Integrating Mining and Sustainability - A Case Study on Natura 2000 in Finnish Lapland

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Abstract

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Abstract

The availability of raw materials has become a growing concern for many European countries. For example, energy technology and ICT-sector are requiring different specific metals for the production of goods. In the global markets the production of raw materials has concentrated more on certain countries which obviously forms a threat to European industry.

The need for securing raw material supply in the EU raises a question about access to land and which kind of areas should be left outside of extractive industries. Natura 2000 network offers an interesting example of this since manmade actions are not directly forbidden in these nature conservation areas. At the moment, there are not yet specific instructions, how far manmade actions can go, and if mining activities may be possible in Natura 2000 sites.

This study focused on the importance of natural capital in EU's raw materials policy. The relation between Natura 2000 network and mining activities was studied with a case study taking place in Sodankylä where a copper and nickel mine is about to be founded on the Natura 2000 site. The issue was studied by content analysis where two EU-publications were constructed to common themes. Different pieces of news and legal orders were also studied to build a timeline about the mine project. Finally, themes from the content analysis were compared to the timeline of mining project to form practical findings how EU's raw material and nature conservation policies are functioning on the local level of decision making.

During the analysis it appeared that Natura 2000 sites and preserving natural capital do not have any specific safeguard in EU's raw materials policy. It was also recognized that traditional problems of EU policy making occur in raw materials sector. Policy programmes are planned at the supranational EU level but they are not that well implemented on the local level of governance. The analysis indicated that integrating mining actions on Natura 2000 sites might become a complicated task in practice because it is relatively new issue on EU scale. Basically, authorities would need more resources and capacity to fulfill policy programmes properly.

According to this this study, it seems that raw materials policy of European Union represents weak sustainability. In the end, binding political decisions are needed to finally argue, which kind of meaning natural capital has in EU's raw materials policy.

Key words

Natura 2000, EU's raw materials policy, mining activities, nature conservation, sustainability

Contents

List of used abbreviations

AA: Appropriate Assessment

BHP: Anglo-Australian multinational mining company

EC: European Commission

EIA: Environmental Impact Assessment

EIP: European Innovation Partnership

ELY: Centre for Economic Development, Transport and the Environment (Finland)

EP: European Parliament

EU: European Union

GDP: Gross Domestic Product

DG: Directorate-General (European Commission)

KHO: Supreme Administrative Court of Finland

LLP: Nature Conservation Lapland District

MEP: Member of European Parliament

MLG: Multi-level governance

NEEI: Non-Energy Extractive Industries

NGO: Non-governmental organization

OECD: Organisation for Economic Co-operation and Development

SEA: Strategic Environmental Assessment

YM: Finnish Ministry of Environment

WWF: World Wildlife Fund

Figures and tables

1 Introduction

During the years different technological solutions related to energy technology and climate change mitigation, for example, have become more and more complex. In addition, developing countries and China as its motor have started to build a strong industry linked to many different production sectors. In the global markets the availability of different raw materials has been decreasing, and the production of raw materials has centralized more on certain countries like China. The European Union is well known for its industry, for example car manufacturing, and sees this kind of market situation as a threat to European industry. In recent years, the EU has started to consider how it can maintain the competitiveness of its industry and sustainable supply of raw materials. (European Commission 2014c, 7 - 10). For example, the European Union has defined a list of critical raw materials. The list includes different metals that will need some substitutes or new supply chains in the future. If substitutes or new supply chains are not found, lack of them could slow down technological development and welfare in the EU area. In 2011, this list included 14 different metals and in 2014 it expanded to 20 different metals. The list includes minerals such as chromium and tungsten, that are important raw materials for the industry. (European Commission 2017b.)

The European Union has also started to tackle the problem of raw materials. In 2008, the European Commission adopted a Raw Materials Initiative as a strategy for this policy field. One aim of the strategy is to build common framework conditions for extractive industries in the EU area. (European Commission 2008, 3 - 4.) After this, European Commission established a more practical European Innovation Partnership programme (EIP) for raw materials in 2010. This partnership aims to three different issues with raw materials. First of all, it aims to help EU area meet the EU 2020 targets, that are smart, sustainable and inclusive growth. Secondly, it aims to raise industry's contribution to the EU GDP around 20 per cent by 2020. Thirdly, this innovation partnership aims to secure the raw materials supply chain inside the EU area. (European Commission 2013, 13.)

Meanwhile, threats like climate change and loss of biodiversity have also emerged as big threats globally. In 2010, the European Union took part in Convention on Biological Diversity in Nagoya and pledged to halt biodiversity loss in the EU area. For this commitment, EU

launched a Biodiversity Strategy in 2011 that has targets until 2020. For example, restoring and maintaining ecosystems is one of the targets. (European Commission 2011a, 4.) In addition, European wide nature conservation network called Natura 2000 has been highlighted as an important part to achieve conservation targets until 2020 (European Commission 2015, 5 - 6).

EU's pressure to increase mining actions can cause competition in land use planning. It can be argued, what would happen if remarkable ore deposits would be found in nature conservation areas. Natura 2000 network offers an interesting example of this since manmade actions are not straightly forbidden in these conservation areas. Actions should not endanger the favorable conservation status of rare species and habitats. (European Commission 2017d.) Although, practices vary a lot between different EU states. For example, fishing, agriculture and forestry activities have been carried out in Natura 2000 sites (Tsiafouli etc. 2013, 1029 - 1030). Therefore, it can be questioned, how far manmade actions can go in Natura 2000 areas and whether mining activities may be possible on Natura 2000 sites? In addition, there is a real life example of this kind of dilemma. Significant ore deposits have been found in Viiankiaapa swamp area in Sodankylä by mining company Anglo American. The swamp area is a part of the Natura 2000 network. (Kauppinen 2016, 2 - 3.)

1.1 Focus of the study

This study focuses on above mentioned case in Finnish Lapland. At the moment, the mining project is at the stage of ore exploration. There are not any binding decisions yet about investments for the mine, or complete certainty how this kind of issue is managed at the national level or EU level. For example, the permission of ore exploration has formed a complicated task in the process. Finnish authorities have had really different opinions on the issue and there has been a lack of mutual understanding between different actors. (Kauppinen 2016, 1 - 4.) Since there is not an actual mine yet, it offers a possibility to study how EU policies related to mining and nature conservation function at the local level of decision making. Therefore, this study concentrates on the work of authorities.

Research considering mineral policy and nature conservation in the EU context can be argued to combine issues from political field to environmental issues and economical development. Therefore, the theoretical framework of the study will concentrate on two main concepts, *capital* and *multi-level governance*. Capital has been an essential part of classical and neo-classical economics to understand economical development and how different sources of capital can generate income. (Radermacher & Steurer 2014, 2 - 4.) Natural capital, one kind of capital, offers a possibility to study sustainability between mining actions and nature conservation. Areas for nature conservation can be seen as a form of constant natural capital, one dimension of natural capital. These areas can be argued as important but not essential for humans living on the earth. In some cases constant natural capital can be substituted with manufactured capital. The decision related to this can be a political question as well. (Davies 2013, 113.) Policy making at the EU level can be highly complex compared to policy making at the national level (Jordan & Adelle 2013, 212). Multi-level governance (MLG) is a concept that has been argued to present best how the European Union is functioning nowadays (Jordan & Adelle 2013, 197). Therefore, it is important to deepen the understanding of the background of the European Union and multi-level governance. Finally, understanding concepts of capital and MLG simultaneously helps understand the complexity of integrating mining actions with nature conservation in EU's policy making.

The study focuses on finding answers to several questions related to Natura 2000 areas in EU's raw materials policy. Does Natura 2000 have any kind of safeguard or priority in EU's policy making? Is constant natural capital substitutable in EU's raw material policy? What is the importance of biodiversity conservation in this policy field? Moreover it will be studied which kinds of effects EU's raw materials policy may have on Natura 2000 network and nature conservation policy in the EU.

The following chapters, Chapters 2 and 3, handle the theoretical framework of the study. EU policies in raw materials and nature conservation are opened in Chapter 4. Material and methods are presented in Chapter 5, and findings of the study in Chapters 6 and 7. Discussion and conclusions can be found in Chapters 8 and 9.

2 Capital and policy making

The concept of capital has been an essential part of classical and neo-classical economics to understand economical development and how income is generated (Radermacher & Steurer 2014, 2 - 4). It has also been a factor illustrating what kind of inputs are needed for economical growth and welfare. (Piketty 2014, 45 - 48). Capital can be seen as one of the factors of production along with land and labor force. Capital can also be demonstrated as a unit, that has a characteristic to generate income. In other words, capital is often described as a stock of accumulated goods, which are dedicated to production of other goods. For example, forest resources can be understood as a capital that can be used for production of different forest products and in this way generate income to its owner. (Radermacher & Steurer 2014, 2 - 4.) Capital can be argued to reflect the state of development and prevailing social relations of different societies. Therefore, it is not an immutable concept or term. (Piketty 2014, 47.)

During the history the term capital has gained broad and narrow definitions and it can be seen as a case oriented concept. For example, in his book *Capital in the 21st Century*, a French economist Thomas Piketty has limited the capital to include only the sum total of nonhuman assets, that can be owned and exchanged on some market. This kind of definition excludes human capital out of the definition of capital. Reason for the limitation in his book is that human capital cannot be owned like land area or natural resources can. When referred to capital, it is important to reveal, what sort of capital is utilized in the case, and how it is restricted. (Piketty 2014, 46.) The term capital itself has nowadays different meanings and limitations. There are four major types of capital: financial, human, social and natural capital. In some cases manufactured capital or manmade capital has been raised as a fifth form of capital (Forum for the Future 2017, 2 - 6.)

2.1 Financial capital

Basically, there are two different ways how money can be used. It can be consumed or it can be invested to something. When an amount of money is invested to an activity, that produces

something, the money becomes financial capital. This is why the term capital has been often understood as a financial capital, i.e. money or other assets. For example different loans, debt and project finance can be seen as a financial capital because these sources can enable profits in the future. In many cases financial capital functions only for changing ownership, especially in international transactions. In the sense of so called productive financial capital, the concept is a little bit controversial. (Goodwin 2003, 3.)

Financial capital has been used as a tool in different economical calculations. For example, investors seek income generation and security for their money and this is why they enter the investing markets. At the same time, these investors take a risk because they can lose their money as well. (Hudson etc. 2013, 90 - 91) When utilizing capital, different stocks can be also valued economical. (Radermacher & Steurer 2014, 2 - 3.) Furthermore, financial capital has been utilized in social sciences to study different factors related to wealth. Piketty among others, has studied relations between inequality, capital flows and income in the book mentioned above. (Piketty 2014, 237 - 238.)

2.2 Manmade capital

Manmade capital or sometimes called manufactured capital is the entire physical man-made stock, produced and reproduced by society. The broad definition includes buildings, transport, energy, water, waste infrastructure, industrial production facilities and production of goods such as machinery, cars, airplanes or computers. (Weisz etc. 2015, 6261.) On the one hand manufactured capital has the possibility to generate income (e.g. roads) but on the other hand manufactured capital is also produced for human use (for example computers). Basically, some products can act as produced and productive capital. (Goodwin 2003, 4 - 5.) It is important to see that reproducing man made capital requires a socially organized continuous flow of energy and material from the environment. The production of the capital causes impacts to the environment in the form of different waste types, for example. (Weisz etc. 2015, 6261.)

2.3 Human capital, social capital & capacity

Human capital has been linked to different resources and sources of capital for several decades. An American economist Theodore Schulz recognized this kind of capital as one of the important factors for a national economic growth in the modern economy. (Kwon 2009, 3 - 5). In principle, human capital can be described as a skills and capabilities of individual people that make humans economically productive. (Hayter & Patchell 2011, 161). Traditionally knowledge, education and training have been seen as important factors to develop the amount of human capital. In addition, it has been noticed that behavioral habits and level of energy or physical/mental health can have an influence on human capital. For example, an American economist Harvey S. Rosen has described human capital as "an investment that people make in themselves to increase their productivity". A certain type of skills and capabilities can make people more productive and innovative. These specific characteristics of employees can yield a positive input to enterprises and organizations and bring economical development, growth and welfare to them. (Kwon 2009, 3 - 5.)

Recently, social capital has been considered as a production factor that can contribute to higher economic growth, and improve economic productivity (Tripp etc. 2009, 91). Compared to human capital, the term social capital can be separated as more community based capability to generate income. Where human capital refers to individual skills and capabilities, social capital refers more to stock of trust, shared values, expectations and social networks (Hayter & Patchell 2011, 161.) There are debates over the various forms of social capital though. For example, OECD has defined social capital as “networks together with shared norms, values and understandings that facilitate co-operation within or among groups” (OECD 2007a, 103.) This kind of capital is also considered important for the efficient performance of modern economies and a necessity for liberal democracy. Social capital is a relative new form of capital and it has been used in observations, when trying to figure out why there are differences in economic development between countries and communities. (Tripp etc. 2009, 91 - 92.) It is often linked to characteristics of a society that encourage cooperation among groups of people (for example managers and workers) whose joint, interdependent efforts are needed to achieve a common goal. This kind of common goal can be more efficient production, for example. Studies have suggested that strong norms of reciprocity lead citizens to trust and to help each other. It has also been noticed that dense

networks of civic participation encourage people to engage in mutually beneficial efforts rather than seeking only for individual profits. Hence such networks and norms are recently seen as important components of social capital. (Goodwin 2003, 6 - 7.)

An important issue to different governments and organizations is the *capacity* to carry out different required tasks. The term capacity often refers to technical capacity but organizational capacity is an important part as well. A term of *capacity building* has been mentioned as an important matter how to develop different organizations. For example, training of employees has traditionally been seen as a useful tool to increase technical capacity. In the case of organizational capacity, introducing better management practices, restructuring work and authority relationships have been raised as strategies to carry out capacity building. Institutional reform is a third dimension of capacity building. It may include legal reform or development of new accountability systems, for example. Moreover, in management of natural resources a greater emphasis on collective self-management by user groups and the development of local scale rules to govern resource users is another example of institutional reform. (Cheema & Rondinelli 2007, 270 – 271.) When considering about the meaning of capacity, it can be argued that human and social capital are in central role. Different institutions, organizations and enterprises need human capital as capable employees but they also need social capital as shared values to cooperate and be productive.

2.4 Natural capital

Natural capital can be seen as an essential issue to humans for living in this planet. To be more specific, what exactly are the components included in natural capital? Natural capital indicates to the stock of natural resources that provide flows of different goods and services. Major types of natural capital can be seen agricultural lands, subsoil assets (coal, gas, oil and minerals), forest areas, water areas, fisheries and the atmosphere around humans. Different goods and services provided by natural capital function as a supply for agriculture, manufacturing and services. This way natural capital works as a base for growth in economics and welfare. (The World Bank 2012, 105 - 106.) Sometimes natural capital is deconstructed to three dimensions: critical, constant and tradable. Critical natural capital is vital for life. It includes atmosphere, ozone layer and rare species, for example. Constant

natural capital is important, but not essential for living and it can be substituted in some cases with manmade capital. An example of this type capital is forest for a nature park. Tradable natural capital is what is not highly valued and can be replaced, for example trees that can be planted again. (Davies 2013, 113.)

The discussion on sustainable management of natural capital has emerged, because natural capital functions as a base for economic activities and growth. In addition, the use of different resources has been noticed to have different impacts on the environment, and to the resilience of ecosystems. Therefore, green and sustainable growth has become an important issue in the production of goods. The sustainable management of natural capital requires green growth in other key sectors, including agriculture, energy and manufacturing. It can be seen as a key to resilience and welfare gains because well-managed renewable natural capital protects people and key infrastructures from drought and floods, offers key productive and cultural services. For example, tourism can be argued as an economic activity, that is dependent on landscape and environment. Innovation, efficiency gains, and enhanced human and physical capital all play important roles when searching for natural capital outcomes that are consistent with green growth. (The World Bank 2012, 123 - 125.)

The importance of natural capital has been highlighted in the environmental policy of the European Union as well. The seventh Environmental Action Programme 2014 - 2020 aims to protect, converse and enhance the union's natural capital. In this context, natural capital is defined really broadly "biodiversity of the union". This definition includes ecosystem services and goods from fertile soil and multi-purpose forests to productive lands and seas. (Radermacher & Steurer 2014, 2 - 3.)

2.5 Defining sustainability with the help of natural and manmade capital

There are different methods to measure how natural capital is valued in decision making. In this case, it is relevant to study sustainability, because the focus on this study is to compare nature conservation and mining industry actions. It has been an established method in economics to compare sustainability with the concepts of *weak* and *strong sustainability*. These two different concepts have quite different perspective but they both evaluate

sustainability with the help of natural capital. In this theory the relation between natural capital and man-made capital has a central role. (Neumayer 2003, 21 - 25.)

The concept of **weak sustainability** presumes that there is not essential difference between manmade capital and natural capital. The paradigm assumes that there is no constitutional difference in the kinds of well being these capitals generate. In weak sustainability, natural capital is utilized to generate welfare to human beings in other words to manmade capital. The paradigm of weak sustainability argues that natural resources are super-abundant, or if not then technological solutions can overcome resource constraint. (Neumayer 2003, 22 - 24.) However, **strong sustainability** is a concept where main principle is that manufactured capital cannot substitute natural capital. Decision making utilizing the paradigm of strong sustainability assess, that natural capital is always rated higher than manmade capital. (Neumayer 2003, 24 - 26.)

The idea between these two ideologies can be seen in figure 1. The utilization of natural capital has been illustrated during four generations. In the picture, it can be noticed that in the paradigm of weak sustainability the state of nature is degrading, and the amount of natural capital is decreasing while the amount of manufactured capital has increased. Basically, manmade capital is rated higher compared to natural capital. In the paradigm of strong sustainability, the amount of manmade capital has increased, but the amount of natural capital has remained stable. In the end, the same amount of manufactured capital has been achieved in both cases. It can be stated that this kind of formula is difficult to carry out in practice because producing manmade capital usually requires inputs from the environment. Often the losses of natural capital are irreversible as well. This kind of paradigm is possible to achieve if a base for production is created with renewable materials and sustainable utilization (tradable natural capital). (Neumayer 2003, 24 - 27.) The paradigm of weak sustainability can be regarded as quite optimistic on technological improvements and natural hazards. In the picture, it can be also noticed that producing manufactured capital in the fifth generation would be difficult in case of weak sustainability because the amount of natural capital has decreased significantly.

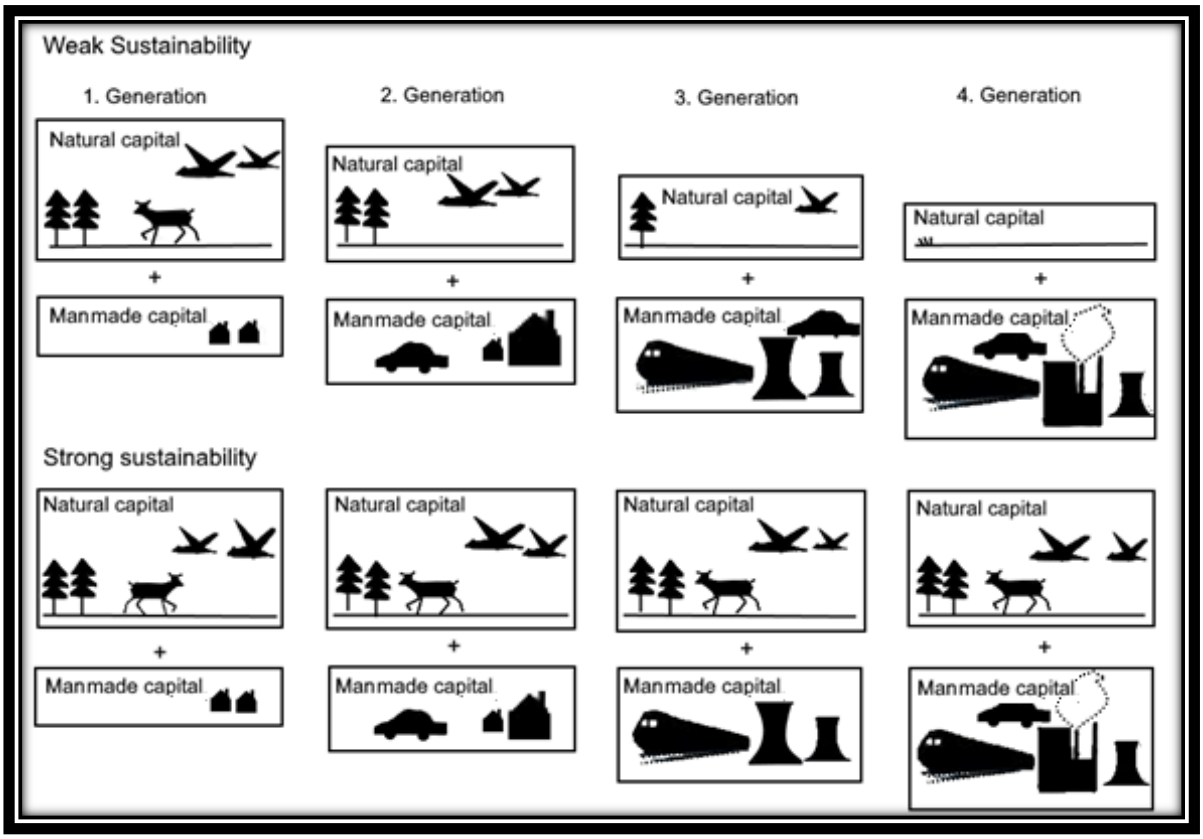

Figure 1. Weak sustainability compared to the strong sustainability. The picture illustrates differences between weak and strong sustainability and how they see the importance of manufactured capital compared to natural capital. Strong sustainability does not argue that increasing manufactured capital is impossible but the base for manufacturing has to be based on sustainable utilization. (Picture made from Davies 2013, 114.)

When evaluating sustainability, it is also important to remember that not all capital can be classified easily into one form only. Creating stocks of new hybrid seeds through selective breeding is one example of it. These seeds may be argued partly natural and partly produced capital. However, in many cases issues are more easily separated to manmade capital and natural capital. (Goodwin 2003, 7.)

2.6 Land in decision making

Land can be seen as an important issue, when thinking of utilization of natural capital. Access to natural capital and natural resources is linked to access of land. Biodiversity conservation and management of natural resources has been traditionally dominated by approaches, that

often focus on a single sector or on a single target. These kinds of approaches often fail to include a wider set of consequences to the decision making. On the one hand, maximizing profits from industrial utilization might lead to negative impacts on air quality and health of citizens. On the other hand, maximizing agricultural production might lead to poor quality of water or losses in downstream fisheries. In addition, maximizing biodiversity conservation can come with the cost of local jobs, food production and other important benefits. (Ricketts etc. 2011, 34.)

Natural capital can be argued as an important issue in the policy making but at the same time it has been traditionally difficult to value its importance related to other land use plans. Natural capital offers the inputs to production of different goods (such as agricultural crops, seafood, timber, and natural pharmaceuticals) but also cultural life (recreational possibilities, satisfaction of aesthetic and spiritual needs). Biodiversity conservation can generate economic returns through nature-based tourism or bioprospecting, for example. (The World Bank 2012, 106 - 107.) In many cases there is little incentive for business managers and local landlords to account importance of nature conservation in their decision making. This kind of single-sector approach, ignores the multitude of connections among components of natural and social systems, and generally fails to provide as high a value to society as would be possible. (Ricketts etc. 2011, 34.)

One basic question concerning the concepts of capital and nature conservation is *access to the land* or *access to resources*. The land has a possibility to generate income in different forms. During the history, land has been recognized as a primary source of wealth, power and social status. It has also functioned as a basis for shelter, food, and economic activities. In other words, land is the most significant provider of employment opportunities in rural areas, and it is also an increasingly scarce resource in urban areas. In many societies there is a strong correlation between the decision-making powers and the quantity / quality of land rights held by the person. (FAO 2002, 3 - 4.)

Nations can have impact on the access of land in different ways, and practices between nations vary a lot. Governments can have direct or indirect limitations on the utilization of resources or they can have open access resources. Open access resources refer to the situation, where no property rights are attached to them. Basically, these kinds of resources have been

utilized and degraded without constraint or regulation in the past. Therefore, governments often control areas directly or indirectly nowadays. Government's control over land areas can be seen as a way of direct limitation whereas for example different environmental regulations are indirect methods. In addition, some governments tend to keep resources and land areas government owned, and some prefer privatization. In the case of privatization, government still impose use-based restrictions to the company or organization, that is utilizing the resources. (Hayter & Patcher 2011, 190 - 191.)

In the end, decisions on land use can be seen as a political issue, because the land and natural capital has a possibility to generate income in different forms, and a possibility to offer cultural experiences in the nature, for instance. Climate change has raised questions if some areas should be left outside of industrial or agricultural actions. According to OECD, deforestation has remarkably increased the formation of greenhouse gas emissions in developing countries. (OECD 2007b, 5.)

2.7 Mining as land use

Mineral resources industry can be specified as an extractive industry because the aim of this kind of industry is to utilize resources, like ore deposits, underneath the surface. Directly or indirectly, it can be argued that mineral industry has been responsible for the greatest offences against the nature because of the characteristics of resource utilization. In total, mining includes extraction, transport and refining activities. In addition, the energy for these actions has traditionally been gained from petroleum and coal, that accelerates climate change. Therefore, mining can be described as a field of industry, that has several remarkable impacts on the environment. (Hayter & Patcher 2011, 193.)

Perhaps the latest large mining conflict has been the accident of Samarco taking place in Brazil in November 2015. The dam of the mining area ruptured, and then poisonous mud spread to the neighboring area. Via River Rio Doce, the poisonous mud has spread to the Atlantic Ocean as well. The Samarco disaster has been described as the biggest environmental catastrophe ever happened in Brazil. The investigation afterwards has occurred that mining disaster was partly due to bad management and irresponsibility by the

company BHP. It has also been estimated that it takes decades for the nature to recover from this kind of catastrophe. Social problems can be argued huge in the case of Samarco as well. The mine was the biggest employer in the region, so many citizens have lost their jobs and source of income. In addition, around 700 people have become homeless. The mining company BHP has also received a 46 billion euro compensation claim (The Telegraph 2016.)

Mining catastrophes can happen in developed western countries as well. Finland has faced one of the biggest mining conflicts in its history in November 2012. There was a remarkable accident in Talvivaara-mine in Sotkamo, Northern Finland. Approximately 1,2 million cubic meters of toxic wastewater and sediment spread to the environment. Around 240 000 cubic meters ended up outside the mining area. An investigation report about the accident has been published in 2014. The report argues that there have been problems in the work of authorities, and this has partly lead to the mining accident. The authorities have been the ones who have accepted the construction plans and have given the permits to the company. (Onnettomuustutkintakeskus 2014, 3.) The cases of Samarco and Talvivaara illustrate that functioning mine requires good management not only by the company, but also by legal authorities.

Still, it has to remembered that new mining projects do not directly mean that environmental and social disasters happen continuously. The cases in Brazil and Finland describe the characteristics of mining as a land use and possible threats if the mine is not designed and managed sufficiently. For example, Daniel Franks has dealt with the sustainability issues related to mining in his book *Mountain Movers - Mining, sustainability and the agents of change*. In his book, Franks argues that environmental performance of mines has gone further. Improvements to water management and emission reduction have been established, for instance. At the same time, mine waste has become a bigger problem because rocks with smaller amounts of ore deposits are utilized. In the book mentioned, Franks also states that rehabilitation and restoration of mined lands has proved problematic in many sites. Partly the problem has been companies that have not been ready to invest enough money to rehabilitation and restoration. In some cases, mining companies have not had sufficient plans to do this. (Franks 2015, 50 - 54.) It is good to notice that if it takes time for the environment to recover, it takes more time to generate other kind of income from

the nature as well. A good example is tourism. In the case of mining activities, it builds pressure on proper rehabilitation of mine area. Otherwise, the other kinds of profits cannot be gained in the area. For instance, the mining accident in Talvivaara has made it more difficult to get economical profits in neighboring areas of mine. For example, fishermen have reported about financial losses because the fish stocks have decreased, and the quality of fish meat has degraded because of toxic pollutants in the water (YLE 2012).

3 Policy making in the European Union

3.1 From safeguarding peace to economical cooperation

The European Union can be seen as a project that started for preserving peace in Europe after the Second World War. In 1952, a community called Coal and Steel Community included six European member states. This has been often described as the beginning of the European Union. (McCormic 2011, 77 - 80.) Since then, the union has faced several transitions from the European Community (1957) to the formation of the European Union in 1993. Nowadays, the European Union contains 28 member states. (European Union 2017d.) The Single European Act that was adopted in 1986 can be seen as an important turning point in the history of the union. That particular act started the process of common single market inside the function area of the EU. Since then, citizens, capital, goods and manpower have had a possibility to move without restrictions inside the union area. At the same time, the importance of the union has moved from peacekeeping to political and economical issues. For instance, the EU has removed the barriers of trade and developed different standards to optimize trading. At the same time, the EU's cohesion policy has been trying to compensate differences between member states both economically and socially. (McCormic 2011, 97 - 100.) Moreover, policy fields such as economics, agriculture and environment are now common between all member states. (McCormic 2011, 359). In literature, the uniting process after the Second World War has been described as the European integration (Gilbert 2011, 17).

Meanwhile, the decision making dynamics of the union have also changed significantly. When joining the union, the different states have laid down part of their sovereignty to achieve common European targets that have been regarded as impossible to achieve in isolation. Basically, the decision making power has been partly transformed to the upper level, in other words to the EU level. (Piattoni 2010, 9.) Therefore, member states have paid a price in their sovereignty and national competencies in order to gain achievements in other fields, like economics. (Trinski 2004, 25.) It has also been argued that Single European Act in 1986 was a significant turning point in the diffusion of power from member states to other sources. Thus, the traditional theories of decision making are not sufficient anymore

with the EU. When comparing globally the decision making system of the European Union, it can be regarded as unique. For example, a political scientist Simona Milio has argued that European integration does not fit easily to any class of political phenomena. (Milio, 2010, 12 - 13.)

3.2 Federalism and neofunctionalism

Policy making at the EU level can be highly complex compared to policy making at the national level. (Jordan & Adelle 2013, 212.) The decision making system of the EU includes different parts of different governance systems, and characteristics from external relations as well. To understand better the decision making in the EU and the background of multi-level governance, it is important to understand two different concepts: *federalism* and *neofunctionalism*. These two have an influence on the EU's new governance system. (McCormic 2011, 18 - 22.)

Federalism is a political arrangement, meaning that different states have laid down part of their sovereignty in order to achieve common targets. One example of federalist country is the United States where different states have autonomy to decide their own laws, among other things. Still, the highest power is in the hands of the U.S. Government. The decision making of the EU differs compared to the decision making in the U.S. (McCormic 2011, 33 - 35.) After the Second World War, the idea of the European Union has been to preserve peace in Europe, and it has been considered challenging without a federalist system. (McCormic 2011, 19.) There has been debates whether the EU represents a federal system or not. Some have regarded the EU as a weak federation, and the others as a confederation that refers to a system where states remain sovereign but they have a central authority. In practice, defining the specific political structure of the EU has become a complicated task. Still, it can argued that the EU's political structure and policy making have some characteristics of federalism. (McCormic 2011, 35 - 36 ; Jordan & Adelle 2013, 228 - 229.)

Neofunctionalism is a theory of European integration that was introduced by Ernst Haas in his book *The Uniting of Europe* in 1958. Neofunctionalism argues that integration in one specific field will lead to integration and positive feedbacks also in the other fields. One

example of this is reducing barriers of cross border flows (people and money), and this way accelerate the cooperation between different areas. Spillover effect relies to the situation where integration starts to live its own life, and determined specific goal creates a situation where the original goal can be achieved only with other actions as well. The theory of neofunctionalism has been sometimes criticized by supporters of intergovernmentalism that refers to political dynamic where key decisions are done as a result of negotiations among representatives of the EU member states. (McCormic 2011, 20 - 23.) Intergovernmentalism theories assume that European integration is not that straightforward as theories of neo-functionalism state. For example, Professor Adrew Moravcsik has argued that EU member states always try to guard their national interests, and prefer to work through intergovernmental institutions like the Council of the European Union, for instance. (Moga 2009, 801 - 802.) However, it can be argued that neofunctionalism helps understand how the union is trying to implement its policies in the EU area. (Trnski 2004, 23.)

The EU´s targets on mining activities and biodiversity conservation are presented in the Chapter 4 of this study. The existence of federalism and neofunctionalism can be noticed in these political targets. On the one hand, the competitiveness of the European industry can be seen at least partly as a federalist idea. On the other hand, the union has targets to achieve economical growth with increased raw materials actions. If the growth generates wealth in other policy sectors, it can be argued to represent the spillover effect of neofunctionalism.

3.3 Multi-level governance (MLG)

Multi-level governance (MLG) can be seen as the main theory nowadays when trying to understand the decision making dynamics of the European Union, and how the union itself works. The theory of multi-level governance is based on theory of *governance*. This term can be described as an arrangement where laws and policies are made and implemented not only by formally constituted set of governing institutions, but as a result of interactions between a complex variety of different actors. In the case of the European Union, these actors can be seen for instance member state governments, EU institutions, different interest groups and other sources of influence. (McCormic 2011, 33.) The theory of multi-level governance was introduced for the first time by political scientists Liesbet Hooghe and Gary Marks in the mid

1990's. In their essay paper they suggested that a new form of policy-making is developing in the EU. (Trnski 2004, 23.) Before that, a state-centered perspective considered national governments as the key actors in the EU's decision making system. The theory of multi-level governance was a suggestion that power of decision making has diffused to different levels. (Milio, 2010, 12 - 13)

The theory of multi-level governance refers to an administrative system where power is distributed and shared among several different levels of government, with a high degree of interaction between these levels. (McCormic 2011, 33). An essential characteristic of multi-level governance system is that issues can be dealt with at several levels simultaneously (Jordan & Adelle 2013, 197). According to this view, national governments remain vitally essential for policy-making, but they do not own a monopoly of decision making power. Instead, the responsibility of policy-making is now shared among a variety of actors at supranational (European), national (member state) and sub-national (regional) levels. (Trinski 2004, 23.) An interesting issue in this case is that power sharing does not happen only vertically but also horizontally. A practical example is that a lobbying group from the sub-national level tries to influence law making actors in the supranational level. (McCormic 2011, 33). In practice, changes are happening in all levels of analysis: politics, policy and polity (Piattoni 2009, 2).

Originally, the theory was utilized to better understand EU's cohesion policy but it has then spread to the other fields of policy making as well (Piattoni 2009, 5). For example, environmental policy has been argued to represent the system of MLG excellently nowadays (Jordan & Adelle 2013, 197). The EU itself has highlighted different partnerships as a powerful tool to operate multi-level governance. The union has described the multi-level governance as follows:

> *"coordinated action by the EU, the Member States and regional and local authorities according to the principles of subsidiarity and proportionality and in partnership, taking the form of operational and institutionalized cooperation in the drawing-up and implementation of the European Union's policies*"
>
> (European Commission 2014a, 10.)

According to the sentence, the European Union states that implementing multi-level governance requires close cooperation with national, regional and local actors as well as with socio-economic and civil society partners. From the EU's point of view, MLG can help the whole union communicate better because EU policies, objectives and results go together with multi-layered citizenship. (European Commission 2014a, 8 - 9.) In practice, this means that different EU-policies and initiatives should actualize better at the local level of governance, and local and regional actors should get their voices heard better in policy making.

Effective implementation of multi-level governance puts also pressure on the capacity of different institutions. For example political scientist Simona Milio writes about administrative capacity in her book *"From Policy to Implementation in the EU"*. She argues that implementing EU policies at the local level requires that different institutions have capacity and resources to carry out different tasks and policies properly. If the gap between existing capacity and required capacity is too substantial, this might make implementing policy even virtually impossible in some specific policy goals. Milio also argues that different countries have really different ways to perform functions, solve problems and achieve political objectives. (Milio, 2010, 32 - 34.)

3.4 Decision making actors in the European Union

The theory of multi-level governance takes into account the different actors in decision making. Simona Piattoni has argued that nowadays political mobilization occurs as much within institutional boundaries and through conventional procedures as across, and these boundaries and outside these procedures. In fact, policy making cannot be separated neatly from policy-makers to policy-receivers anymore. It is not relevant anymore to separate public and private actors either. It is more desirable to enlist all types of actors in all types of roles throughout the policy process. (Piattoni 2009, 2.)

Briefly, it can be argued that the European Union includes three main actors that have legislative power for the decision making. These actors are the European Parliament, the European Commission and the Council of the European Union. These actors have the decision making power, and they include representatives and officers from different member

states. Outside the official decision making functions a wide range of different lobbying groups, which try to have influence on EU's decision making (Jordan & Adelle 2013, 153 - 154). Below these decision making actors are described briefly.

3.5 European Commission (EC)

The European Commission is a supranational actor, that has been sometimes argued as the motor of the union (McCormic 2011, 167). There are several reasons for this definition. First of all, the Commission works as a base for decision making because the Commission creates initiatives on legislation, soft law and political programmes for the whole EU. The Commission publishes annual working programme where different proposals are mentioned. (Corbett etc. 2011, 267 - 268.) The European Commission is in charge of implementing and monitoring new EU-legislation in member states as well. Furthermore, the Commission is in charge of managing different policies and allocating annual funds, and setting priorities for common European Funds. In addition, international affairs and humanitarian issues are under Commission's responsibility. (European Union 2017b.)

The Commission functions as a political independent actor, and it does not represent any political party compared to the European Parliament. Every member state has its own Commissioner in a specific policy field. In 2017, there are 28 Commissioners who construct the College of Commissioners. However, it has to remembered that usually the Commissioners have their background in politics so their political view or party background might reflect in their work. (McCormic 2011, 167 - 169.) The European Commission is also constructed to different directorate-generals (DGs), that are responsible for overseeing the development, and implementation of laws and policies in specific areas. For example, environmental policies and laws are followed by DG Environment. DGs are managed in Brussels, Belgium. (McCormic 2011, 177 - 178.)

The Council of the European Union makes the decision on the Head of the Commission, and the majority of the European Parliament has to agree on the decision. Then, the Chairman of the Commission decides the possible Vice Chairmen and Commissioners. EU member states make a proposal of possible Commissioners. The Council of the European Union and the

Parliament have to agree on the list of Commissioners. The current Commission started its work in 2014. (European Union 2017b.)

3.6 The Council of the European Union

The Council of the European Union is sometimes called as the Council of Ministers. The main task of the Council is to decide which law and policy proposals will be adopted and which not. This happens in a co-operation with the European Parliament. The Council and the Parliament have shared powers in approving and adopting the annual EU budget as well. In addition, coordination of EU member states in different policy fields is an important task of the Council of European Union. It coordinates economic policies, justice and home affairs policies of the member states. It also defines EU's Common Foreign and Security Policy. The Council has a right to sign international agreements on behalf of the European Union. (McCormic 2011, 194 - 196.)

The Council of the European Union organizes meetings followed by the theme, for instance economical or environmental issues. Basically this means that the Council does not have any permanent assembly like the European Commission and the European Parliament have. The ministers of the specific field (for example ministers of environment) are invited to the meetings. Decision making requires, that 55 per cent of the member states agree on the negotiated issue. Basically, 16 out of 28 states have to agree on voting in 2017. At the same time, these states have to represent over 65 per cent of the citizens. (European Union 2017a.)

3.7 The European Parliament (EP)

The European Parliament is a political actor in the European Union, and it is selected by EU-wide elections. It includes 751 members who are called as members of the Parliament (MEP). Every EU member state has a certain number of MEPs, and these persons are divided into different political groups in the Parliament. The representatives do not primarily represent their home country, but their political party and political ideology. (European Union 2017c.) Basically, the European Parliament has competencies in legislative, supervisory and

budgetary issues. First of all, the European Parliament adopts EU legislation (proposed by EC) with the Council of European Union. Secondly, it decides on international agreements and the enlargements of the union. Thirdly, it functions as an evaluator for the Commission's annual work program, and it has a possibility to send questions to the Commission. (McCormic 2011, 214 - 216.)

The European Parliament has gained more and more power in EU's decision making since it was established in 1979. The Parliament used to be a consultative institution in history, but after the Lisbon Treaty in 2009 it has the power to adopt legislation with the Council of European Union. Basically, policy making at the supranational EU-level is no matter for governments alone, but for directly elected Parliament as well. Sometimes it has been stated that the Council of European Union represents member states, and the European Parliament represents EU citizens. (Corbett etc. 2011, 4 - 6.) The Lisbon Treaty has been sometimes seen as a point where the union has gone more to the side of federalist nation, and the Council of European Union has lost part of its legislative powers to the European Parliament. (Jordan & Adelle 2013, 32 - 33.)

3.8 Lobbying groups and nongovernmental organizations

Different lobbying groups and non-governmental organizations (NGOs) have gained more and more power in the policy making of the European Union. From the field of environmental policy, the first lobbying group, European Environmental Bureau, has been founded already in 1976. Moreover, in other policy fields there are several lobbying groups in Brussels representing geographical regions, business groups, employer federations, law firms, international organizations, among other things. It has been argued that almost every aspect of EU life is somehow represented in Brussels. (Jordan & Adelle 2013, 153 - 154.)

Lobbying groups are usually divided to two different categories, those who lobby friends and those who lobby foes. There exist also a divide to insiders and outsiders. ”Insider” lobbying groups have usually "friends" in different EU institutions and those groups can have influence in policy making by this way. For example, European Environmental Bureau is one example of lobbying friends, because it has relative long history in European policy making. For instance, Greenpeace represents another option to lobby from outside. Greenpeace has lots of

members, and it can mobilize strong networks in form of different boycotts if needed. Their campaigns are made to shock and mobilize big masses. This way, these actions have influence on policy making in the European Union. (Jordan & Adelle 2013, 158 - 159.)

3.9 Policy making power on the EU-level

Nowadays the Council of the European Union and the European Parliament have shared legislative powers (European Union 2017c). Still, it can be argued that the Commission plays a crucial role in the institutional system of the EU. The Commission's powers range from agenda-setting to monitoring functions and to executive tasks. (Liefferink & Knill 2007, 57 - 58.) Once a topic has been placed on the agenda, it is also inserted into the annual Work Programme of the Commission. (Jordan & Adelle 2013, 214). Compared to the European Parliament and the Council of the European Union, only the Commission has a possibility to start legislation acts. Without a proposal or initiative from the Commission, the Council and the EP cannot preside over legislative acts (with some exceptions). The EC can withdraw its proposals or initiatives, and stop the process at any time during the legislative process as well. (Liefferink & Knill 2007, 57 - 58.) What is in the agenda and on the policy preparation obviously depends on the constitution of the Commission, and what are the priorities. Surely, different NGOs and lobbying groups try to have influence on EU's decision making, but basically this happens after they have become aware what kind of initiatives and proposals the Commission is picking on its agenda. (Jordan & Adelle 2013, 158.) Moreover, the European Parliament has a possibility to send representatives to the initial meetings held by the European Commission to start the drafting process on new legislation. The Parliament can send its own initiative report to the Commission as well if it sees that an important issue has not been noticed in legislation drafting. (McCormic 2011, 215.) The Council of the European Union has a possibility to request Commission to put forward a proposal as well (Corbett etc. 2011, 233). If the European Parliament is not pleased with European Commission, it has a possibility to disband the current assembly of the Commission. Last time this has happened in 1999, therefore it is not a general practice. (Corbett etc. 2011, 288 - 290.) In addition, the Commission can refuse requests but in that case it has to formally explain the reasons. (Corbett etc. 2011, 233.)

Public opinion has traditionally had a minor role in EU's decision making. For example, Commissioners do not have to consider next political voting that much unlike politicians have to in the national parties and governments. Surely, there are issues such as climate change that has gained a lot of attention in the public that it has become an important topic in the Commission's agenda as well. (Jordan & Adelle 2013, 201.) Moreover, the Lisbon Treaty offers a new European citizen initiative, meaning a single person can approach EU institutions. Still, public participation in EU policy making is often dominated more by interest groups than individual citizens. (Jordan & Adelle 2013, 341.)

4 EU's attempts to govern raw materials and biodiversity

4.1 A pressure for governing non energy raw materials

Traditionally the acceptability of different energy sources has been important issue securing economical development. In recent times, the role of raw materials has been increasing as well. Raw materials have been seen essential for the EU's economy, and they are fundamental for maintaining and improving the quality of life of the citizens. (Fraunhofer ISI & Oakdene Hollins 2013, 5.) For instance, the European Union has experienced a supply crisis in 2000 when the boom of mobile phones led to a sudden demand for tantalum metal (European Commission 2008, 3).

Over recent decades the development of different hi-tech products has led to shifts in demand patterns of different raw materials. For example, the proliferation of touch screen goods such as smart phones and tablets has caused the increase in demand of indium metal. Indium belongs to the rare earth metals, and it is listed in the EU's critical raw materials list as well. Indium is not the only one linked to the high-tech goods. As an example, a modern smart phone may include from 500 to 1,000 different components. (Fraunhofer ISI & Oakdene Hollins 2013, 5.)

The availability of different raw materials does not enable just luxury products for customers. Developing environmental performance and environmental protection is closely linked to use of raw materials as well. Climate change, that has been argued as one of the biggest threats of the future is an example of this. Improving emission control systems in car manufacturing sector requires different platinum group metals for catalytic converters, and low carbon technologies require specific high-tech minerals. Wind power turbines demand specific rare earth elements, and solar panels rely on metals such as silicon, tellurium and indium. (Fraunhofer ISI & Oakdene Hollins 2013, 5.)

The availability of specific raw materials can cause conflicts in the future when considering economical development in different geographical areas. In the EU's critical raw materials report (2013), China was listed as the biggest producer of critical metals having a share of 30

per cent of global total supply. For comparison, USA is second with remarkably smaller amount, 10 per cent of global supply. In some cases, the availability of raw materials is even related to economic and resource nationalism. (Fraunhofer ISI & Oakdene Hollins 2013, 6.) If a state has a major amount of specific resource, it has a better possibility to define the price for the unit in the global market as well. As the biggest producer of raw materials, China has started to implement export restrictions. This has already had major ramifications to global manufacturing trends because normal market systems do not function in this kind of situation. Because of export tariffs and increased prices, China has an opportunity to provide raw materials to its domestic manufacturers with lower prices than those charged in the world market. This has resulted in remarkable negative effects on the competitiveness of non-Chinese manufacturers. Furthermore, it has created a pressure to move manufacturing plants from other countries to China, for example. (Bartis etc. 2013, 32.) Therefore, the adequacy of raw materials has been a growing concern in economies like the EU, the US and Japan (Fraunhofer ISI & Oakdene Hollins 2013, 5).

4.2 EU's political targets on raw materials

The European Union has developed tools in order to answer the above mentioned challenges linked to raw materials. Perhaps the most important strategy to tackle the problem is the Raw Materials Initiative that was adopted in 2008 by the European Commission. The strategy includes non-energy and non-agricultural raw materials that are utilized by the European industry. In other words, this initiative is directly focused on the industry field. (European Commission 2008, 2 - 5.) Since the focus of this study is on extractive minerals, it is relevant to open briefly the contents of the Raw Materials Initiative.

The initiative aims to achieve following targets:

> *"1. Ensure access to raw materials from international markets under the same conditions as other industrial competitors*
> *2. Set the right framework conditions within the EU in order to foster sustainable supply of raw materials from European source*

3. Boost overall resource efficiency and promote recycling to reduce the EU's consumption of primary raw materials and decrease the relative import dependence" (European Commission 2008, 5 - 6.)

Like it was mentioned earlier, the Committee of the Regions argued different partnerships as a tool to implement multi-level governance in the EU (European Commission 2014a, 2). After the Raw Materials Initiative, the European Union has also established European Innovation Partnership programme (EIP) for raw materials in 2010. Raw Materials Initiative can be seen as an overall strategy for the EU in the field of raw materials. EIP Raw Materials can be seen more as a tool, how the EU tries to achieve targets of the strategy. The overall objective of the EIP is to increase industry's contribution to the EU's GDP around 20 per cent, and to ensure the sustainable supply of raw materials to the European economy. The Commission's point of view is that these targets would help achieve 2020 objectives of the EU's industrial policy, and it would benefit society as a whole. (European Commission 2013, 12 - 13.) The President of the European Commission, Jean Claude Juncker stated in 2014 that industry's contribution to the EU's GDP was less than 16 per cent. (Juncker 2014, 7.)

EIP is a partnership programme where companies can apply funding for raw material projects over the national borders. EIP utilizes funding from EU's Horizon 2020-programme, for example. The work under the partnership programme is structured under three pillars: technology, non-technology and international cooperation. In practice, the EU is trying to ensure its access to raw materials with new technologies, but EIP aims to improve non-technological innovations and international cooperation on raw materials sector as well (European Commission 2013, 14.) The European Commission also publishes annual Horizon 2020 Work programmes where it is specified which kinds of research and innovation projects can be funded. For example, in 2017 different projects related to raw materials and resource efficiency are mentioned in the working programme. (European Commission 2016, 43 - 44.)

The European Commission has stated that the targets of the partnership programme will be achieved with reducing import dependency, promoting production in the EU-area, and overall putting the European Union at the forefront in raw materials sectors. The strategic implementation plan of the EIP states that negative environmental, social and health impacts should be reduced as well. (European Commission 2013, 13.)

4.3 EU's political targets on biodiversity conservation

In 2010, the European Union took part in Convention on Biological Diversity in Nagoya and pledged to halt biodiversity loss in the EU area (European Commission 2011a, 4). The European Union has launched a Biodiversity Strategy by 2020. The strategy is adopted in 2011, and it includes six targets and 20 actions. The main target of the strategy is to halt the loss of biodiversity and ecosystem services in the EU by 2020. The all six targets of the strategy are the following:

1. *"Protect species and habitats*
2. *Maintain and restore ecosystems*
3. *Achieve more sustainable agriculture and forestry*
4. *Make fishing more sustainable and seas healthier*
5. *Combat invasive alien species*
6. *Help stop the loss of global biodiversity"*

(European Commission 2017a.)

When considering on integrating mining activities with biodiversity conservation, it can be said that targets, 1, 2 and 6 are the most relevant related to this field. At this point, the success of the EU's biodiversity conservation has also been discussed in some institutions of the European Union. In February 2016, the European Parliament adopted *a Resolution on the mid-term review of the EU Biodiversity Strategy to 2020* that addressed how well the policy of the EU has functioned in the field of biodiversity conservation. According to the report, the European Parliament stated that member states should pay more attention achieving the 2020 targets, and this would need more participation from national, regional and local actors. The European Parliament also highlighted that the EU should reduce its biodiversity footprint worldwide. (European Parliament 2016a 5 - 6.) In December 2015, the Council of the European Union discussed on the importance of biodiversity conservation in order to reach the 2020 targets. The discussion took place in the meeting between ministers of environment. The Council of the European Union highlighted the importance of Natura 2000 network. (Council of the European Union 2015, 5.)

Natura 2000 is a biodiversity conservation network founded by the European Union. It is the biggest coordinated network of protected areas in the world, and it covers 18 per cent of the EU's land area. The purpose of the Natura 2000 is to ensure the long-term survival of most valuable and threatened species and habitats in the European Union. (European Commission 2017d.) These are listed under both the Birds Directive and the Habitats Directive of the EU. These cover approximately 200 habitats and 700 species (Ympäristö.fi 2017).

Natura 2000 network has several targets. The first one is to prevent actions, could seriously disturb species or nature habitats. The second target is to implement positive actions for preserving or recovering habitats to maintain the state of the biodiversity. Overall, the network aims to promote sustainable forestry, agriculture and tourism, and strives to guarantee future scenarios for citizens who are living in these areas and are dependent on them. (European Commission 2017f.)

When thinking about previously presented dimensions of natural capital, Natura 2000 areas can be seen as a form of constant natural capital. Basically, their existence is not vital for human living, but they function as an important base for biodiversity conservation. The basic principle of Natura 2000 is that citizens could live in interaction with the nature, and the management of conservation areas should be sustainable economically and ecologically. This means that manmade actions are not straightly forbidden in these areas. (European Commission 2017d.) For example, crop yielding and livestock activities have been carried out in Natura 2000 sites. (Tsiafouli etc. 2013, 1029 -1030.)

The importance of Natura 2000 network has been discussed in the report *Natura 2000 - The State of Nature in the EU*. The report has been published by the European Commission in 2015. The report specifies that while there have been some improvements in biodiversity conservation, the overall status of species and habitats in the EU has not improved remarkably during the last six years of observation time. The report also argues that if the targets of EU 2020 Biodiversity Strategy are wanted to be achieved, it would mean significant improvements in nature conservation. (European Commission 2015, 2.) At the same time, it has to be remembered that the time frame of Raw Materials Initiative and the EIP on Raw Materials is targeted to the year 2020 as well.

Natura 2000 network functions as an interesting example of sustainability. On the other hand, these areas are really important for nature conservation, and on the other hand it is not that specific described what actions are forbidden on Natura 2000 sites. The same issue related to Natura 2000 has been discussed in the academic world as well. For example, Maria Tsiafouli from Aristotele University has studied the issue with her colleagues. Their research group argued that Natura 2000 is a highly diversified conservation network. According to their analysis, practices between EU member states vary a lot and even a division between Southern and Northern member states is noticeable. The reason for this may be different kinds of strategies and approaches to implement nature conservation policies between South and North. In their analysis appeared that human activities in Natura 2000 sites range from direct threats to biodiversity and nature (pollution by industry) to environmentally friendly activities (such as recreational activities, walking and cycling). (Tsiafouli etc. 2013, 1029 - 1031.)

In addition, The European Commission has published a guidance on Non-Energy Extractive Industry actions, also known as NEEI, on Natura 2000 areas in 2011. The guidance clarifies that mineral extraction actions would be possible on Natura 2000 sites as well. When thinking about mining actions, it seems really difficult to integrate nature conservation and mining actions in the same area. On the other hand, it has to be remembered that since this guidance is published, there is a strong pressure for increasing mining actions in the EU area. (European Commission 2011b, 4.)

5 Material and methods

The study methods of this study consist of two parts. The first part utilizes content analysis where two publications published by the European Commission are deconstructed to topics. Then the topics are reduced to common themes between documents. Constructing the common themes between EU documents is opened precisely in the Appendices I and II. These documents were chosen to the study because European Commission is a supranational actor in the EU level that is in charge of developing policy initiatives. Basically, it is relevant to study what issues EC is willing to develop in raw materials policy. In the second part, a case study is constructed to a timeline between the years 2004 - 2016. For this part, different pieces of news and legal orders are studied. Finally, findings in two documents are compared to the case study in Sodankylä. Basically, it can be studied how Commission's point of view is implemented on the local level of decision making.

5.1 Content analysis as a study method

Content analysis is a theoretical method that aims to make observations about a specific phenomenon (Janhonen & Nikkonen 2001, 21 - 22). Content analysis can be carried out based on books, articles, publications and overall everything that can be found in written form. The idea of content analysis is to analyze publications systematically and objectively. (Silius 2005, 1 - 2.) This kind of analysis can be seen as a common study method because a remarkable amount of raw textual data is being generated daily in digital form representing almost all topics of interest to social scientists. Different newspapers, social science and legal journals, publications by different organizations are examples of these. (Klippendorff 2013, 21.)

Content analysis can be argued as a reflexive study tool because it can be utilized with qualitative material or with quantitative data. The analysis can also be based on a theory or material. The focus can be in topics, that are clearly noticed in the material (manifest content) or hidden information in the background (latent content). In addition, the study method offers two possibilities for reasoning, inductive and deductive. Inductive reasoning is utilized when the idea is to form a conceptual description from concrete dataset. Deductive reasoning is the other possibility where theory or theoretical concepts and their appearance in concrete dataset

are investigated. (Janhonen & Nikkonen 2001, 24 - 25.) With this kind of study method, it is important to pay attention to what kinds of units are analyzed. The units can be sampling units, recording units, coding units or context units. (Klippendorff 2013, 99.) Even single words can be analyzed. In this study the focus is on context units. More precisely, a unit has to include the whole sentiment about the issue. For example, a sentence or paragraph can form a unit for analysis (Janhonen & Nikkonen 2001, 25 - 26.)

5.2 Content analysis in this study

The European Commission has published two following publications, that handle integrating mining actions and nature conservation in the EU-area.

1. Recommendations on the Framework Conditions for the Extraction of Non-Energy Raw Materials in the European Union. Published 2014.

2. EC Guidance on: Undertaking Non-energy Extractive Activities in Accordance With Natura 2000 Requirements. Chapter 2: The EU's Policy Framework and Legislation for Nature and Biodiversity. Published 2011.

The first publication is about the state of different raw material policy practices in the EU. In addition, publication handles what kind of issues the European Commission wants to develop concerning extractive industries, and what are the best practices at the moment in some member states. (European Commission 2014b, 4 - 5.) The other publication is the second chapter of the guidance on the Natura 2000 network and non-energy extractive industries. This publication specifies legal and political aspects concerning mining activities and biodiversity conservation in the European Union, especially in Natura 2000 sites. (European Commission 2011b, 15.) Both documents are written from the perspective of extractive industries. Basically, it can be stated that the first publication specifies more closely to which way the raw materials policy of the EU is possibly developing. The other one defines political and legal boundaries between mining actions and nature conservation related to Natura 2000. It can also be stated that these publications function as a tool for decision makers, and form a base how the European Union is going to develop its raw materials policy. Therefore, by

using this study method information about the future development of the raw materials policy can be found. At the same time, information can be received how Natura 2000 areas are managed in raw materials policy and how the importance of natural capital is seen in the documents.

These two publications will be analyzed with the content analysis and the findings will be summarized. Reasoning in this case is inductive. The analysis will be based on material, and will be focused on finding themes connected to Natura 2000 network, nature conservation and mining actions (manifest content). Firstly, publications were read for several times to construct an overall image of them. After this found topics were collected and illustrated on the same paper (Appendix I). Then topics were compared between publications to construct themes. Finally, five different common themes between documents were found. For example, topics like biodiversity, recycling, resource efficiency formed a bigger group, here called sustainability. Some topics were selected to several theme groups because it would not be relevant to include them into one group only. For example, Environmental Impact Assessment was selected to groups called regulatory and legal framework and project procedure. This is reasonable because the assessment is a legal tool, but it has to be taken into account in the planning part of the mine project as well. Common themes constructed can be found in Appendix II.

The analysis focuses on to build an overview how European Commission sees the status of Natura 2000 network in EU's raw material policy. The objective is to find out if Natura 2000 sites have any safeguard in mining policy and should constant natural capital be preserved or not from Commissions point of view. With above mentioned analysis answers are searched how the importance of natural capital (nature conservation) is handled in the policy making compared to manmade capital (mining actions). In addition, it can studied how conflicts between mining activities and Natura 2000 sites can be solved according to the European Commission's point of view.

5.3 Building the timeline of case study

The case study is focusing on a mine project in Viiankiaapa swamp area that is at the stage of ore exploration. The aim of the study is to find practical information how Natura 2000 sites are managed at the local level of decision making. Therefore, different pieces of news in the media related to case study were studied to get better understanding what has been going on in the area during the years 2004 - 2016. Since there has been only ore exploration in the area, the aim is to build an overall image of administrative process of Viiankiaapa. For example YLE, the Finnish Broadcasting Company offered the most of the pieces of news related to the case. In summer 2016, a Finnish newspaper Suomen Kuvalehti published a large article on the situation as well. This specific article helped significantly to build an overall picture about the project. In addition, the case of Viiankiaapa has been in the different stages of administrative court so court orders by different authorities have been read to get a better understanding of the proceedings. When reading the articles and court orders, the attention was paid on what has happened in the process so far and where the case is heading. Compared to above mentioned EU documents, the analysis of pieces of news and articles is not based on systematic content analysis. The purpose is to build a timeline of the whole process from the year 2004 to the year 2016 focusing on major incidents.

Surely, the mining project in Viiankiaapa can be seen as a relative big and long process, that includes different actors, and external issues as well. Therefore, some restrictions must have been done for the Thesis. Since the mine is not functioning yet and there has only been ore exploration in the area, the study will concentrate only on the work of different authorities. (YLE 2016a.) In the end, authorities are deciding actors who will give the company permission for operating or not. In this case, these authorities are the European Commission at the EU-level and Finnish legal authorities. To get some counterbalance, the opinions of environmental non-governmental organization Nature Conservation Lapland district (LLP) are taken into account as well because this organization has been really active in the process.

5.4 The relevance of the study methods

At this point it can be asked why content analysis is relevant method to study the research question. Thematic units have been described as a rich, attractive and reliable way to utilize content analysis. At the same time, these kinds of units have been criticized because they might lead different readers to different directions. This obviously makes the reliability and repeatability of research more complex. For example, a language professor Klaus Klippendorff from the University of Pennsylvania has stated that even though themes are relative formalized or limited in scope, they are not as easily compared to more simple units. (Klippendorff 2013, 109 - 111). This research utilizes two different publications published by the European Commission and searches common topics between these publications. In this way the research is more reliable because it is not based on one document only. The content analysis can be seen as a relevant tool to summarize the overall contents of these two publications related to Natura 2000 sites. Added value for the research can be achieved when the findings in the documents are compared to the ongoing mining project. For example, some useful information can be found if some practices do not work at the local level like they are planned at the EU level. This also makes the research more reliable because the aim is to find practical answers.

6 EU document analysis

Two publications mentioned earlier handle the nature conservation and mining from different perspectives. The first publication describes what would be the best framework conditions for extractive industries in the EU area. The other one specifies what issues should be taken into account in mining projects on Natura 2000 sites. Nevertheless, it seems that these documents have common themes as well. Constructing these common themes required publications to be read several times to build an overview of them. Five different themes were found with observation. Dividing topics to relevant themes is opened in the Appendix I and themes are fully constructed in Appendix II. Certainly, there were also topics that were not applicable with the themes, and these were left out of the analysis. The common themes found in these publications are the following

- Sustainability
- The status of Natura 2000 sites in raw materials policy
- The work of authorities
- Regulatory and legal framework
- Project procedure

6.1 Sustainability

Sustainability has been handled from different perspectives in the documents. The guidance on Natura 2000 areas argues biodiversity conservation as a crucial issue whereas the document on framework conditions highlights the importance of resource efficiency and waste management, for example. These kinds of issues can be argued as production based factors. Both documents also mention environmental legislation that is quite obvious because environmental legislation has a crucial role in the mining sector. (European Commission 2011b, 15 - 18 ; European Commission 2014b, 7 - 11.)

In both of the documents, sustainable development emerges as an important aspect, but the topic is not opened so well. (European Commission 2011b, 15 - 16 ; European Commission

2014b, 19 - 20.) Certainly, it has to be mentioned that sustainable development can be seen as a broad topic, that functions more as a guideline for policy making. Overall, both documents argue that mining actions and sustainable development could be integrated. This is an ambitious target by European Commission because the idea is really optimistic concerning technical improvements reducing environmental impacts of mining, for example. Production based factors, such as resource efficiency and waste management, build a picture of weak sustainability in the document concerning framework conditions. Like it was mentioned earlier, this paradigm argues that environmental problems can be solved with technological improvements.

6.2 The status of Natura 2000 sites in raw materials policy

The status of Natura 2000 areas related to extractive industries is questioned in both of the documents. Natura 2000 sites are highlighted as areas where man made actions are still possible if it does not have a remarkable impact on the integrity of network. In Natura 2000 guidance there is also a note about *public overriding interest*, referring to the situation, where a project would still proceed despite the negative impacts on Natura 2000 site. Both documents emphasize that Natura 2000 areas should not be straightly excluded from extractive industries (European Commission 2014b, 24 ; European Commission 2011b, 21 - 22.) For instance, the document on framework conditions states:

> *"There should be no automatic exclusion of raw material extraction activities in and around potentially sensitive areas (e.g., Natura 2000). Instead, extractive activities shall ensure that these activities do not adversely affect the values of such sites (e.g., by following the European Commission Guidance on Non-energy mineral extraction and Natura 2000"*
> (European Commission 2014b, 24.)

This kind of ideology presents the ideology of weak sustainability because Natura 2000 sites are not straightly guarded against industry actions. Instead, while the guidance on Natura 2000 concentrates on specific circumstances of the network, the other document argues

Natura sites as conflict areas and how the closeness of protection sites can cause delays in the permitting process. (European Commission 2014b, 21 ; European Commission 2011b, 21 - 22. It seems that European Commission's aim is to allow more straightforward permitting and faster project schedules. At least, this is the image in the document concerning framework conditions. In other words, Natura 2000 areas are seen only as one issue among others that are delaying the process of new operating mines. In the Natura 2000 guidance, a note about specific circumstances builds a picture of weak sustainability in policy making as well because preserving natural capital seems not to be a priority in exceptional cases.

6.3 The work of the authorities

The work of the authorities is a common theme between these two documents as well. This is quite obvious because authorities are the ones who make decisions on permissions and new operating mines. Both documents lists topics like different planning processes under this theme. For example, the publication on framework conditions discusses spatial planning policies. Likewise, the Natura 2000 guidance discusses on territorial planning. (European Commission 2014b, 19 - 22 ; European Commission 2011b, 23 - 25.) Here is a one example from the document on framework conditions:

> *"Land-use and spatial planning policies directly affect sustainable development strategies for the non-energy extractive industry. Land access is an essential pre-requisite for the further development of the extractive industry."* (European Commission 2014b, 20.)

These kinds of statements refer to fast permitting procedures and the importance of access to land and access to minerals. For example, in this statement sustainable development strategies for NEEI-activities are linked to sustainable supply of raw materials. Certainly, different planning policies and preparation are under the responsibility of different authorities, and these policies are seen as an important issue for increasing mining activities.

The perspectives of multi-level governance have also been taken into account in the document on framework conditions. A case study in Portugal has been presented where coordination

among different levels is highlighted to achieve the best results in the permitting process. The capacity building of authorities is mentioned as well. (European Commission 2014b, 22 - 24.) The guidance on Natura 2000 does not pay attention that much on multi-level governance perspective. Still, it can be stated quite obviously that successful coordination between different levels is important to implement mining projects properly. In the case of projects in Natura 2000 sites, this might be even more important because a project might face more resistance from different sources, for example from local residents.

To compare, guidance on Natura 2000 focuses mostly on the specific characteristics of Natura 2000 sites. More specific to legal and political aspects, that authorities have to take into account if a mine project is planned to begin in the Natura 2000 area. For instance, an appropriate management plan and compensatory measures are represented as responsibilities of planning authorities. (European Commission 2011b, 23 - 25.) In the Natura 2000 guidance, capacity building of authorities has not been mentioned unlike in the other document.

6.4 Regulatory and legal framework

Regulatory and legal framework is seen as an important theme in the documents because the common framework forms a base where all member states work. For example, screening, scoping, and Environmental Impact Assessment (EIA) are mentioned in both documents. Screening and scoping are introduced as components to determine whether the proposal should be a subject to an Environmental Impact Assessment or not. EIA is a legal tool based on the directive 2011/92/EU. The principle of the assessment is that environmental effects should be investigated and harmonized. Appropriate Assessment (AA) is introduced as a tool that can sometimes substitute EIA. This procedure is presented in the Natura 2000 guidance but not in the document on framework conditions. (European Commission 2011b, 22 - 26 ; European Commission 2014b, 25 - 27.) Both of the documents highlight above mentioned screening, scoping, EIA and legislation. Still, it is mentioned in the publication on framework conditions that different practices vary in member states. (European Commission 2014b, 6). In practice, this can sometimes transform the issue more complex. In addition, it is useful to remember that the aims of the Raw Materials Initiative are quite ambitious. Basically,

heterogeneous legal and regulatory practices around the EU might have an impact on the implementation of the initiative.

Some topics are partly overlapping between themes. Screening and scoping could be included in the theme of project procedure as well, but it has been decided to put them under theme of regulatory and legal framework. In the end, these are legal tools. AA and EIA are also included in the theme project procedure, because if EIA or AA is needed, it will have an impact on the project schedule.

6.5 Project procedure

Project procedure has been discussed in both documents. These publications determine Environmental Impact Assessment as tool for evaluating possible environmental impacts of a mining project. The guidance on Natura 2000 mentions Approriate Assessment (AA) and SEA as well. It is represented as a case oriented issue whether the project needs EIA or AA. The guidance on Natura 2000 specifies that Strategic Environmental Assessment (SEA) aims to ensure that environmental consequences of certain plans or programs are identified, assessed and taken into account during preparation, and before the adoption. SEA is not mentioned in the other document. Anyway, the publication on framework conditions highlights instructions represented in the Natura 2000 guidance. (European Commission 2011b, 22 - 27 ; European Commission 2014b, 25 - 29.) This clarifies the fact that instructions offered by Natura 2000 guidance have possibly been taken into account when the publication on framework conditions has been under preparation.

Considering the project procedure, Natura 2000 guidance focuses on specific issues that should be taking into account in the planning process. Basically, the document emphasizes project planning. There is an example of this in the document:

> *"Certain conditions are respected during construction, operational or closure phases of the project, again to remove the likelihood of negative effects or to reduce them to a level where they no longer affect the integrity of the site."*
> (European Commission 2011b, 22.)

This kind of statement in the guidance on Natura 2000 represents weak sustainability because the aim seems to be mitigating negative effects of mining with technological improvements. To compare, the document on framework conditions specifies that mining activities are temporary, and resources should be put on stable and transparent permitting process (European Commission 2011b 19). In practice, EIA and project planning are introduced as useful tools to minimize the environmental impacts of mining. These kinds of statements represent weak sustainability as well because natural capital seems not to have any specific status in these statements.

6.6 Commission's point of view on mining activities in Natura 2000 areas

Overall, it can be argued that these documents handle Natura 2000 sites from different perspectives, but both of the documents confirm that mining projects are possible in Natura 2000 sites. European Commission argues that mining actions and biodiversity conservation can be integrated in EU's raw materials policy. In some topics such as project procedure, it is noticed that the instructions of Natura 2000 guidance are taken into account in the document on framework conditions as well. Basically, these publications are at least partly synchronized. Moreover, it seems that Natura 2000 sites do not have a special status or safeguard in mining policy from Commission's point of view. It is more case oriented issue what kind of impacts mining project may have on the environment. Nevertheless, European Commission states that these impacts can be investigated by EIA or AA procedure and minimized by relevant planning processes and technological improvements. When thinking about the characteristics of mining as an extractive industry, integrating nature conservation and mining actions seems to be a quite ambitious target by the European Commission. This kind of political thinking represents weak sustainability because preserving natural capital seems not to be a priority in policy making and constant natural capital does not have any specific safeguard. Basically, the aim is to mitigate the loss of natural capital during mining actions.

7 A case study in Finnish Lapland

In this study, the relation between Natura 2000 sites and EU's raw materials policy is investigated with a case study in Finnish Lapland. The Natura 2000 area is called Viiankiaapa, and it is a protected swamp area in the town of Sodankylä. There are several reasons why the study is concentrated in this specific swamp. First of all, common raw material policy of the European Union can be seen as a relatively new topic in EU's decision making. For example, Raw Materials Initiative was adopted in 2008, and EIP on raw materials in 2011 (European Commission 2008, 2 - 5 ; European Commission 2013, 12 - 13). For comparison, common agricultural policy of the EU was developed in the 1960's (European Commission 2010, 3). Secondly, implementing mining actions on Natura 2000 sites can be seen as an issue, that has not been yet tested in reality (Sodankylän verkkolehti 2012). For instance, an extraction area in Kevitsa mine is located near the Natura 2000 site, not straightly in it. (Pöyry Finland Oy 2011, 3). Therefore, a Finnish newspaper Suomen Kuvalehti has published a big article on Viiankiaapa in 2016, and argued the case is a so called stress test for Natura 2000 protection network. The result of the process would define a lot to which way EU's nature conservation and raw materials policy are developing in the future. (Kauppinen 2016, 5).

7.1 Viiankiaapa as Natura 2000 site

Sodankylä is a town located in Northern Finland, Lapland. It can be argued as a dispersal populated area because it has a land area of 12 417 km^2, and there were 8878 inhabitants in 2013 (Sodankylän kunta 2014, 2 - 3.) A protected minerotrophic bog called Viiankiaapa is located in Sodankylä. The swamp has a rich biodiversity, and it has been a part of Finnish Swamp Protection Programme since 1988. Nowadays the Viiankiaapa is a part of Finnish Nature Conservation Programme established in the Finnish legislation, and the swamp belongs to the EU's Natura 2000 network as well. (Luontoon.fi. 2017.)

The overall geographical area of Viiankiaapa is 65,95 square kilometers. Ten plant species have been found in the area that have been categorized either endangered or dependent on

conservation. In addition, 90 bird species have been discovered of which 21 are endangered or dependent on conservation. Thus, there are species mentioned in both of the EU Nature directives concerning birds and habitats. The traditional usage of the area has been reindeer herding, hunting, berry picking and recreational use. Basically the economical use of the area has been based on the tradable natural capital. (Luontoon.fi. 2017.)

The plans concerning Viiankiaapa swamp have changed quite rapidly in recent years. A British mining company Anglo American has made a land claim for the area and carried out ore exploration. The company has stated that deposits of nickel and copper can be found in the swamp area. Anglo American has also explored gold, palladium and platinum from the mineralization of Viiankiaapa. (Taloussanomat 2013.) In a press conference in year 2011, the company regarded found deposits as remarkable. They also argued that Viiankiaapa might be the most promising European mine area in this century. (Kauppinen 2016, 2 - 3.)

7.2 Actors in the case study

There are several actors taking part into the process of Viiankiaapa mine. Anglo American is the mining company that is planning a possible mine in the Viiankiaapa. In 2011 Anglo American founded the subsidiary to carry out ore exploration in the area. This company is called AA Sakatti Mining Oy. In addition, the process includes legal authorities, different stages of administrative court, representatives from local level of decision making and actors outside decision making as well. (Kauppinen 2016 1 - 4.)

Firstly, there are two institutions that are in charge of permissions for ore exploration. The Finnish Ministry of the Environment (Ympäristöminisreriö), is an authority that has the possibility to approve a permission for ore exploration in the area of wetland protection network. Tukes (The Finnish Safety and Chemical Agency), is a legal authority in Viiankiaapas's Natura 2000 area. Basically, AA Sakatti Mining Oy needs two separate permissions to carry out ore exploration in the area. (Korkein hallinto-oikeus 2016.) Furthermore, Metsähallitus is a governmental organization governing the wetland protection area in Viiankiaapa. The Centre for Economic Development, Transport and The Environment in Finland (ELY), is in charge of monitoring environmental protection and the state of nature

in the Viiankiaapa area. (Tukes 2016, 19 - 21.) In Finland there is a broad possibility to appeal against the decision by legal authority and bring a case to the administrative court. As later will be noticed, this case has been brought to different stages of administrative court. The Administrative Court of Northern Finland **is** the first level in this case. Possible appeals on permission go to the Supreme Administrative Court of Finland (KHO) for final decision. (Korkein hallinto-oikeus 2016.)

Actors from the local level, Town of Sodankylä and Regional Council of Lapland (Lapin Liitto) have commented on the mine project as well. Town organization is in charge of development of municipality, and Lapin Liitto is in charge of developing the region of Lapland. Since it is a case of possible mine in the nature conservation area, an environmental NGO Nature Conservation Lapland district (Lapin Luonnonsuojelupiiri) has taken part in the process as well. (Tukes 2016, 18 - 23.)

7.3 The timeline of Viiankiaapa

Major incidents in the timeline of Viiankiaapa can be seen in the table 1 below. The case of Viiankiaapa mine project began in 2004 when Anglo American made a land claim for the area. Company applied a permission for ore exploration, and it was approved by the Finnish Ministry of the Environment in 2004. (ELY 2013, 1). The permission included years 2004 - 2012. Since permission was only for the Finnish swamp protection area, Anglo American ordered an investigation on the environmental impacts on the Natura 2000 site in 2009. (ELY 2013 1 - 3).

The administrative process of Viiankiaapa became more complex in summer 2012 because the old permit for ore exploration became outdated. In addition, AA Sakatti Mining Oy was going to carry out ore searching in the Natura 2000 site as well, so the company needed two separate permissions for ore exploration. In June 2012, the Ministry of Environment approved a new permission for ore exploration. Non-governmental organization called Lapin Luonnonsuojelupiiri LLP, standing for Nature Conservation in Lapland District, appealed against the permission. The case was brought to the Supreme Administrative Court of Finland for investigation. In August 2012, also Tukes approved a permission for ore exploration in the

Natura 2000 area. A regional office of the Centre for Economic Development, Transport and Environment (ELY) and Metsähallitus appealed against the permission. LLP appealed against the permission as well. In August 2012, The Ministry of Environment stated that it has approved the permission, without sufficient evaluation on the environmental impacts of ore exploration. The Ministry requested the permission would be remitted back to the Ministry of Environment for more specific preparations. Tukes stated the same and hold its permission back for more specific preparation. (YLE 2013.)

The process continued in June 2013 when Tukes approved a new permission for ore exploration. Just like in summer 2012, LLP, The Centre for Economic Development, Transport and Environment, and Metsähallitus appealed against the permission. (YLE 2013.) The case was brought to the Administrative Court of Northern Finland where the permission was declined. In October 2015, the Finnish Ministry of the Environment approved a new permission for ore exploration. LLP appealed against the permission, and the case was brought to the Supreme Administrative Court. (YLE 2016a). In July 2016 Tukes approved a new permission for ore exploration as well. This time ELY and Metsähallitus were not against the permission anymore. Also local decision makers, the Town of Sodankylä and Regional Council of Lapland advocated it. Nevertheless, LLP appealed against the decision, and the case was brought to the Administrative Court of Nothern Finland. (Tukes 2016, 18 - 23.) The court declined the appeal by LLP concerning ore exploration in Natura 2000 area. In August 2016, the Supreme Administrative Court also declined the appeal by LLP in other case, and gave the company a permission to carry out ore exploration. (Suomen Luonnonsuojeluliitto 2016 ; KHO 2016.) Despite the court order, LLP has still appealed against the decision of the Administrative Court of Northern Finland. The case has not been brought to the Supreme Administrative Court yet. (Suomen Luonnonsuojeluliitto 2016).

Table 1. Major incidents in the process of Viiankiaapa between 2004 - 2016

Year	Incident
2004 - 2011	Ore exploration in the swamp protection area, permission is approved by the Finnish Ministry of the Environment (ELY 2013, 1 - 3).
2009	An investigation on environmental impacts of ore exploration in Natura 2000 area. (ELY 2013, 1).
2011	Press conference on the results of ore exploration. The subsidiary called AA Sakatti Minig Oy is founded. (Kauppinen 2016, 1 - 4.)
June 2012	New permission for ore exploration approved by the Finnish Ministry of the Environment (YLE 2013).
July 2012	Lapin Luonnonsuojelupiiri (LLP) appeals against the permission of the Finnish Ministry of the Environment (YLE 2013).
August 2012	Tukes approves a new permission for ore exploration in Natura 2000 area. - LLP,ELY and Metsähallitus appeal against the permission. - No court cases. YM and Tukes take permissions back for more specific preparations. (YLE 2013.)
June 2013	Tukes approves a new permission for ore exploration. - LLP, ELY and Metsähallitus appeal against the permission. - The case is brought to the Administrative Court of Norhern Finland. (YLE 2013.)
September 2013	The Administrative Court of Northern Finland declines the decision by Tukes (Suomen Luonnonsuojeluliitto 2013).
2015	An updated research on environmental impacts of ore exploration on Natura 2000 area (Korkein hallinto-oikeus 2016).
October 2015	The Finnish Ministry of the Environment approves a new permission for ore exploration. - LLP appeals against the permission, and the case is brought to the Supreme Administrative Court. (YLE 2016a).
July 2016	Tukes approves new permission for ore exploration. - LLP appeals against the decision, and the case is brought to Administrative Court of Northern Finland. (Suomen Luonnonsuojeluliitto 2016.)
August 2016	Appeal by LLP is declined. Permission that is approved by Tukes comes in force. (Suomen Luonnonsuojeluliitto 2016.) Supreme Administrative Court declines the appeal of LLP considering permission approved by the Ministry of the Environment. - Sakatti Mining Oy is able to carry out ore searching in the area. (YLE 2016a.)

7.4 Delays in the process of new permission

It can be seen in the process of Viiankiaapa that decisions for ore exploration have become complex issues in practice. The Finnish authorities have had different opinions on the new permissions as well. For example, if situation in August 2012 is studied more closely, it is not a surprise that an environmental NGO is against the permission. However, it can be seen surprising that two different kinds of authorities have differing opinions on the issue compared to Tukes. ELY and Metsähallitus have argued that preparations made by Tukes were not sufficient enough, and they appealed against the permission. (YLE 2013.) When Tukes made a new permission in July 2016, these authorities were not against it anymore. So, it is possible the preparations were done better this time. ELY and Metsähallitus also highlighted it is important to monitor that remarkable environmental impact will not happen during ore exploration. They also noted the company has the permission only for ore exploration, not for mining activities. (Korkein hallinto-oikeus 2016.)

In practice, AA Sakatti Mining and Anglo American have been waiting for a permission for ore exploration since August 2012. The process can be described as a relatively long administrative process where different authorities have had difficulties to find mutual understanding on the issue. In addition, the need for two separate permissions has turned the process even more complex. For example, Metsähallitus is governing the swamp protection area, but judicial decisions are made by the Ministry of the Environment. (Korkein hallinto-oikeus 2016). In addition, it is important to notice that during the waiting period AA Sakatti Mining Oy has not been able to carry out ore exploration in the area properly. For instance, the Project Manager of AA Sakatti Mining Oy has argued that ore exploration is costly for the company, and the delays in the process have caused frustration because binding decisions about mine cannot be made without results from ore exploration (Kauppinen 2016, 4.)

8 EU level policy making versus local level implementation

8.1 Themes in content analysis compared to the timeline of Viiankiaapa

Several deductions can be done when the themes found in content analysis are compared to the findings in the Viiankiaapa timeline. First it can be said that since the process is new in the EU scale, the legal and regulatory framework has formed the biggest problem at the local level of policy making. Problems understanding legal and regulatory issues have also reflected to the work of the Finnish authorities. These actors have had problems and disagreements when trying to find mutual understanding on the permission for ore exploration. Some authorities have even appealed against the permission, and brought the issue to the administrative court. It is also useful to notice that the permission has just been about the ore exploration. At the moment, there is not any public information about the actual mine project or environmental impact assessment, for instance. The process of Viiankiaapa has shown that common themes in the publications (legal and regulatory framework, the work of the authorities, project procedure) are the issues that must be developed at the supranational EU level and implemented better on local level of governance.

Both analyzed documents state that mining actions on Natura 2000 sites may be possible in the future. For example, the publication on framework conditions highlighted the cost-effectiveness and the linearity of the process. This mean mines could be founded on a faster schedule. In the case of Viiankiaapa, it can be noticed that since there is a conflict between mining and nature conservation, the process has not been that straightforward. Moreover, it confirms the note in the publication about framework conditions, where Natura 2000 areas were seen as conflict zones. This can also cause delays in the permitting process. The Viiankiaapa case illustrates how challenging this kind of conflict is to solve. The challenge puts pressure on the EU's decision making as well if there is a willing to develop mining policy and mining policy framework in the future. Every member state has its own legal procedure, authorities and its own practices. Therefore, the area of operation is really heterogeneous. For example, in the Finnish case an authority can appeal against the decision of another authority. In the process of Viiankiaapa this has caused delays.

The process of Viiankiaapa has also shown the fact that Natura 2000 areas do not have any special status in EU's mining policy because some activities have been started in the area. For example, the guidance on Natura 2000 and extractive industries list different factors that authorities have to take into account if mining activities are planned in Natura 2000 sites. Commenting on the sustainability theme is more difficult at the moment because the process has been only at the stage of ore exploration, and there are no binding decisions on functioning mine. Anyway, the process has represented weak sustainability in policy making as ore exploration has been carried out in the area, and Anglo American has been considering about an operating mine in the future. Therefore, it seems that constant natural capital is substitutable with manufactured capital in EU's raw materials policy.

8.2 The capacity and co-operation of authorities

In the case of Viiankiaapa it can be noticed that the European Commission is pursuing several targets on the member states when trying to implement multi-level governance in the EU area. The fulfillment of the EU's multi-level governance at the local level has been questioned in the literature as well. For example Andrea Lenschow, a professor from Universität Osnabrück has argued that most EU policies should be formally transposed, and then implemented at the national and regional level, usually leaving discretionary space to account for different national practices and traditions. She also argues that visible learning process at the EU level does not straightly ensure a similar rethinking at the lower levels of governance. (Lenschow 2002, 220).

This kind of problem has been noticeable in the timeline of Viiankiaapa as well. It has emerged that implementing EU level targets at the local level has been a challenging task. The administrative process of Viiankiaapa has shown what kind of problems can be found linked to legal and regulatory framework at the local level, for example. Two papers published by the European Commission also highlight the importance of project procedure and that mining actions could be carried out on Natura 2000 sites. This study has shown that in the case of Viiankiaapa the practice has not been that straightforward compared to the image in the publications. In addition, the case has just been in the hands of authorities, but there have

been several disagreements between different actors. For example, Tukes and the Ministry of the Environment have had lack of capacity when preparing the permission for ore exploration.

Some practical findings can be noticed when the situation of Viiankiaapa is compared to the case Talvivaara that was presented in Chapter 3. The report on the mining accident in Talvivaara argues that there have been problems in the work of authorities which have partly lead to the mining accident. The authorities have been the ones who have accepted the construction plans and have given the permits to the company. Furthermore, they have had the responsibility to monitor the production and the impacts on the environment. The report states that there have been several authorities working on the mining project, and these actors have had difficulties to cooperate with each other. For example, authorities did not organize any mutual meetings about the issue. The work of the authorities has not been sufficient enough compared to the extent and complexity of the Talvivaara project. (Onnettomuustutkintakeskus 2014, 75 - 76.) When considering about different forms of capital it can be argued that Finnish authorities have had lack of human capital and social capital in the case of Talvivaara. The authorities have had not enough resources and capabilities to carry out the project properly. This kind of problem can be seen as a lack of capacity to fulfill required tasks. When thinking about social capital it seems that the authorities might have needed networks and connections, but these are not properly utilized in the case Talvivaara. There is the same kind of problem in the case of Viiankiaapa as well. Tukes and the Ministry of the Environment are able to utilize consulting help from Metsähallitus and ELY, but obviously help was not asked since Metsähallitus and ELY were against the new permission in August 2012 and in June 2013. In July 2016, situation was different after sufficient preparations.

It can be criticized if it is relevant to compare a mining accident to ongoing mining project that is at the stage of ore exploration. In this case the comparison can be seen relevant because both of the cases are situated in Northern Finland and taken place in the same decade. For example, the accident of Talvivaara took place in November 2012, and the administrative process of new permission for Viiankiaapa started in June 2012. Basically, administrative culture, enterprise culture and legislation are similar.

8.3 Public overriding interest on case Viiankiaapa

As it has been mentioned earlier, manmade actions are not straightly forbidden on Natura sites. Article 6.4 in the Habitats Directive offers a mechanism that can be used in exceptional circumstances where adverse effects on the integrity of Natura 2000 sites cannot be excluded, and there are no alternative solutions for the project. This mechanism is only applicable under the strict conditions, and it is called public overriding interest. (European Commission 2011, 63). Paragraph 4 in Article 6 of the Habitats Directive (92/43/EEC) states following:

> "*If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected*." (European Commission 2011, 63.)

At the moment, the Viiankiaapa mine project is still at the stage of ore exploration. There have already been discussions what would happen to the site, if there was an operating mine in the future. For example, Seppo Aikio from Nature Conservation Lapland District argued that a mine in the protection area would be the end for the Natura 2000 network. He stated that in this kind of situation, the base for the whole European wide Nature protection system would collapse. (Sodankylän verkkolehti 2012.) In addition, a Finnish MEP Heidi Hautala in the European Parliament (The Greens) raised question about ore exploration in Natura 2000 area. She asked an opinion from the European Commission on ore exploration and public overriding interest. Karmenu Vella, the Commissioner of Environment, represented the EC and answered the question in April 2016. He argued that financial interest of a private mining company cannot form an imperative reason for public overriding interest. Only public interests can be balanced against the conservation aims of nature directives. Though, he stated that public interest can be still promoted by public or private bodies. In addition, he noted that if the case of Viiankiaapa went to the procedure of exceptional circumstances it would mean that Finland must inform the European Commission about appropriate compensatory measures. The meaning of these compensatory measures is to ensure that overall coherence of the Natura 2000 is secured. (European Parliament 2016b.)

What is remarkable in the statement of the Commission is that only financial interest of a mining company cannot be seen as a reason for public overriding interest. For example, a big investment to local economy is not mentioned in the discussion. In the future, it may be a big question for Finnish authorities and the European Commission whether this kind of situation forms a public overriding interest. For instance, the unemployment percentage in Sodankylä was 13,8 % and in the whole Lapland 16,0 % in 2016 (ELY 2016, 5). It can also be asked if the public overriding interest is going to be regional, member state level or EU level issue. Like it was mentioned in the beginning of this study, the European Union is trying to secure its access to raw materials, and the union has some characteristics of federalism in decision making. Therefore, remarkable mine deposit in the north could be important to the car industry in Germany or France, for example. If mine brought more wealth and other kind of working possibilities to Northern Finland, this would represent the spillover effect of neo functionalism.

8.4 Opposite targets of Raw Materials Initiative and EU Biodiversity Strategy

First of all, EU Raw Materials Initiative and Biodiversity Strategy are both planned to hit their targets by 2020. These two different strategies seem to have really opposite targets, and achieving both targets by 2020 may be a challenging task. For example, this is quite easy to notice in a report called *State of Nature in the EU* that is published by DG Environment of the European Commission. The report argues that the overall status of species and habitats has not significantly improved between years 2009 and 2015. (European Commission 2015, 2.) Report still justifies that Natura 2000 coverage and conservation status trends have a positive correlation. Therefore, the protection network has developed nature and biodiversity conservation in the EU area. What is important to notice is that wetland habitats, such as Viiankiaapa, have been raised as a future concern in order to achieve the targets of two directives. The report also states following:

> *"the effective management and restoration of Natura 2000 sites is central to achieving the overall objectives of the directives"*(European Commission 2015, 5 - 7.)

When considering these above mentioned facts, it can be argued that mining activities in Viiankiaapa wetland area would be quite strictly against the principles of Biodiversity Strategy and the objectives of nature directives. An operating mine would represent weak sustainability in EU's mining policy. Alternatively, the conservation of Viiankiaapa area would illustrate strong sustainability in EU's policy making.

9 Conclusions

9.1 Non-technological improvements in EU's mining policy

The worst outcome would be that due to increasing mining activities the EU would face several environmental catastrophes in its area. This obviously puts pressure on non-technological improvements considering raw material sector. An innovation and research funding programme, Horizon 2020, offers funding in a non-technological pillar for projects that may speed up innovation and initialization of new technologies. (European Commission 2016, 52 - 53.) As it was noted previously, one of the main pillars in EIP Raw Materials is non-technological pillar. (European Commission 2013, 14). This is an issue that different enterprises and organizations should take into account when investigating funding possibilities. The cases of Viiankiaapa and Talvivaara highlight the importance of co-operation and capacity building of the authorities if the European Union is willing to increase mining actions in the future. For example, new kinds of extraction techniques will need new kind of knowledge and capabilities by the authorities. The administrative process of Viiankiaapa has also been a costly time for Anglo American because it has not been able to carry out ore exploration properly between 2012 - 2016. Basically, this means that possible investment decisions move further. This cannot seen to be the best situation if the European Union is trying to speed up the process of new operating mines.

9.2 The overall future of Natura 2000 network

Integrating Natura 2000 sites and mining activities in the same area raise up the basic dilemma of protecting natural capital and developing economical activities. Originally these areas are selected to the Natura 2000 network because of their biodiversity and specific characteristics in the EU scale. In addition, the biodiversity report from DG Environment highlights the existence of Natura 2000 network (European Commission 2015, 7). A question about compensatory measures can be raised since Natura 2000 sites are important for biodiversity conservation. How compensatory measures can be implemented if it is a case of unique nature site? There is not a certain stock of these kinds of habitats where only a portion

is taken to the network and the rest are left outside the Natura 2000. For example, The Finnish Association for Nature Conservation has argued that Viiankiaapa is the only minetrophic bog of its kind in Finland, and it cannot be substituted with some other wetland areas (Suomen Luonnonsuojeluliitto 2011). Moreover, Seppo Aikio from Lapland Nature District has argued that in some cases there have been made some exceptions to protection of Natura 2000 sites. He argued that these kinds of exceptions are really rare, and in the case of Viiankiaapa they are not possible because of specific characteristics of the area. In the worst case, an exemption in the Natura 2000 network would also deconstruct the original idea of the Natura 2000. (Sodankylän verkkolehti 2012.) New excluding cases from Natura 2000 network would come easier, because there is precedent about the issue. This kind of policy making would represent weak sustainability in EU's nature conservation policy because constant natural capital is not preserved.

Something about resistance at the local level tells the fact that a Viiankiaapa movement has been founded recently. The movement argues that it is not against all mining activities, but from their point of view nature conservation areas should be excluded from extractive industries. (YLE 2017.) In other words, constant natural capital should be preserved in raw materials policy. In 2017, Finland is celebrating its 100 years anniversary, and Viiankiaapa has been selected as one of 100 most important national nature sites that should be maintained to the next generations. (Suomen Luonnonsuojeluliitto 2017.) There are plans that Natura 2000 network would extend because sea areas are planned to be attached to the network as well. This process has started in Finland in autumn 2016. At the same time, there is an intention to update information about Natura 2000 areas. (Ympäristöministeriö 2016.) These facts reinforce the importance of Natura 2000 network for nature conservation. It would be absurd, that first the site is selected to the 100 most important national nature sites and then excluded from it.

9.3 The future of nature conservation and environmental policy in the EU

The decision about Viiankiaapa in the future will formulate a lot to which way European Union is wanting to develop its policy concerning natural capital and biodiversity conservation. Of course, it is also possible, that European Commission and Finnish

Government would not take Viiankiaapa outside from the Natura 2000 network. This kind of policy making would represent more the way of strong sustainability in policy making. At this point, when this study has been written there is not complete certainty if the Viiankiaapa mine is going to be founded or not. Calculations have been done, that if the there would ever be functioning mine this would happen earliest around 2020. Before this, a decision from Finnish government and European Commission is needed on excluding Viiankiaapa from the Natura 2000 network and Finnish wetland protection network (Kauppinen 2016, 3 - 5.) That is a case, that has not happened ever in the history of Natura 2000 network (Sodankylän verkkolehti 2012). Basically, the decision would depend on alignments of these two organizations. The question in future is do these organizations prioritize more economical development or protected nature. The present Commission will be working till 31.10.2019 (European Commission 2017e). In the same year there will be also new elections for the Finnish government and for the European Parliament (Vaalit.fi 2017). Therefore it is possibly that EC and Finnish government are willing to have these decisions about Viiankiaapa during present working term.

If thinking about Raw Materials Initiative and Biodiversity Strategy, it is important to remember that these both are designed by European Commission but from different point of view. Also, it is important to notice that Raw Materials Initiative was designed by DG Enterprise and Industry (nowadays DG Growth) and Biodiversity Strategy was designed by DG Environment (European Commission 2013, 13 ; European Commission 2011a, 4). Traditionally DG Enterprise and Industry has been considered one of most important and powerful DGs in the Commission. Instead, DG Environment has traditionally been seen one of the smallest. (Jordan & Adelle 2013, 203 - 204.) The decision about Viiankiaapa would go to the side of weak sustainability, when thinking about power relations in the Commission. In addition, president of European Commission Jean-Claude Juncker has stated that during new Commissions working term one of the priorities will be strengthening the industry (Juncker 2014, 7). This kind of priority by EC would also take focus from nature protection to the industry in policy making.

It has to be remembered, that competition between nature protection and competitiveness of industry is not a new topic in European policy field. In the end, it is a case of economical union. For example, in the past the most important factor for the introduction of a common

environmental policy was the fear that trade barriers and distortions in the Common Market could emerge due to the different environmental standards. (Liefferink & Knill 2007, 3.) In the 1990's, implications for the internal market, concerns over the competitiveness of national hauliers and insistence on national autonomous taxing were the main reasons why ministers were unwilling to prioritize environmental concerns in their decisions in the transport sector. (Lenschow etc. 2002, 222 - 223.) Moreover, EU's emission trading scheme has been in discussion, how big impact it will have on competitiveness of European industry globally (Smale etc. 2006, 31). EU's environmental policy making has traditionally been criticized for narrow-minded approach. The state of environment is straightly linked to for example agriculture policy, traffic policy etc. Still, in the past EU and national policy-makers have treated environmental policy as just another sector that could be managed in isolation of other policy domains. In history this kind of policy solutions were for example "end of pipe" measurements, correcting environmental impact at the end or after different production and consumption processes. (Lenschow etc. 2002, 219.) For example, the case study on Natura 2000 network and integrating mining activities has shown that this kind of ideology is not possible anymore in EU's environmental policy and nature conservation policy.

The idea of integrating mining with other policies linked to land use with agriculture, forestry and tourism and its relation to nature conservations is really essential question in the future. At this point, can be argued that EU's mining policy represents more the side of weak sustainability. For example, the background paper on the framework conditions highlighted the importance of fast access to the land and the EC Guidance on NEEI-activities revealed the circumstances, what should be taken account if actions are planned in Natura sites. If EU's mining policy would represent the way of strong sustainability, it can be argued that these areas would be left outside of extractive industries. In the case of strong sustainability there would also not be a mark about "public overriding interest" in the Habitats Directive.

Related to EU's policy making can be questioned is it in reality possible to achieve both targets related to mining and biodiversity till year 2020. In practice, accomplishing one target would mean that another one is more challenging to achieve. For example, the report about state of the biodiversity was stated that significant actions are needed to achieve the targets of Biodiversity Strategy until 2020 (European Commission 2015, 7). For example, nongovernmental organization WWF has commented on the biodiversity target in a

background paper for the policy making. Their point of view is, that gross domestic product tells more a snapshot of the current situation and do not offer a good picture of long term sustainability. (WWF 2014, 18). In the same background paper WWF argues, that European Union should develop its natural capital and ecosystem accounting systems related to overall EU policy making. In addition, WWF mentioned that even thought ecosystem accounting is still in an experimental phase in many countries, the processes need to speed up remarkable to achieve existing biodiversity commitments and targets by 2020. (WWF 2014, 27.)

9.4 The future of raw materials policy in the EU

From the viewpoint of Anglo American, the access to land has become the a biggest problem for the company in the process of Viiankiaapa. Like it was mentioned in Chapter 3, access to land and access to resources is really essential question to the companies who operate in the sector of extractive industries. Fast permitting and access to land has also been highlighted in the document on framework conditions. Moreover, the guidance on Natura 2000 has been written at least partly from the perspective of extractive industries since it argues that mining activities may be possible in Natura 2000 sites.

For instance, Euromines has disagreed with some issues in Natura 2000 guidance. Euromines is an association representing mining sector in the EU area. The association argues that Natura 2000 guidance is written mostly from a political perspective, not from the perspective of extractive industries. Euromines has a different opinion on favorable conservation status and coherence of the Natura 2000 network, for example. From their point of view, favorable conservation status does not always and automatically refer to the status of species and habitats in the individual site, but to their status in the natural range (species) or distribution area (habitats) in the entire national part of a bio-geographical region. They also argue that the coherence of the Natura 2000 network is more a policy concept than an ecological or biological parameter. (Euromines 2011, 8 - 9.) In the case of Viiankiaapa this is still challenging because it is a unique minerotrophic bog area in Northern Finland. It is good to remember that Euromines is a representative of extractive industries so their opinions might promote mining.

When considering about the EU's common mining policy and right framework conditions in the future, it can be argued that heterogeneous practices, legislation and national mineral policy programmes may cause problems and delays in the future. This has been noted in the paper on framework conditions as well. The case study of Viiankiaapa has illustrated that there is a gap between EU mining policy targets and implementation at the local level of governance. This is the case especially if the project is planned on the Natura 2000 site. Setting the right framework conditions and increasing funding possibilities might help to build common European mining policy. Anyway, a question can be raised whether a directive linked to mining might be useful. If there was a willing to develop these issues in a more straightforward and transparent way, a directive on permitting procedure could be one solution for this kind of problem. There are sometimes problems with adopting and implementation of directives, but the European Commission is monitoring the process. For example, member states can get a fine if they do not implement directives on schedule. When it comes to directives, member states have a possibility to adopt directives suitable for their own legislation. (McCormick 2011, 179 - 180.) For instance, the EU already has a directive on mining waste (European Commission 2017c). Therefore, a directive about mine permitting procedure could be possible in the future as well.

9.5 Reliability and repeatability of the study

When thinking of the findings of the study, it is also important to consider the results (reliability) and possibilities to achieve these results (repeatability). Since the methodology of the study is based on qualitative methods, and the actual tools are content analysis and media analysis, it has to be mentioned that different researchers might interpret the text in their own way. The content analysis style which has been used in the study to construct themes, has revealed five common themes between the two analyzed documents. It can be argued that different researchers might interpret different topics in the documents. Some persons might also put some other topics under the same themes. Overall, major themes between these two documents were easily found. When these themes were compared to the ongoing mining project, it was quite obvious that legal and regulatory framework and the work of authorities have formed problems in practice. In addition, it is easy to notice that Natura 2000 sites do not have any specific safeguard in the EU’s mining policy at the

moment. Despite it is a case of qualitative work, it can be argued that other scientist or students would end up in the same results with the same research question. Basically, this means that the research question is well chosen and prepared.

9.6 Possibilities for further research

Science is based on continuation so it is relevant to consider if there is a room for further research related to the topic. Like it has been stated in this study, the following years will show to which way the mining policy of the European Union is developing. The future will also show if the Natura 2000 network has any kind of safeguard in the EU's policy making. From this perspective the relation between Natura 2000 and future mining projects has been discussed properly. After a few years there might be a better understanding how Natura sites are handled in this kind of conflict situation, and it may open more possibilities for research. If Viiankiaapa area is decided to keep fully as a conservation area it will open possibilities to study what kind of factors have led to this situation. On the other hand, if Anglo American received a permission for mining activities it would open doors to study how the European Union is going to secure the overall integrity and coherence of Natura 2000 network. At this point, it can only be mentioned that time will show these issues. It is also good to remember that this study has been written from a social science point of view. The Viiankiaapa case offers possibilities to do research focused on environmental law or EU law. For example, public overriding interest can be studied in the field of EU law. The theme may offer possibilities for further research in the field of technology as well. If the EU is trying to integrate mining and nature conservation, this puts pressure on technological development of mining and on environmental protection.

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APPENDIX I: Found topics in the documents

1. Recommendations on the Framework Conditions for the Extraction of Non-Energy Raw Materials in the European Union

2. EC Guidance on: Undertaking Non-energy Extractive Activities in Accordance With Natura 2000 Requirements. Chapter 2: The EU's Policy Framework and Legislation for Nature and Biodiversity. Published 2011.

Table 1. Found topics in documents

1	2
- Importance of raw materials 0	- No automatic exclusion of Natura 2000 sites 2
- Straightforward permitting 3, 5	- Exceptional circumstances 2
- Sustainable supply of raw materials 0	- Sustainable Development 1
- Mining Policy Framework 3, 4	- Ecological footprint of mining 1
- Land use planning 3	- Sustainable Development Strategy 1
- Legislation 4	- Biodiversity conservation 1
- Governance of raw materials 3	- Favorable conservation status 1
- Environmental Impact Assessment (EIA) 4, 5	- Ecosystem Services 1
- Access to land 2, 4	- Habitats directive 1, 4
- Sustainable utilization of mineral resources 1	- Birds directive 1, 4
- Permitting procedure 4, 5	- Environmental legislation 1,4
- A distinct permitting procedure 5	- Integrity of Natura 2000 sites 2
- An integrated approach 5	- Compensatory measures 3, 5
- Economic, social and environmental considerations 1	- Appropriate management plan 3
- Resource efficiency 1	- Public overriding interest 2
- Environmental legislation 1, 4	- The ecological coherence of Natura site 2
- Regulation 4	- Strategic Environmental Assessment (SEA) 5
- Stable permitting process 5	- Environmental Impact Assessment (EIA)4, 5
- Other relevant EU policies 4	- Appropriate assessment (AA) 4, 5
- Data about exploration 5	- Competent planning authority 3
- Data about extraction 5	- Territorial planning 3
- National and regional policies 3, 4	- Project planning 3, 5
- Public reporting 0	- Screening 4
- GRI-reporting 0	- Scoping 4
- Recycling 1	- Environmental report 3, 5
-Waste management 1	
- Extraction as a temporary use of land 5	
- Access to minerals 2, 5	
- Lack of clarity and certainty 5	

- Competing interests of different activities and interests 2, 5	
- Subsidiarity of the member state 0	
- Sustainable Development strategies 1	
- Spatial planning policies 3	
- National Mineral Policies 4	
- Natura 2000 sites as conflict zones 2	
- Coordination among different levels 3	
- Environmentally protected areas 2	
- No automatic exclusion of Natura 2000 sites 2	
- Capacity building of authorities 3	
- Co-operation of authorities 3	
- Europe's dependency on third world countries 0	
- Delays in permitting process 2, 5	
- Data about Natura 2000 sites 2	
- Screening 4	
- Scoping 4	
- Environmental statement 4	

Found themes:

Sustainability 1
Status of Natura 2000 sites in raw materials policy 2
Work of authorities 3
Regulatory and legal framework 4
Project procedure 5
Not common 0

APPENDIX II : Common themes constructed

1. Recommendations on the Framework Conditions for the Extraction of Non-Energy Raw Materials in the European Union. Published 2014.

2. EC Guidance on: Undertaking Non-energy Extractive Activities in Accordance With Natura 2000 Requirements. Chapter 2: The EU's Policy Framework and Legislation for Nature and Biodiversity. Published 2011.

Table 1. Sustainability

1	2
- Environmental legislation	- Sustainable development
- Sustainable utilization of mineral resources	- Ecological footprint of mining
- Economic, social and environmental considerations	- Sustainable Development Strategy
- Resource efficiency	- Biodiversity conservation
- Recycling	- Favorable conservation status
- Waste management	- Ecosystem Services
- Sustainable Development strategies	- Habitats Directive
	- Birds Directive
	- Environmental legislation

Table 2. The status of Natura 2000 sites in raw materials policy

1	2
- No automatic exclusion of Natura 2000 sites	- No automatic exclusion of Natura 2000 sites
- Data about Natura 2000 sites	- Public overriding interest
- Competing interests of different activities and interests	- The ecological coherence of Natura 2000
	- Integrity of Natura 2000 sites
- Environmentally protected areas	- Exceptional circumstances
- Delays in permitting process	
- Access to land	
- Access to minerals	
- Natura 2000 sites as conflict zones	

Table 3. The work of authorities

1	2
- Straightforward permitting	- Project planning
- Mining Policy framework	- Competent planning authority
- Land use planning	- Environmental report
- Governance of raw materials	- Appropriate management plan
- National and regional policies	- Territorial planning
- Spatial planning policies	- Compensatory measures
- Coordination among different levels	
- Capacity building of authorities	
- Co-operation of authorities	

Table 4. Legal and regulatory framework

1	2
- Environmental Impact Assessment (EIA)	- Scoping
- Legislation	- Screening
- Regulation	- Environmental Impact Assessment (EIA)
- Other relevant EU policies	- Appropriate assessment (AA)
- National and regional policies	- Environmental legislation
- National Minerals Policies	- Habitats directive
- Mining Policy Framework	- Birds directive
- Permitting procedure	
- Environmental legislation	
- Screening	
- Scoping	
- Environmental statement	

Table 5. Project procedure

1	2
- Straightforward permitting	- Compensatory measures
- A distinct permitting procedure	- Project planning
- A stable permitting process	- Environmental report
- Lack of clarity and certainty	- Appropriate assessment (AA)
- Competing interests of different activities and interests	- Environmental Impact Assessment (EIA)
	- Strategic Environmental Assessment (SEA)
- Delays in the permitting process	
- Extraction as a temporary use of land	
- Data about extraction	
- An integrated approach	
- Access to land	
- Access to minerals	
- Environmental Impact Assessment (EIA)	
- Permitting procedure	
- Data about exploration	