and society.

The next section clarifies the theoretical framework, in which the analysis will take place. Since human capital is one of the main variables included in the problem formulation, the human capital theory has been considered relevant for this project. I have extensively explained it by describing the concept of human capital and the theory behind it, moreover I have offered an overview on the debate about human capital and development as well as human capital and natural resources. Thus, the general theory has been compared to the relevant variables for this project, so as to provide a comprehensive view. Finally, I have discussed its applicability to the case study.

The theoretical tool is applied in the analysis section in order to find an answer to the research question. The first part of the analysis describes the three case studies; they are analysed in the second part to uncover the patterns of human capital investment and its importance. In the third part the main case - Greenland – is discussed using the findings of the previous section and the information from the background section. The result of the analysis is summarized in the conclusion and used to answer the research question.

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To conclude, the main characteristics of the research carried out for this project are the following. The research approach was deductive; hence a hypothesis was formulated at the beginning and addresses throughout the project. During the process, the data was object of interpretation and explanation, while the final aim was predictive, in the sense that it wanted to suggest possible policies to create development in Greenland's future. Qualitative data have been collected, organized and analysed in order to answer the research question. The analysis followed a comparative case-oriented research design, with the use of three case studies, which have been compared to the main case of Greenland. Hence, there is a mixture of between-cases and within-case analysis. Finally, the structure of the final project contains the following sections: introduction with problem formulation, methodology, background information, theory section, analysis and conclusion.

3. BACKGROUND INFORMATION

In this section, background information will be provided on the two main elements of the research question, which are natural resources and development in Greenland. They will be useful as basic knowledge to understand better the problem formulation itself and how an answer will be elaborated.

3.1. Natural resources in Greenland

The issue of natural resources - in particular hard minerals and hydrocarbons - is very current and relevant in the Greenlandic debate, which makes it worth analysing in this project. What follows is a description of which kind of natural resources can be found in Greenland, and a short historical review of their past, present and prospective exploration and exploitation.

- **Hard minerals**

As far as hard minerals are concerned, cryolite mining sustained the Greenlandic economy for over a century from 1854 until 1987, during which about 3.7 million tons were found at Ivittuut (Auchet, 2011). During the first half of the 20th century, coal was also mined in relevant amounts. Between 1973 and 1990 the most significant extraction place was the Maarmorilik mine, where the produced ore included silver, zinc and lead for a total of 11.3 million tons (GEUS & MIMR, 2013). Since 1990 there has been a period of inactivity of mines for the first time, which is the reason why the government engaged in marketing campaigns to encourage foreign investment. The new Mineral Resources Act of 1991 changed previous laws concerning exploration and exploitation of minerals, which resulted in greater interest from the foreign mining world (Greenland Self-Government, 2009, p. 21). Until 1998, when the administration of minerals became a responsibility of the Government of Greenland, the Danish authorities had always been in charge of it and controlled the revenues. However, mining is not under state monopoly since 1900, thus a few private ventures have engaged in mineral exploration and mining during the last century (GEUS & MIMR, 2013). Expenses in foreign companies' exploration have increased since 2002, reaching a record in 2012 with about half a million DKK. Moreover, the quantity of applications for mineral licenses has also raised during the last decade. The Government of Greenland welcomes it as a sign of increased interest in local ores (Government of Greenland, 2013, p. 8). Indeed, there are a few projects on potential mining activities, the most impressive being the Iron project by London Mining Greenland which forecasts a production of 15 million tons of ore concentrate yearly and to provide employment to almost 4000 people during production and construction phases (Government of Greenland, 2013, p. 12). It has been estimated that hard minerals' extraction can be active in 5 – 10 years (The Committee, 2014, p. 11).

Of particular interest is the debate on uranium. Back in 1985 Denmark declared to be against the use of atomic energy and consequently decided to ban the exportation of uranium from Greenland (Rendtorff, 2013, p. 3). However, the Government of Greenland has recently proposed the abolition of this zero-tolerance policy and approved to issue exploring licenses in order to do further research and understand the risks for the environment and health involved in mining minerals with radioactive elements. The Australian company Greenland Minerals and Energy is ready to invest in a rare earth minerals and uranium exploration project, in case the zero-tolerance policy is abolished (Government of Greenland, 2013, p. 11).

- **Oil and gas**

Hydrocarbons are at an earlier stage in Greenland compared to minerals, indeed they have not been extracted yet. During the 1970s, there was the first drilling, which was concluded without any significant findings. In the following decades, the Government of Greenland has carried out several marketing initiatives to attract exploration companies (Auchet, 2011, p. 963). In this direction falls the KANUMAS project, which started in 1989 as a seismic program with the aim of gaining relevant data on hydrocarbons offshore North West and North East Greenland. The companies constituting the so-called KANUMAS group are Statoil, BP, Texaco, Shell, Exxon, Japan National Oil Corporation and NUNAOIL; they obtained a prospecting license, which means a preferential status in the licensing rounds for exploration and exploitation of oil and gas in Greenland. During the first decade of the 21th century, much seismic data have been collected and 20 exploration and exploitation licenses have been issued (Government of Greenland, 2013, p. 13). In 2010 Cairn Energy - a British oil company - found hydrocarbons for the first time during its exploratory drilling (EY, 2013, p. 9). One year after the discovery, the licensing round for exploration in the Greenland Sea started, which is still ongoing (Casey, 2014).

Some problems are associated with natural resource exploitation, which can make it a high-cost and high-risk activity and can deeply influence the future scenario. First of them, the challenging ice conditions raise the costs of exploration activities. Indeed, the interested areas are covered with ice for most of the year, thus requiring the expensive intervention of icebreakers (Casey, 2014). In general, climate is harsh and characterized by long, cold and dark winters. Moreover, there is a lack of infrastructure and oil and gas support in those remote areas. Thirdly, the fiscal policy of Greenland is not clear at the moment. The indicative level of fiscal burden seems to be more favourable compared to the other Arctic countries; however until the companies are certain about taxation, they will not start with their operations (EY, 2013, p. 14).

On the other hand, there are also encouraging signs for the minerals and hydrocarbons industry. In 2008 a group of scientists from the U.S. Geological Survey accomplished an appraisal with estimates of the presence of undiscovered oil and gas in the Arctic region. From the research, it has emerged that East Greenland is the fourth Arctic region in terms of undiscovered oil and oil-equivalent natural gas, with a total of 31,387 million barrels (CARA team, 2008, p. 4). The news has stimulated oil and gas companies to acquire exploring licences in Greenland; indeed, if the drillings prove that there are commercial quantities of natural resources, the high costs will be warranted. The Greenlandic government is strongly intentioned to attract and support the sector, thus it will probably set favourable fiscal conditions for the companies. Lastly, global warming is causing the ice-break to come earlier, a later freeze-up and consequently a longer ice-free period and thinner ice layers (Skourup, 2011, p. 11), all of which can facilitate explorations. Taking all these aspects into account, estimates suggest that gas exploitation is not going to be financially feasible in the near future, while for oil the waiting time is about 20 – 50 years (The Committee, 2014, p. 11).

The impact of these new natural resources - minerals, oil and gas - is analysed in the course of the project with a particular focus on hard minerals, whose exploitation will possibly happen earlier in time. Even though there are also other natural resources, which have already been exploited in Greenland - such as fresh water, fish, shellfish and other hunted animals – the focus of this project is on non-renewable resources.

3.2. Development in Greenland

The level of development of a nation can be deducted from three main elements: its economy, its politics and government and its society. These are also the most influential aspects that shape the process of growth and development of a country. The economic aspect is surely the most straightforward, since it is widely believed that “economic development involves the process through which a country achieves economic

growth in addition to the structural transformation of its economy" (Ezeala-Harrison, 1996, p. 10), thus development is strictly interwoven with economic growth. As far as the social aspect of development is concerned, the World Bank itself attaches great importance to it underlining "the need to put people first", which means to let the people lead and inspire the development process. Moreover, facing social problems is essential for achieving development (World Bank, 2014). Lastly, the link between politics and development can be explained in the sense that a state's government provides the necessary framework for development. The government is indeed one of the main actors involved in development policies and is responsible for addressing the problems that prevent it (Przeworski & al., 2001, p. 170). After clarifying the link between development and economy, government and society, what will follow is an outlook of the three aspects in Greenland.

- **The economy**

Greenland has a GDP of DKK 13.1 billion, of which DKK 3.5 billion are made up of the block grant that Greenland receives annually from Denmark. The Economic Council has concluded that the current welfare and fiscal system is not sustainable in the long run, if the sources of revenue remain the same, since expenses are likely to increase due to an aging population. Hence, some changes and reforms are necessary in order to avoid the budget deficit (Economic Council, 2013, p. 18).

From the economic point of view, Greenland relies mainly on its fishing industry. Shrimps and Greenland halibut are the most exported resources, their landings being 78,600 tonnes in 2013 out of 104,000 total for fish and shellfish (Michelsen, 2013, p. 12). Indeed, fish and fish related products account for about 90% of the total exports (Vilhjàlmsson, 2005, p. 724). The government of Greenland has legislative power over fisheries; it has established quotas and regulations to control the catches of prawns and halibut in order to be biologically sustainable. The two biggest companies that have monopoly over the sector are the state-owned Royal Greenland Ltd and the private Polar Seafood Ltd (Greenland Self-Government, 2014). Although Greenland as a whole depends heavily on fisheries, this is more evident in the small communities scattered along the coasts. About 20% of the population live in small villages of maximum 150 people, who depend almost only on fishing and hunting marine beings (Vilhjàlmsson, 2005, p. 725). During the last few years there has been rising prices for exported fish and shellfish, which has been positive for the Greenlandic economy. However, since the prices are influenced by the international market and the fishing industry is so important for Greenland, its economy is fragile and unstable (Economic Council, 2013, p. 8).

The resource exploitation sector has already been described in the previous paragraph. In the last few years there have been expenses for oil exploration, seismic studies and an increase on exploration licenses for minerals. Even though those figures do not have a great impact on the Greenlandic economy now, they will probably be more relevant in the future (Economic Council, 2013, p. 10). Moreover, the government has built hydropower plants in order to exploit its potential and create electricity while depending less on imported oil (Greenland Self-Government, 2014).

Hunting - especially of seals and whales - was a means of subsistence for Greenlanders until a century ago. Seal fur has traditionally been used for clothes and its meat is regularly eaten. Now the trends have changed and only about 10% of the population is employed in the sector, with seals and large whales still being the main target. Whereas hunting is declining, tourism is a relatively new industry. The Government has promoted the country's attractions during the last 20 years and wishes to make it into a lucrative business (Greenland Self-Government, 2014).

The public sector is the primary source of employment, providing work to 11,480 Greenlanders in 2011 out of a workforce of 26,791 people (Michelsen, 2013). The figure may seem high compared to the OECD

countries, however it is explainable by the fact that the private sector is very small and unable to carry out many economic activities. Thus, in the course of time, the state has substituted the private initiative so that now most businesses are state-owned (Winther, 2007, p. 5).

- **The government and politics**

Greenland is a parliamentary democracy constituted of a multiparty system, in which the parliament elects a Premier, who appoints a Cabinet of Ministers. Since 2009, the country has self-government, which means further independence from Denmark and that the international law now recognizes the right of self-determination for its people (Auchet, 2011, p. 961). The Government is responsible for daily internal issues and it must comply with the supervision of the Parliament and Cabinet, the Danish Constitution, the Act on Greenland Self Government and international agreements (Naalakkersuisut, 2014). Areas such as health, environment, fishing industry, climate, education and environment are state's responsibility, while the Danish Government is still in charge of the financial, civil right law, justice, security and foreign affairs ministries, even though Greenland can take part in negotiations with other states and international organizations (Greenland Self-Government, 2014). Moreover, the Self-Government has control over minerals and the possible revenues obtained from them. The present situation represents a step in the process of independence, whose previous phase was the 30-year-long Home Rule regime starting in 1979, when Greenland obtained executive and legislative authority over internal issues. The country was a Danish colony until 1953, year in which it became a province part of the Danish kingdom (Auchet, 2011, p. 960).

Greenland is a newborn democracy; indeed it has its own government since 2009. However, its first three political parties – Siumut (Forward), Inuit Ataqatigiit (Unified Inuit) and Atassut (Unity) - were set up in the 1970's. The Siumut Party is of social-democratic inspiration and has been leading internal politics for 30 years. Nevertheless, during that time its members allegedly misappropriated public funds, wasted them and behaved in a nepotistic way. As a result, they lost many votes in the 2009 elections, which were won by Inuit Ataqatigiit, a left-wing party pushing for independence (Auchet, 2011, p. 962). However, Siumut was able to obtain the majority of votes in the 2013 elections by promising to lift the ban on uranium extraction in order to ease the rare earths collection and to charge higher royalties to foreign companies (The Economist, 2013). The results of the elections have been peacefully accepted, which is a good sign for the legitimacy of the democratic system.

Since Greenland is not an independent state, it does not appear on the Human Development and Corruption Perception Index, to name but a few. However, the Nordic Consulting Group has conducted a research using the same methods as Transparency International to uncover the degree to which the Greenlandic system can resist corruption, whose results are worth mentioning. They have concluded that proper bribery and fraud are not a problem in Greenland; however, there is a tendency to nepotism, do favours to friends and accept different kinds of gifts. Moreover, politicians are easily accessible for a talk and the society is transparent: everybody knows what the others are doing since the population is so restricted (NCG, 2012, p. 4). Nevertheless, transparency lacks concerning the expenses incurred by the members of the Government. Another negative element is the political culture of silence; it is hard to create a dynamic debate among the parties. Moreover, the common people are reluctant to speak up and criticize the government and there are not many civil society organizations (NCG, 2012, p. 10). The result is that there is almost no counterweight to the strong public sector. The latter suffers from lack of human and financial resources, which has a great impact on the quality of its actions. For example, the judges' training is poor; there is no fixed legal code and legislations are ambiguous and incoherent, which makes them open to different interpretations. Consequently, the Nordic Consulting Group concluded that the public sector is largely vulnerable to corruption (NCG, 2012, pp. 48-50).

- **The society**

Greenland is made up of a small population of 56,282 people (Statistics Greenland, 2014), divided into 17 towns and 60 villages located along the 4,000 km long coast. These locations are not connected by road networks, they are only accessible via plane or boat and are situated in the South and Central-West areas (Niclasen & Mulvad, 2010, p. 438). There is an on-going trend of migration from settlements and small towns to larger towns, especially among the youth, while the elderly prefer to remain in their place of origin (Economic Council, 2013, pp. 28-30). Indeed, the quality of life is better in large towns, where there are more possibilities for employment and higher education, higher wages and more cultural and shopping centers (Niclasen & Mulvad, 2010, p. 438). 7,378 people moved to another place within Greenland in 2012. Moreover, emigration is another common phenomenon, 91% of which has been to Denmark in the period 1993-2012. Many Greenlanders move to Denmark to pursue their education and remain there to look for a job due to favourable conditions. This creates the problem of brain-drain, which also forces companies and the public sector to hire foreign high-skilled labourers (Economic Council, 2013, pp. 30,34). Another trend is aging of the population, which will cause an increase in public expenditure (Economic Council, 2013, p. 17).

Two main ethnic groups inhabit Greenland: Inuit and Europeans (mainly Dane). About 90% of the population are Inuit descendent of the Thule, a Eskimo people that migrated from Canada in 1200 (Hamilton & Rasmussen, 2010, p. 45). Since they live in isolated locations far away from each other, the Inuit groups are not homogeneous but they differentiate in term of culture, lifestyle and do not know much about each other. Especially wide is the demarcation between those living in the cities and in the settlements, with the latter being largely underrepresented in the media. There is a tendency in each group to perceive itself as representing the “true Greenlandic”, while the others are thought to be “less Greenlandic” or also “too Danish”. One similarity among all the Inuit is the great importance attributed to family relations; they have a great attachment to all their family members (Hauptmann, 2014). The rest of the population is primarily of Danish origin. The Danes in Greenland often occupy leading positions in the industry sector or they are teachers and doctors. Some have just arrived in search of a high-skilled job after graduation, while others have been there for many generations, hence identify themselves as both Greenlander and Dane. Due to the difference in authority positions, Hauptmann perceives that there is an unequal relation between the two ethnic groups, which has created a sort of rejection of the other. There is no strong and united Greenlandic identity, but different and contrasting identities (Hauptmann, 2014).

The language discourse also contributes to this dichotomy. Greenlandic has been the sole official language of the country since 2009, even though Danish is also used in official contexts. The official language is West Greenlandic, but different dialects are spoken in East and North Greenland (Greenland Self-Government, 2010). 15% of the population is bilingual, 40% speak Greenlandic as main language with a good level of Danish, whereas 15% are have Danish as their first language and knows some Greenlandic (Jensen-Thorup, 2012, p. 74). The Greenlandic identity - constituted by the ability to speak Greenlandic and a common Inuit culture - has been fundamental to the movement towards political independence. However, this excludes the Greenlandic people who speak only Danish and neglects the fact that in the three centuries of Danish occupation there has been intermarriages and strong culture exchange, thus a complete separation is impossible (Pram Gad, 2009, p. 137).

Some social problems are associated with lifestyle in Greenland. For example, there is a high rate of suicides, about 88 per year in the period between 2001 and 2005, with the 15 to 24-year-old as most affected. Moreover, there are high rates of infectious disease transmission and mental problems caused by domestic violence and unstable relations with family members. Besides, another issue is alcohol and cannabis abuse (Niclasen & Mulvad, 2010, p. 440). Between 2005 and 2007, 31% of the Greenlanders were victim of sexual

assault and 54% belonged to a family with alcohol problems (Bjerregaard & Dahl-Petersen, 2008). Furthermore, few people pursue education in Greenland; indeed about 70% of the population has stopped after the completion of primary school. To a lack of skilled labourers correspond high unemployment, about 9.4 % of the workforce in 2011 (The Committee, 2014, p. 47).

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Even though brief and not exhaustive of all the features of Greenland's natural resources, economy, politics and society, the background information section has been useful to delineate a basic profile of the country. What it has emerged is, first of all, the great importance that the Self-government attaches to the future exploitation of its minerals as source of revenues. The more probable extraction in the near future will be of hard ores, whereas gas and oil exploitation is still considered problematic. Greenland economy relies mainly on fishing and the block grant from Denmark, however the actual balance is not maintainable in the long run. There is a need for reforms in order to avoid a budget deficit. The country is not a sovereign state, which means that it depends on Denmark for security, finance and foreign policy issues. Hence, certain mining issues must be negotiated with Denmark. A study has shown that the state is vulnerable to corruption in case of large-scale projects and that the civil society offers no real counterweight to the power of the huge public sector. Finally, two main ongoing trends relate the migration flows towards the Greenlandic cities and abroad to Denmark as well as the aging of the population. The society suffers from problems such as abuses, alcohol addiction, and violence in the family.

4. THEORY SECTION

Human capital is not explained by a single theory, indeed many scholars have theorized about it during the last centuries. This section highlights the similarities and differences between the different approaches and explains how they relate to the case of Greenland. For sake of clarification, I describe first the most common definitions of human capital and subsequently show how it relates to development and natural resources. Finally, I explain the relevance of the theory to address the research question.

4.1. Definitions of human capital

The concept of human capital belongs to the field of economic studies and it is not new to the literature. Indeed, it had evolved throughout few centuries thanks to the contribution of many authors. As early as 1776 in "Wealth of Nations" Adam Smith indirectly discusses the importance of human capital among the other kinds of capital defining it has "the acquired and useful abilities of all the inhabitants or members of the society" and continuing as follows:

> *The acquisition of such talents, by the maintenance of the acquirer during his education, study of apprenticeship, always costs a real expense, which is a capital fixed and realized, as it were, in his person (…). The work that he learns to perform, it must be expected, over and above the usual wages of common labour, will replace to him the whole expense of education, with at least the ordinary profits of an equally valuable capital" (Spengler, 1977, pp. 32-33).*

Thus, human capital is made up of an amount of abilities or talents that a person acquires during a process, which implies a "real expense", so it represents an investment. However, this will be paid off by a higher reward, as it happens with the other kinds of capital. Smith thinks that human capital can be obtained as a result of working experience gathered through the division of labour. Moreover, the other source he suggests is education gained at school, university or during traineeships at the workplace (Savvides & Stengos, 2009, p. 11). Until before the Second World War other scholars elaborate on the topic with the common denominator that they all focused on the level of the individual person and their gain in terms of income and living condition due to human capital. For example, Walsh's research aims at explaining the reasons and incentives behind the expenditure on education for the individual (Savvides & Stengos, 2009, p. 13).

It is in the 1950's and 60's that the concept acquires a broader scope: the focus is not only on the relationship between human beings and their income any more but on the impact of human capital on the national economy. Hence, the following definitions are the most relevant for the sake of this project and will be taken into consideration during the analysis section. In his presidential address to the American Economic Association in 1960, Theodore Schultz argues in favour of the importance of investment in people, by means of knowledge and skills acquisition. Expenses on physical capital are generally considered as investments undergone for a future higher return and not as consumption, the same should be true for resources spent on human capital (Perkins & al, 2013, p. 257). According to Schultz, human capital can be increased by five activities:

> *"(1) health facilities and services;*
> *(2) on-the-job training;*
> *(3) formally organized education at the primary, secondary and higher levels;*
> *(4) study programs for adults, not organized by firms; and*

> *(5) migration of individuals and families to adjust to changing job opportunities" (Savvides & Stengos, 2009, p. 17).*

The author is mainly focused on human capital as a source of economic growth, and considers low investment on it as a cause of lack of development in poor countries. The governments should think at investment in human capital as a redistributive means and in particular, they should support education.

Gary Becker offers a further contribution on the theory in his book "Human capital", where he shows that the future returns from investment in human capital could be calculated, and not only schooling but also technological and scientific knowledge were important for economic growth (Deneulin & Shahani, 2009, p. 209). The "unexplained" rise in income of some countries above the portion derived from growth in land and physical capital can be clarified by an increase in productivity due to technical knowledge applied to production and personified by scholars, scientists and managers. Finally, Becker differentiates between schooling, higher education, and traineeship since they have different amounts of return due to local circumstances (Becker, 1993, pp. 23-24).

4.2. Human capital and development

As explained previously, Schultz underlined the importance of investing in human capital as a means of attaining economic development since it will yield a higher return as with the other forms of capital. Other economists have theorized on the relationship between human capital and development and their models fall mainly into two categories: exogenous and endogenous. According to the first one, an economy grows as a result of increased inputs in the form of capital and labour, but its growth decreases in the long run due to diminishing returns. Thus, technological change is needed to maintain the growth; however, it is exogenous to the process. This neoclassical model of attaining development elaborated by Solow and Swan has been lately revised to include human capital as an input for production (Savvides & Stengos, 2009, pp. 28-29). Nevertheless, it is in the endogenous models that human capital acquires more relevance in the development process. The concept here is that investing in labourer, who are skilled, healthy and educated, will have as a result more productivity and better exploitation of technology and human capital. As a result, returns become increasing instead of decreasing, whereas human capital is endogenous to the system. Empirical studies have shown that schooling positively affects economic development; however to the different levels of a country's development correspond different demands in the kind of human capital. Underdeveloped countries with a large informal sector should focus on technical skills acquired through vocational education and on-the-job training; while middle-income ones should favour general education applicable to the tertiary sector so as to boost innovation and flexibility. Specific trainings should also be offered to owners of small businesses to enhance entrepreneurship (Siddharthan & Narayanan, 2013, pp. 2-3).

Furthermore, human capital is essential to attract foreign direct investments (FDI); indeed, there is empirical evidence that FDI are more concentrated in host countries that can offer skill-intensive workforce. Thus, developing countries should make policies to promote their own human capital in order to be desirable, even though also FDI inflows sometimes engage in skill development trainings. The current market and technology improvements increasingly require the workers to be high-skilled in every sector of employment. This has caused a situation in which there is lack of educated workers, while unemployment increases among the under-skilled workforce. Hence, governments should invest heavily in education in order for their citizens to find appropriate employment (Siddharthan & Narayanan, 2013, p. 5). Thanks to education, workers are high-skilled and healthier, so they are more likely to find employment and will be more productive. However, increase in human capital contributes to development also by fostering social capital: an educated population

is willing to participate in politics though the democratic process, thus good governance and equality are other by-products (Gylfason, 2001, p. 851).

Investment on human capital should be included not only in business strategies of private companies, but also in the policies of states that wish to achieve socioeconomic development. The sum of all skills and competences own by the individuals can be gathered in a national stock of human capital. The amount and quality of the stock directly impact the prosperity on the country under consideration (OECD, 1998, p. 15). The OECD Council meeting of labour ministries recognized the importance of lifelong training - in the sense of acquisition of new skills and knowledge as well as the capacity to adapt to different context - as a way for creating growth in knowledge-based economies. In particular, they stressed the need of investing in those, who do not own the necessary skills to participate in a knowledge-based economy or do not have access to lifelong education. Human capital is a heterogeneous concept; thus the policies that should be actuated to invest in it should reflect its nature and be wide-ranging and multi-faced (OECD, 1998, p. 8).

4.3. Human capital and natural resources

When applying the theory of human capital to countries that rely on natural resources, two opposite views exist. On the one side, those who consider natural resources as a curse for human capital investment and on the other side those who are sceptical about it. According to Gylfason, resource-abundant countries tend to spend less on education compared to resource-poor ones. The fact may seem contradictory because the former have extra revenues from natural resources, which could be redirected to education. However, the governments tend to be overconfident about their economic stability based on natural resources revenue and neglect good economic policies and investment in the other sectors, like human capital (Gylfason, 2001, p. 850). It should be noted that the presence of abundant natural capital is not a curse by itself; it is the public administration that in such circumstances tends to fail to invest the profits in a sustainable way. Indeed, there are cases – like Norway - in which countries have efficiently used the natural wealth to finance education improvements. Another negative outcome is that people in resource-rich countries are mainly offered employment in low-skill jobs in the exploration and extraction companies or in agriculture; hence, they do not have incentives to pursue higher education (Gylfason, 2001, p. 858).

Birdsall, Pickney and Sabot agree with Gylfason on the negative effects of natural resources on human capital and offer another explanation for the mechanism. They explain that a country can obtain economic growth by encouraging the poor to invest in their own assets and in particular their human capital. The result in the short run will be increased productivity, savings and investments, while greater productivity and equality will follow in the long run. Moreover, lower inequality fosters further growth, so that a virtuous circle is created. The government can positively affect this process by supplying schooling to the poor, which has to be of high quality so as to be worth investing for them. The poor should be persuaded that they would get higher returns from sending their children to school instead of to work (Birdsall, Pinckney, & Sabot, 2004, pp. 61-67). The authors are convinced that the introduction of natural resources in a country's economy will disrupt the virtuous circle. First, because the rents will gather in the hands of the government elite, so inequality will rise at the expense of economic growth. In such a situation, the government is not likely to invest in education because there is a lower return since the primary and secondary sector suffer from the Dutch disease. The state may try to obtain the favour of the poor by providing schooling; however, this will be perceived as a consumption good, not as an investment and its quality will be poor. Hence, the result will be further a lack of development (Birdsall, Pinckney, & Sabot, 2004, pp. 68-69).

Of opposite view is Jean-Philippe Stijns, who has carried out a research to prove that the results achieved my Gylfason are weak. The flaws of the latter are that he picked natural capital as a portion of national wealth

as an indicator of natural endowment. However, that includes also "green capital" such as non-timber benefits and the opportunity cost of protected areas, which are not relevant for this research and alter the results. Stijns concludes that there is not systematic negative correlation between human capital accumulation and natural resources, indeed example of both positive and negative effects can be found (Stijns, 2006, pp. 1080-1081). Finally, in a study focused on mineral-dependent economies, Davis shows that there is no robust evidence that natural resources usually have a negative effect neither on economic growth nor on education. In the long run, resource abundant countries do not generally suffer from Dutch disease or lack of investment in human capital. He suggests that the resource curse is just an exception to this positive trend.

To conclude, the systemic negative correlation between a natural resource-led economy and investment in human capital has not been confirmed. However, the negative effects such as government's overconfidence, lack of redistribution to the population, greater inequality and schooling as a consumption good should be taken into consideration as possible outcomes in order to make sure to avoid them.

4.4. Applicability to the case study

This theoretical framework is relevant for the sake of this project because it explains relevant patterns that can be applied to the Greenlandic case. First, it is important to understand which dimensions and definitions relate to the concept of human capital since it is a variable of the research question. The main object of this project will be a further understanding of the impact of human capital on the national level; hence, considerations on the individual and business level will be seen in light of this final goal. The concept of human capital is not relevant by itself here; it is the ways of investment in human capital that are analysed. For this reason, the five activities to increase human capital proposed by Schultz will be taken into consideration. Besides, the theoretical models of economic growth are explained in this section in order to provide a clear picture of how human capital contributes to it. However, the equations that constitute them are not relevant, because this project entails a qualitative research design with emphasis on discursive and textual data and not on figures and calculations. For the sake of this study, the general consideration that investment in human capital has been proven to contribute to economic development will be used as starting hypothesis. I will attempt to develop the theory on the peculiar ways in which investment in human capital can create development in natural-resource led economies, in particular at the community level. All the stakeholder parties possibly involved in the process will be taken into consideration in order to clarify their role. Finally, a systemic negative relation between human capital investment and natural resources will not be taken for granted; conversely, I will try to uncover how this relationship could develop in Greenland.

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Investment in human capital, which means a set of knowledge, skills and competences that are useful for economic activity, is a contributor to development. Investment in health facilities and services; on-the-job training; formally organized education and other kind of study programs as well as migration of individuals to adjust to changing job opportunities are ways in which human capital can be increased. Indeed a healthy, educated and skilled population can be the engine of development for a country. This notion, as well as the possible impact of natural resources on human capital accumulation, will be taken into consideration while handling the case studies with the aim of understanding how Greenland can achieve development.

5. ANALYSIS

The analytical section is made up of three parts. In the first, the three case studies are presented; in the second, they are confronted with the theory on human capital and analysed, whereas in the final part the findings from the previous sections are applied to the Greenlandic case.

5.1. Empirical section: the three case studies

The three cases that are presented here are located in the Northwest Territories in Canada, Western Cape in Australia and Alaska in the United States.

- **Case 1: Northwest Territories (Canada)**

Extraction of ores, oil and gas has been ongoing for over a century in Northern Canada, indeed colonizers moved up North due to the possibility of mining. In 1920 oil was discovered and the first extraction of hard minerals dated back to the same periods. The presence of diamonds was discovered in the early 1990's and there are currently three active mines in the Northwest Territories and another one is in phase of construction. Davison and Hawe (2012) have examined the impact of mining on a community living in the area of Behchoko. The community, about 2000 people, is made up mainly of indigenous people and has partial autonomy from the region. (Davison & Hawe, 2012, p. 214) The results of the study show that there has been both positive and negative impact on the local people. To begin with, the transience of the inhabitants has grown. Since the miners work on turns on two weeks in the camp followed by two free weeks, their presence with the family is discontinuous. The youth is often left alone and the family lives in a condition where binge drinking and smoking, abuse and marginalization from society are common. Material goods and travelling replaces taking care of the children, since a higher income allows it. Moreover, the youth is reported to suffer more and more from sexually transmitted diseases (Davison & Hawe, 2012, p. 219).

Furthermore, the presence of a mining company encourages some youth to drop school and start working in order to be independent earlier. However, it is more common to finish at least high school because there are more possibilities of career and the youth can avoid repetitive jobs. Certain skills are required to work in a mine, which can be gathered through higher education and on-the-job trainings offered by the companies. Indeed, mines are in constant search for skilled workers. It is mainly the males who are employed in the mines, hence they become the greatest source of income for their family, which contributes in many cases to a higher self-esteem and sense of responsibility. Their increased income can be spent on better housing and nutrition for the whole family. Women tend to take care of the house and children or carry out social work in the community.

Diamond mines are a great resource for the local community in the sense that they offer scholarships, career days and finance some school activities such as a greenhouse and mine tours. The labour market offers more opportunities due to the local development brought about by the mines; hence the schools have changed their programs in order to prepare their pupils for it. There is more focus on preparation for college and university, technical skills acquisition through traineeship. The Canadian government together with the extraction companies have provided funds for the creation of centers where the population can attend courses on job-related knowledge (Davison & Hawe, 2012, pp. 220-222).

Before the establishment of the diamond mines, the Government of Alaska required the mining companies to submit a detailed proposal of the socioeconomic impact of their activity. For example, the proponent of

the first diamond mine in the Northwest Territories, Ekati, assured the employment of indigenous people and created a monitoring program to analyse the future socioeconomic implications of mining. Moreover, the company held public meetings to hear the opinion of the local communities. Many of them were worried about the disruption of their traditional way of life, since working at the camp would mean missing caribou hunting. Besides, they were not accustomed to a money-based economy, meaning that they were not able to budget and thought that the introduction of money would cause social problems. The mine owners took into consideration the concerns and included the following in their project plan: the creation of committees to address social problems and help employees deal with the management of their money, cross-cultural and mining-related skill trainings, general education and health facilities construction (Noble & Bronson, 2005, p. 400).

Another diamond mine in the Northwest Territories, owned by Diavik Diamond Mines Inc. (part of Rio Tinto) and Harry Winston Diamond Limited Partnership, has behaved similarly. Diavik signed a Socio-Economic Monitoring Agreement with the regional government before the construction of the mine camp, in which it agreed to provide a report on local employment and spending twice a year from the start of the construction, which happened in 2003 (Diavik Diamond Mine, 2010, p. 3). In the Socio-Economic Monitoring Agreement Report of 2010, the company explains that 30% of its employees are aboriginal; it has not been possible to hire more of them because of the local lack of skills. In order to improve local education, Diavik has elaborated new educational plans together with the Government and a local technical school and has offered traineeships and scholarships for higher education. Furthermore, Diavik aims at contributing to local development also indirectly by buying products and services from northern businesses and by outsourcing its labourers to local contractors so that they can gain experience and be able to operate independently of the mine and create more job openings (Diavik Diamond Mine, 2010, p. 14).

- **Case 2: Western Cape (Australia)**

Indigenous people in Australia tend to be poorer, less educated and have more health problems compared to non-indigenous Australians. One way to improve their living condition is by means of employment. These people usually live in remote areas, where there are not many employment possibilities and the principal source of work is the expanding mining sector (Buultjens & al., 2010, p. 597). However, there is also the potential to engage in tourism-related activities, as a way to provide employment to locals as well as to develop the area. The government has recognised that indigenous people in remote areas can achieve development by investing in small-scale tourism ventures focused on fostering their peculiar culture and natural resources. For this reason, the Australian government has elaborated strategies to promote indigenous tourism such as the National Aboriginal and Torres Strait Islander Tourism Industry Strategy in 1997 and the Tourism White Paper in 2003. Nevertheless, indigenous tourism has not developed as planned; it is still limited in scale. The reasons thereof include lack of access to capital to be invested in the businesses and lack of training and education on how to set up and run a small enterprise.

Buultjens et al have conducted a study in the Western Cape region on an indigenous community and the mining town nearby in order to understand the possibility of investment in indigenous tourism, in particular by the mining company (Buultjens & al., 2010, p. 598). Weipa is the mining town owned by Comalco, a mining company part of the Rio Tinto Group, located close to a big bauxite mine. Comalco has created and runs the town and has financed the construction of most of the infrastructure, including a road network, an airport, a hospital, houses, electricity, water and sewage system (Buultjens & al., 2010, p. 600). In the same region, there are also four small aboriginal villages, with a total population of about 3000 people. At the time in which the study was conducted, the local communities did not show much interest for tourism, because they preferred to live in isolation, lacked entrepreneurial skills, and other culture-related reasons. Despite this,

the authors explained that the interviewed local people had a positive attitude towards the possibility of developing tourist activities and that the area had a great potential. The main attractions could be wild nature, fishing, indigenous tradition and culture, and a possible mine museum and tours.

Two local organizations were identified as being able to support the creation of tourism ventures, one of them was an indigenous-run organization involved in many local small businesses and the other was a consulting center that would facilitate the cooperation among all the stakeholders involved. Comalco's role would be to assist the development of the tourism sector by allowing the use of its infrastructure and the establishment of attractions related to the mining industry (Buultjens & al., 2010, pp. 601-603). The company is already supporting the economic development of the area by hiring locals; it is willing to have 30% of its staff made up of indigenous people. In order to achieve this goal, it has encouraged them to attend on-the-job trainings to acquire the necessary skills. Moreover, Comalco has held workshops for the youth focused on the entrepreneurial abilities required to set up a small business, as well as schooling on administration, horticulture and trade (Buultjens & al., 2010, p. 603). Besides, it has held cultural awareness courses for its personnel and has participated in the record of more than 200 archaeological sites in the Western Cape.

These efforts are part of the CSR strategy to support local economic development, in order to obtain the approval of local communities and avoid conflicts. A part from individual CSR strategies, mining companies in Australia have also made agreements for fruitful relationships with other stakeholder in order to boost indigenous development. For example, they have signed the Memorandum of Understanding in 2005 together with the government and the Mineral Council of Australia, where all the members officialised their commitment (Buultjens & al., 2010, p. 604).

- **Case 3: Alaska (United States)**

The Northwest Arctic Borough is the second largest in Alaska and has a population of 7523 people, 85.8% of which are Alaska native. The majority of them are Inupiat Eskimo and are mainly employed in subsistence hunting, fishing and farming (NAB, 2014). About one every five inhabitants is classified as living below the poverty line and they rely on government subsidies for their survival, in the form of grants, healthcare services, water supplies, education, housing and employment in the public sector. In 1976, the state government built up high schools in the local communities in an effort to improve education there, while before pupils had to move in order to attend boarding schools.

The Red Dog zinc and lead mine, the largest in the world for these ores, is located in the borough and owned by the Northwest Alaska Native Association (NANA). NANA is a regional corporation with 4800 Native shareholders, which own the land where the mines are situated, and have signed an agreement with Cominco for ore extraction (NAB, 2014). In order to support the local communities, NANA has invested in a hotel, a fish company, and real estate as well as providing its shareholders with jobs and trainings. Despite those small businesses are working in loss, which is common among regional corporations – i.e. entities created by law and not by business venture -, NANA is making huge profits thanks to Red Dog Mine. (Hamilton & Seyfrit, 1993, p. 258).

Hamilton and Seyfrit have carried out surveys to uncover the expectations for the future among high school students in few towns and villages of the Northwest Arctic Borough and the results are presented now. The youth complains about the poor quality of education, which provides weak preparation for those who wish to attend college. Many older members of the communities have left the villages to enroll in undergraduate programs but returned without completing them. Yet there are not many employment options for graduate students in the area, thus those who intend to obtain higher education should consider permanent migration (Hamilton & Seyfrit, 1993, p. 260). Indeed the Red Dog Mine is the main local source of jobs and 30% of the

pupils wish to find employment there. Males with no interest in college education and migration constitute this portion; they are attracted by preferential hiring policies for Natives, free training and transportation and timetables that reconcile work in the mine and subsistence activities. Moreover, they do not see a possibility of career in the mining sector, but just a temporary source of income.

Despite both NANA and Red Dogs wish to hire local youth, this has proved to be problematic because of lack of required skills and high turnover. Indeed outmigration deprives the employers of skilled labour. About 60% of the students – the majority being women - expressed desire to move to bigger towns within Alaska or abroad. Young girls are more likely to succeed in accomplishing higher education and keeping a fixed job after migration. Life in the bush is harder for them, since they are expected to take care of the house and children while working; better living conditions in the city are a great incentive to migrate (Hamilton & Seyfrit, 1993, pp. 261-262).

5.2. Analysis of the empirical section

During the following section, the concept and theory of human capital is applied to the empirical section in an effort to uncover which patterns emerge.

- **Ways of investment in human capital**

The first consideration is that in the three cases, human capital is given prominence, even though the term is never directly mentioned. While pursuing the aim of economic development, the stakeholders engage in practices that include investment in human capital. This is a sign of the fact that they attach importance to education and knowledge acquisition as a way towards development. All the five ways of investing in human capital described by Schultz are present in the three cases. The first of them is investment in health facilities and services. The introduction of mines has an impact on the health of the affected communities, since it disrupts their traditional way of life. The results are often social problems such as alcohol and drug addiction, abuse, and marginalization. Moreover, when parents work in the mining camps, kids are left alone to take care of themselves, which can cause the break-up of family units. Another negative impact on health is the spread of sexually transmitted diseases, especially among the youth. Nevertheless, the mining companies invest in human capital by building healthcare infrastructures like hospitals and by creating committees aimed at helping locals overcome their social problems. Moreover, an increased income due to a job at the mine can be invested in better housing and more proper nutrition for the whole family, and it positively affects the productivity of the employees. Finally, miners can conciliate their work at the camps and subsistence activities, since the mining companies often allow them to work on turn so that they would have time for hunting when they wish to.

The second way to increase human capital is by means of on-the-job trainings. All the extraction corporations described in the three examples provide their employees with on-the-job trainings, aimed at improving their technical abilities. There is a great need for this kind of education, since the companies have generally had problems in hiring a large proportion of local labourers due to their lack of required skills to work in mines. These include practical abilities necessary for the jobs, but also punctuality and the capacity to keep the job for a long time. Among other trainings, Comalco offered cultural awareness courses, with the purpose of facilitating the cooperation between workers with different social backgrounds. Given the lack of successful local firms, the company attempted to enrich the value of the community by offering business skills trainings for those who wished to set up their own small enterprise.

Organized education is yet another means for increasing human capital. It has traditionally been a government's duty to spend part of its GDP on supporting and improving education. Since there is great

evidence that a skilled workforce attracts foreign direct investment, a government that wishes to attract multinational mining corporations should be able to offer them qualified workers. For example, the state government of Alaska has decided to provide communities in remote areas with high schools, so that the students were not forced to migrate and could obtain education in their own environment. However, in order to be successful, schooling should be perceived as an investment, not a consumption good, which means that students and their families should see greater benefits in attending high school compared to working. This is possible by providing high quality education. The students of the Northwest Arctic Borough complained about the poor schooling level, which did not prepare them enough to pursue higher education. For this reason, some of them decided to drop school and start working in the mines instead. This process implies a loss of human capital, which can be addressed by the government and local schools, but also by the mining companies. The schools can intervene by adapting their programs to the demand of the labour market, which changes with the development of the mining sector. The mining corporations have shown to participate in formal education in many ways. First, they are mainly interested in skilled workers, hence this should encourage the youth to finish high school at least in order to find a decent employment in the mines. Moreover, they cooperate with local schools by being present at career days, offering mining tours to students, participating in the establishment of education programs in technical schools and financing school activities. Besides, they offer scholarships for pursuing higher education or set up educational programs on trade, administration and horticulture.

As far as study programs for adults provided by the state are concerned, little evidence has been found in the case studies. For example, in Northern Canada the regional government has cooperated with local extraction companies for the creation of specific centers for the acquisition of job-related skills. They are similar to on-the-job trainings but offer knowledge on skills required by jobs in different sectors. The fifth way through which human capital can be increased according to Schultz is by migration to adjust to job opportunities. From the Canadian example, it emerges that the creation of more job openings due to the extraction of minerals can make it unnecessary for locals to move to other areas in order to find employment. Yet, in case the communities do not have high school options, students are encouraged to leave if they want to continue their education. Moreover, there are no incentives for them to return to their native places after graduation, because there are not many related job opportunities in remote areas apart from teaching. This is particularly true for women, indeed their life in little communities is very hard and they usually prefer to migrate to the city for education and a more satisfying employment. Indeed, the male with no interest in higher education and abandoning the subsistence activities made up the majority of the local employees in mines.

Apart from the five points suggested by Schultz, it has emerged that there are other indirect ways, through which the presence of mining companies can contribute to increase human capital, and hence create development. First, obtaining a well-remunerated employment at the mine, contributes to increasing the employee self-esteem and sense of responsibility towards the family, since he can take care of them. This surely contributes to a healthier and more satisfactory life, where human capital can be exploited better. Besides, the corporations often outsource their workforce to local contractors and purchase services and goods from local businesses. Those firms get in contact with huge corporations, which are usually well structured and have high quality, which are qualities that locals can learn from the business relation and apply to other cases. When the mining companies arrive in an extraction area, they build the entire necessary infrastructure, if it is not already present. Hence, local communities can also benefit from road networks, airports, modern housing with fresh water, electricity and a sewage system among other things. Greater mobility and better living standards increase the possibilities of local population, and human capital acquisition, too. Furthermore, local organizations that provide consulting to small businesses, such as in the

Australian example, boost the employers' human capital. Finally holding meetings between mining companies and communities facilitates knowledge sharing; indeed locals have greater knowledge of the environment where they leave, which can be useful to just-arrived corporations. The latter may take it into consideration, while planning their operations. On the other hand, the population may have better chances of exploiting the possibilities offered by the mining sector if they know what is going to take place and how it will impact them. To conclude, all the information provided above is an evidence of the importance attached to investment in human capital by the government, mining companies and local communities.

- **Partnership among the stakeholders**

The case studies of Canada, Australia and Alaska have revealed that the stakeholders involved in human capital creation policies are different kinds of actors. To begin with, the population of those areas is the object of the investment, yet it can have an active role as well. The members of the communities should invest in themselves and their own education, their desire to accomplish it represents the main engine for development. The contribution of the other stakeholders is not relevant without the active participation of the population. Hence, they can gain knowledge and skills by successfully accomplishing formal education, on-the-job trainings and other study programs as well as maintaining a healthy life and migrating in order to get further job opportunities. Moreover, civil society may join and establish regional corporations, local organizations and private businesses and hence have stronger influence on the human capital acquisition process.

Another actor, which can affect the process by shaping policies, is the government, being it national, regional or local. The principal duties of the government are to promote education and mobility, to make policies to reduce unemployment - such as offering trainings - and to address social problems. In case of communities located in remote areas, the government delivers subsidies, which can be invested in human capital. The government aims at running a healthy state and attaining development if required; hence, the investment in human capital is in line with those purposes. Due to their immense financial and negotiation power, private mining corporations can be the greatest contributor to investment in human capital and hence to the development of remote areas. They have the chance of hiring local manpower and investing in their education as well as to promote knowledge acquisition among all the members of the community in the way described above. Those stakeholders share the same environment and a common goal, even though they have different capabilities and means for attaining it. Moreover, it is not possible for them to act independently; hence developing a structured cooperation can be the best way of exploiting everyone's capacity and obtaining better results. According to United Nations Global Compact:

> *Effective cross-sector partnerships can make it possible to overcome challenges that are too difficult or complex for one organization or sector to address alone. Partnerships can also make efforts more effective by combining resources and competencies in innovative ways. Collaboration can enable companies and organizations to better achieve their own individual objectives through leveraging, combining and capitalizing on complementary strengths and capabilities (UN Global Compact, 2014).*

A partnership is the best way through which remote areas with few resources apart from minerals can invest in human capital and create development. Single individuals, civil society organizations, central, regional and local government as well as regional corporations, small businesses and mining companies can succeed together, however appropriate institutions should be built to facilitate the cooperation.

- **Mining Companies and CSR**

The role of the mining companies deserves particular attention, since their commitment to investment in human capital is essential for attaining general positive results. Concerning this, it is relevant to understand what motivates the corporation to contribute to socioeconomic development. Historically, the extracting operations have been perceived negatively by local communities for their impact on the environment and on society, which has caused the rise of opposition movements among the civil society. Hence, the mining organizations have realized the importance of behaving as socially responsible actors and of developing good relationships with local communities. It is fundamental to take into consideration the socioeconomic impact of mining from the construction phase until the closure, even though it implies high costs in terms of money and time, in order to accommodate the needs of the other stakeholder parties (Hilson & Murck, 2000, p. 230). This relatively new view implies the acceptance of the Corporate Social Responsibility rules, defined as

> *"the continuing commitment by a business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large'' (Holme & Watts, 2000, p. 8)*

Mining organizations willingly provide all the services described above, in particular investment in human capital, as a strategic decision with the aim of facilitating their operations and hence maximizing profit (Buultjens & al., 2010, p. 599). Since corporations do not act due to a moral sensibility but are pragmatically pursuing their goals, there are real incentives for them to provide social services, which is also positive for the communities who receive them.

- **Sustainability of mining**

Hard minerals are non-renewable resources, which means that they will not be available forever. Hence, the presence of a mining organization in a particular location is limited in time. Nonetheless, it is important that their impact on the society for the creation of development be not short sighted, but sustainable in the long run. According to the Principle I of the Rio Declaration

> *"human beings are at the center of concerns for sustainable development (…) and are entitled to a healthy and productive life in harmony with nature" (Epps, 1997).*

This principle should be taken into consideration, while dealing with mining activities in order to promote approaches that are sustainable. Investment in human capital can boost sustainable development in a few ways. Responsibilities of the mining corporations in this sense include providing business skills trainings so that community members can create their own businesses, which are independent from the mine. Besides, the corporations should help their employees cope with the job loss after the end of extractions by providing job search facilities; by offering re-skilling programs, which ensure that workers are able to find employment in a different sector; by setting up small businesses that will survive without the mine and by investing in quality formal education (Hilson & Murck, 2000, p. 230). Moreover, they can offer all the infrastructure of the mining camp for the use of the locals after the closure of the mine, so that new projects can be developed and the area is not abandoned. The Australian example suggested that infrastructure can be utilized for tourism-related activities (Buultjens & al., 2010, p. 599). In order to create sustainable development, investment in human capital offers great possibilities because knowledge and skills are a form of capital that does not expire and can adapt to different circumstances.

5.3. Discussion: the case of Greenland

- **Ways of investment in human capital**

According to the human capital theory, a person needs to be healthy in order to be more productive and participate in the development of their country. For this reason, it is important to invest in health facilities and services. The Greenlandic society suffers from some health and social problems: apart from the issues related to the aging population, the main diseases are associated with a problematic lifestyle. The result is a high percentage of suicides, sexually transmitted diseases, alcohol and drug addiction, mental problems caused by family abuse and violence, unhealthy diet and low oral health. The Greenlandic society has undergone huge changes in the last 50-100 years due to a rapid modernization that has changed their lifestyle. The social problems that affect the population are partially related to this transition. Alcohol and drug abuse, violence and sexually transmitted diseases are also the problems that the societies in the case studies have because of changes brought about by the mining activities (Niclasen & Mulvad, 2010, p. 439). The fact that Greenland's population suffers from them already before minerals extraction, may be an alarming signal because the negative socioeconomic effects of large-scale mining projects could be even worse in such a society. On the other hand, it is also possible that the disruption of the traditional lifestyle, observed in the Canadian and Australian cases as a result of natural resource extraction, corresponds to the same process of modernization that is already ongoing in Greenland. In this second case, the introduction of practises related to mining will not be so detrimental. Whether or not the situation will worsen, social problems are a fact now in Greenland and need to be addressed in order to increase human capital.

The government is now responsible for healthcare, infrastructure, taking care of the disabled, whereas the municipalities are in charge of social services. Health care is provided only by public institutions and accounted for 18% of the government expenses in 2009. Even though the government budget is limited, much expense is required since healthcare services are very expensive. Owing to the demographic structure of the country with villages and towns located in remote areas and not linked by road networks, healthcare allocation is problematic. Specialized treatments are available only at the national hospital in Nuuk; hence patients need to be transported there in case of need. Moreover, the lack of skilled workers in the sector such as doctors, nurses, physiotherapists, pharmacists etc. is making necessary the employment of foreign specialized personnel (Niclasen & Mulvad, 2010, pp. 441-442). The lack of human capital in the healthcare sector calls for further investment in related educational programs. The presence of mining corporations may positively affect the situation, in case they plan to have health services as elements of their CSR strategy. They could intervene by setting up quality trainings for nurses and technicians as well as cooperating with local universities for the development of medicine faculties. Besides, they could build roads or other means of transportation and support the establishment of private health care providers. The result would be lowering the burden of expenses that the government has to bear now, while also increasing human capital.

As far as education is concerned, the figures are not comforting. Less the haft of the students who finish primary education continues to secondary school. Moreover, drop-out is also very frequent, for example to 953 students newly enrolled in vocational schools in 2011 correspond only 406 completions. In the same year, 187 students started higher education, 89 dropped out and only 46 graduated (Statistics Greenland, 2014, p. 24). According to a study ordered by the EU Commission, the number of graduates is increasing but still not sufficient to cover the demand for skilled workers, at least 100 extra people should graduate every year to address the current shortage, which concerns every field of study (Particip, 2014, p. 4). Hence, there is great need to invest in education in Greenland in order to increase human capital of the country, and stop depending on foreign human capital. Since the financial possibilities of the Self-Government are limited, the contribution of multinational corporations should be welcomed in the future. The mining organizations offer well-paid employment for skilled labourers, which may encourage the Greenlanders to finish higher education. The mining organizations may cooperate with the government for the establishment of new educational programs, offer scholarships, finance some school activities with the aim of raising the quality of

schooling so that the people would see the benefits of investing in it. Besides, local schools should adapt to offer education that prepares for a career in mining or related sectors.

About the study programs for adults offered by the state, specific trainings have been organized to prepare citizens to work in the mines. In particular, the Language Schools is responsible for English courses according to different levels, while the School of Mineral and Petroleum teaches basic knowledge on the mining sector, as well as drilling skills and prepares personnel to serve in aid ships. The number of participants to each course ranges from 6 to 63 (Government of Greenland, 2013, pp. 18-19). Even though the figures are not very high in general terms, this is an important sign of the fact that the government has acknowledged the importance of investing in technical skills in order for the population to exploit the possibilities offered by the mining industry. On the other hand, the six most advanced projects in terms of exploration licence process have estimated a need for about 1680 employees in the construction phase and up to 3690 during extraction (Government of Greenland, 2013, p. 11). Since they will probably encounter the same difficulties of the organizations described in the case studies in hiring a substantial proportion of local manpower, the mining companies will have to offer on-the-job trainings in order to be able to employ them. The Self-Government should agree with the corporations beforehand on a realistic percentage of local hiring and make sure that it is actually implemented.

As for migration flows, there are few ongoing trends in Greenland. One is the migration – in particular of the youth - from settlements and small towns to cities, where life conditions are better and there are more job opportunities. The second is outmigration mainly to Denmark, where about 18500 Greenlanders reside (Christiansen, 2013, p. 49). When the construction of mines will start, these flows may be altered. Males who reside in settlements near the mining camps may decide to remain and find work there instead of moving to the city. Moreover, a new migration flow will emerge because of the establishment of mining towns in remote areas. In case there are fair possibilities of employment, few Greenlanders could decide to move there, even though there will not be many women among them. High-skilled foreigners will also move to those areas, to fulfil the workforce demand. Hence, the mobility of local population may increase to adjust to new job opportunities.

- **Partnership among the stakeholders**

The main stakeholders involved are, first, the Greenlandic population, which resides in settlements, villages and towns, and civil society organizations as well as private businesses. Furthermore, there is the state represented by both the Self-Government and municipalities and finally the mining organizations. As already explained before, a partnership among the stakeholder parties is fundamental in order to achieve development. The core characteristic of the dialogue should be transparency, so that information can arrive directly to all the stakeholders and there could be open discussion. The government has established some tools and institutions through which the partnership can take place. Social Impact Assessment (SIA), which includes Impact Benefit Agreements (IBA) and Environmental Assessments, has been issued with the aim of promoting development. The mining companies should elaborate them before their projects can start in order to evaluate the impact on society and environment and they require the participation of the government and affected population.

> *The purpose is for impact assessment to secure inclusion of knowledge in decision-making processes when policies, plans, programmes or projects can cause potential significant impacts. SIA aims at creating a base for understanding communities including peoples' way of life and culture, their health and wellbeing, their personal and property rights and their fears and aspirations for the future. But also at securing local benefits of projects and protect local values (Merrild Hansen, 2013, p. 13).*

Knowledge sharing is the core object of SIA, so that it can be the basis for the planning of projects that have a positive impact on the society. Hence, the stakeholders' human capital is fundamental for the process and the final plan should be the result of negotiation between the government, the corporation and the local communities. Public Participation is highlighted as a vital part of SIA, because it means empowerment of the population to participate to the decision-making phase and make it possible for them to adapt to changes (Merrild Hansen, 2013, p. 15). The aim of the partnership should not be minimizing the negative effects of mining, but using all the available resources and means to obtain development. The institutionalization of the partnership is positive for attaining the aim of development; however, its actual implementation is fundamental. In order to accomplish it, a few considerations are worth mentioning. As already described in the Background section, the public sector is vulnerable to corruption, which represents a real risk, since it would impede a transparent dialogue and the allocation of resources to investment in human capital. Moreover, the population should not be passive receiver of information but be able to transmit it knowledge. The government and civil society's organizations should defend the rights of the local communities and prevent the multinational corporations from setting the agenda alone.

- **Mining Companies and CSR**

On the other hand, the corporation should avoid to be perceived as the sole decision-maker because it would negatively affect its business. A proper Corporate Social Responsibility strategy may be useful for the creation of a satisfactory scenario for all. Its accomplishment requires a partnership as well, usually with civil society's organizations with the common aim of addressing a social issue. Particular priority should be given to investment in human capital in the form of increasing health and education among the population. In recent years, a systemic approach to CSR has spread among Greenlandic companies, due to the establishment of CSR Greenland in 2010. It is a network of local companies created with the purpose of sharing and building knowledge, interests and awareness (Christiansen, 2013, p. 50). CSR Greenland has institutionalized its cooperation with the government through the creation of the Forum for Corporate Responsibility, where discussion on social issues is possible. Moreover, they have established an active dialogue with municipalities and civil society organizations. A positive effect of networking has been the creation of partnerships between businesses and NGOs or government departments to address problems such as child abuse and school dropout after primary education. The companies provide different kinds of services or funds, while CSR Greenland facilitates the dialogue (Christiansen, 2013, pp. 52-54).

Greenlandic companies engaged in the project were willing to solve social problems because they hindered their business activity. Besides, they wanted to build a positive reputation, which could motivate their staff and attract new employees, and find new audience for their services (Christiansen, 2013, p. 56). It may be in the interest of mining corporations to join CSR Greenland network and engage in this kind of partnership, so that it would be easier for them to understand what the most pressing social issues in Greenland are and get in contact with other stakeholders. The partnership with government and civil society could have as by-product the creation of trust. On the other hand, the active involvement of mining corporations, including their financial and human resources, is an advantage for the government and the society if directed in the right way.

- **Sustainability of mining**

Investment in human capital can help ensure that the development brought about by mineral extraction is sustainable for future generations. A strategy that can be adopted in this sense, is making sure that the multinational corporations outsource their workforce to local contractors and purchase goods and services from Greenlandic businesses. Indeed, local companies belong mainly to fishing industry, infrastructure,

service and retail sector so they may obtain more work during the period of mine construction and extraction. It is vital for them not to become dependent on the mining sector but exploit this chance for increasing their human capital so that they can apply it to a different sector after the end of extraction phase. Indeed, local businesses have a great impact on local society and their failure would be highly detrimental. Moreover, the infrastructure firms are partially state-owned hence they have an impact on public finances (Christiansen, 2013, p. 49).

Apart from addressing social problems, the corporations can participate in the development of Greenland by directly investing in its human capital. For example, they may offer business skills courses to support local entrepreneurship as well as finance the establishment of small businesses independent of the mining activities, thus able to survive after the closure of the mines. Besides, they should help their Greenlandic employees find another job after their closure by enrolling them in reskilling programs. Finally, sustainability can be achieved if the soft and hard infrastructure build up around the mining town is left for the use of local communities, which should find the best way to exploit them. One possibility is tourism, a sector highly promoted by the government as considered able to grow and contribute to development. New tourism attractions could include tours of the mines and mining museums, exhibitions on Inuit culture and tradition as well as wildlife. Hence, tourism could become a great contributor to the Greenlandic economy, if all the available possibilities are capitalized on.

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After analysing some studies carried out in the three case studies, a certain relationship between mineral resource exploitation, human capital and development emerges. The first consideration is that in the three cases, human capital is given prominence, even though the term is never directly mentioned. While pursuing the aim of economic development, the stakeholders engage in practices that include investment in human capital. The government, local population and mining corporations share the same environment and a common goal, even though they have different capabilities and means for attaining it. Moreover, it is not possible for them to act independently; hence developing a structured cooperation can be the best way of exploiting everyone's capacity and obtaining better results. Thirdly, the mining companies strategically engage in investment in human capital as part of their CSR strategy, since they have realized the importance of behaving as social responsible actors. Fourth, some activities are advisable in order to make sure that the development brought about by mining extraction will be sustainable after the closure of the mines, for example the private sector should develop independently from the mines. These findings should be taken into consideration in order to plan proper investment in human capital in Greenland taking advantage of the possibilities offered by natural resource exploitation.

6. CONCLUSION

This study aims at offering a perspective on how exploitation of mineral resources may lead to development in Greenland. The variable that has been considered is investment in human capital, which means a set of knowledge, skills and competences that are useful for economic activity. The importance of human capital in development policies has been recognised also by the OECD, whose member countries have highlighted its investment in their strategy to create economic development, reduce unemployment, and promote equality and cohesion. Both at individual and at national level, it is widely recognized that knowledge and skills are fundamental for success (OECD, 1998, p. 7). The following structure has been designed to better clarify the issue and respond to the research question. After introducing the problem, the chosen methodology is explained. The research takes advantage of a deductive approach, and makes use of interpretative and explanatory inferences; whereas the aim of the study is mainly predictive. Furthermore, qualitative data have been collected and analysed through a comparative case-oriented research design.

The following section provides background information on non-renewable resources and development in Greenland. Hard mineral extraction is not new to the country, even though future projects are expected to be of a much larger scale compared to the past ones. Over the last century, many ores have been extracted, including cryolite, coal, silver, zinc and lead. Given that the sector has been inactive since the 1990s, the government has been engaged in promoting it in order to attract foreign investment. In recent years, a few mining companies have applied for exploration and exploitation licenses. It has been estimated that extraction could begin within ten years. On the other hand, hydrocarbons have never been extracted, even though oil companies have collected data and requested exploration licenses. Due to the presence of ice for most of the year, lack of infrastructure and unclear Greenlandic fiscal policy, the operations are expected to entail high costs. Given that oil and gas will not probably be extracted before 20-50 years, they were not considered in this project as possible source of development.

Furthermore, the background section briefly describes Greenland's economy, politics and society. The local economy relies mainly on the fishing sector and a block grant from Denmark. The government wishes to differentiate by promoting the development of tourism and mining. Most of the population is employed in the public sector, which owns the majority of the national companies. On the other hand, the private sector is almost non-existent. Greenland is not a sovereign state; Denmark is still responsible for its foreign policy, security, finance and justice. However, Greenland has progressively obtained more autonomy. A research has shown that the country is vulnerable to corruption and that the public sector, which lacks financial and human resources, has no counterweight. The Greenlandic society is suffering from social problems originating from the transition from a traditional to a modern lifestyle, such as alcohol addiction, abuses and suicide. There is ongoing migration from settlements to towns and from Greenland to Denmark in search of better living standards.

The theoretical framework consists of an overview of the debate about human capital. In general, human capital – as the other forms of capital – can create economic returns, both for the individual and national economy. The act of increasing somebody's skills, knowledge and competences is the result of investment in human capital. Scholars agree on the positive impact of human capital on development, even though they explain the process through different models. On the other hand, there is disagreement about the benefits of human capital investment in case a country is resource-abundant. Some have theorized that natural resources hinder investment in human capital and development. However, the evidence in favour of a

systemic negative relationship has proven to be weak. Hence, both positive and negative outcomes are possible in terms of development creation, depending on the case under consideration.

A case study on three specific mining areas in resource-rich countries have been chosen to facilitate the understanding of how mining affects development. The example of mining areas in the Northwest Territories (Canada), Western Cape (Australia) and Alaska (U.S.A.) have been specifically chosen because they are able to provide insights on how the same process could happen in Greenland. After analysing some studies carried out in those areas, a certain relationship between mineral resource exploitation, human capital and development emerges. Consequently, this pattern is applied to the Greenlandic case and the findings that come out are described below.

6.1. Findings

All the stakeholders present in the case studies were pursuing development, even though each of them for their own reason. The local and central government aimed at developing the areas for the wellbeing of their population and economy so that the state would be healthy. The corporations were interested in socioeconomic development as part of their CSR strategy, as will be explained further below. Finally, the local population was willing to improve their living conditions, which would result in developing the country. The first finding is that each of them included investment in human capital in their strategy for achieving development, following the pattern described by Schultz on how to increase human capital. In particular, they invested on health facilities and services, on-the-job trainings, organized education, study programs for adults and migration to adjust to new job opportunities as a way to increase people's knowledge and skills. Since Greenland already suffers from the social problems usually caused by large-scale mining, it is paramount to address them from the start of the operations so as to avoid that they prevent development in the country. The government is struggling to develop the healthcare sector because it lacks financial and skilled human resources required for the scope. Mining corporations may contribute by funding new educational programs for doctors, nurses, and technicians and by cooperating with research centers in local universities so that the healthcare sector can advance. Moreover, mining organizations may build roads and other infrastructure for their operations, which could also be used for the benefit of the Greenlandic patients. Their intervention would reduce the government's expenditure on healthcare while also increasing human capital.

The general level of education among the Greenlanders is particularly low and there is an unmet demand for graduates. The Self-Government should negotiate with mining companies to obtain on-the-job trainings, scholarships, and to finance school activities for the population. Moreover, local schools should adapt their programs in order to prepare students for the market demands. The government is making efforts to make sure that its workforce has the necessary skills to work for mining corporations; yet, this is not enough. This kind of trainings should also be offered by the mining companies if their wish to hire local manpower. As to migration flows, in order to create development the outmigration of skilled Greenlanders and excessive inflow of foreign well-educated workforce should be avoided. The plans described above for improving education in Greenland should positively contribute to better nurture local human capital.

The second finding relates to the need to create partnerships among the population and civil society organizations, local private businesses, the central government and municipalities and the mining companies. This is the better way to exploit everyone's know-now and share expectations in order to realize mining operations that actually contribute to development. The government has established the tool of Social Impact Assessment that the companies must elaborate in cooperation with the government and local communities before their projects can be accepted. In order for this device to be appropriately used to make

sure that investment in human capital remains a priority, the following risks should be avoided: corruption among the public sector, multinational corporations setting the agenda alone and lack of active public participation.

Thirdly, in order for development to be achieved in Greenland, the CSR strategy of mining companies should be redirected to address the most pressing social problems. In this regard, corporations would allocate some of the goods usually provided by the state to make up for the limited resources and competences of the Greenlandic public sector. The success of this process lies in achieving the CSR goals by means of transparent partnerships between corporations, local organizations and government departments. Mining companies could become members of "CSR Greenland", a local networking organization that facilitates knowledge sharing and trustworthy cooperation in the field of CSR. The organization has already achieved some success in involving local private companies, but is willing to enlarge its scope to include multinational corporations.

Lastly, some strategies should be adopted to make sure that development brought about by mineral exploitations will last also after the end of the extraction phase. Corporations should outsources to local workforce, purchase goods from Greenlandic private firms, offer courses to boost entrepreneurship, finance small businesses independent from the mines so that the private sector can grow. On the other hand, the population should exploit these possibilities to increase their human capital and adapt it to other sectors than the mining one. Moreover, the entire infrastructure built for the mining towns could be used for other purposes after the closure of the mines so that development is created. One example is tourism, which the government is already wishing to expand. This aim could be achieved by exploiting the resources offered by the mining sector so that employment and development can be created.

6.2. Conclusive remarks

To conclude, investment in human capital is a great contributor to development, as shown by the social capital theory and highlighted in the case studies. Greenland is at the crossroads: on the one hand, it wants independence from Denmark; on the other, it faces a budget deficit and must find new sources of revenue. Hence, some changes are required. A great chance of development could be offered by the mining sectors in the next decades and its exploitation is welcomed among government and parts of the civil society. However, in order to be successful the government has to make sure that human capital investment remains as top goal in its own and in the corporations' agenda. According to CSR principles, corporations should be willing to create socioeconomic development because they will benefit as well. This option should be given prominence because it addresses a structural problem of the Greenlandic society: its lack of human capital. It would be hard to develop a country, when its population has health problems and lacks education. Therefore, investment in human capital should be considered as the first step towards sustainable development. Mineral extraction offers a great possibility because it entails the presence of multinational corporations, which possess the financial and human resources that the public sector lacks. Even though extensive negotiations and compromises will be required, an agreed solution can be reached. The positive effects would include also that an educated population will be better able to face social problems and govern itself, the economy will become diversified and the talent and capacities of the Greenlanders will be exploited.

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