Can the History Tell Us Anything About the Sustainability Conflicts of Today? - a case study of limestone quarries and cement production in Sweden

Introduction

In the last years there has been an intense debate regarding the environment and future of cement and limestone production in Sweden. The starting point for the debate has been the enlargement and opening of new limestone quarries. Limestone quarries cause deep gaps in nature and the areas where pure limestone is found are often areas with valuable nature. The debate between environmental organizations and the companies has taken place in media and divided locals, politicians and authorities into two opposing camps. Both sides have used sustainability as an argument for their view. The environmental organizations deem the production as destroying the nature and the companies argues for social and economic sustainability in terms of jobs and development in the region. One of the main arguments that the companies use is that their production is more environmentally friendly than their foreign competitor. The debate has been harsh and upsetting in the local community, the main question asked in this paper is what can we learn from history regarding this and other sustainability conflicts? The historical background could be of importance for how companies act and how they treat criticism. The more specific questions dealt with in the paper are: When did the environmental issues appear on the agenda of the limestone and cement industry? How have the industries implemented the sustainability issues and handled environmental conflicts? Could the implementation of the sustainability issues in the industry tell us anything about the sustainability issues and the debate around them?

Material

The protocols from the Swedish cement industry and the limestone industry are only available until the 1970s, the environmental issues are not mentioned in the protocols. Whether the reason is that the companies where interested in the environment or not is not possible to determine. But it could be said that this was not one of the major questions for the companies up to the 1970s. One way of following what was important for the cement company and their leaders is to read the publications from the company. Cementa published a magazine called “Cementa” from 1975. The magazine targets people interested in the cement and concrete industry and the use of cement and concrete. The content of the magazine was news and research in the construction sector, information about projects using cement and concrete and information about what was going on in Cementa and its affiliated companies. Also, many articles concerned what was prioritized by the owners and leaders of the company.
Much of the debate about how the industries’ affected the environment and the nature concerned the local community. Both the cement and the limestone industry has been centralized to Gotland, an island in the Baltic sea. The local newspaper, Gotlands Folkblad/GotlandsTidningar, has been studied to follow the discussions regarding the industries.

**Historical background**

The cement and limestone industries were established in Sweden at the end of the 19th century. The limestone industry quarry limestone and ship it to other industries that use it mainly for purification. In the cement industry limestone is one of the main raw materials. The cement factories have their own limestone quarries, located in connection to the factories. The limestone is burned and grinded into a powder together with other materials. The powder is cement, the cement is then transported to building sites where it is mixed with sand and water and becomes concrete. The production of cement takes a lot of energy and creates emission of different substances.

Historically few of the activities has been regulated. For opening a quarry in the first decades of the 20th century only the owning right of the land was needed. The cement industry has been used to some more regulations, since the plants were big and specific arrangements had to be. But for a long time, the attitude to these industries were positive from the authorities. Both industries created jobs and infrastructure in rural areas.

In the first decades of the 20th century the owners and high officials of the companies were active in the society and were often politicians. Which meant that representatives from the industry could influence or negotiate the regulations and permissions needed. The higher demands on the productions and the quarrying in the last decades of the 20th century changed the way that the boards of the companies had to deal with the issues. In the 1970s and the following decades discussions regarding new and enlarged quarries for limestone and the emissions became debated in public. This was a new situation for the industries that had a long history of being part of the community and seldom questioned.

**Environmental legislation**

The care for the environment was not a big political issue until the second half of the 20th century. Around 1900 the nature and the surroundings become of more interest for the Swedish people. People interested in safeguard of nature joined and started organizations for protection of the nature. In the second half of the 20th century the interest in nature and the environment also included the politicians and in 1952 the first law for nature protection was enforced. During the 1960s and 1970s several new laws followed. The laws did not primarily focus on the industrial activities or diminishing the
emissions, it was mostly protecting certain areas from exploitation and to change the behaviour of the population.¹

In the 1980s new laws regulated health, chemicals, how natural resources could be extracted, planning and construction process etcetera. In the beginning of the 1990s the laws regarding environment was combined in one major law, The Swedish Environmental Code (Miljöbalken). The regulations in the new law were more ambitious and changed the way that companies were working with permissions and planning. One major shift was that industries had to take sustainability into their discussions and relate to issues regarding sustainability in their activities.²

For quarrying and processing limestone an environmental permission is needed and most often a water permission. The process for getting these permissions is extensive, before an application can be handed in the company must have done some investigations regarding the consequences, for example consultations with the neighbors and stakeholders must have been completed. One of the most important things for the companies to do is an environmental impact assessment report. In that report all aspects of how the quarrying will affect the environment and the ground water, natural values, the effects for the neighborhood, noise and dust etcetera.³ The application is handed to the specific environmental courts and the permission is possible to appeal to the next court. Since the issues are complex often several permissions are need and the process could therefor take many years.

The first environmental protests

During the 20th century the interest in nature among the public grew. The nature organizations started during the 1960s to observe and inform how substances affected the environment. The nature organizations moved from protecting untouched nature to environmental organizations trying to prevent emissions. In the end of the 1960s and beginning of the 1970s the public interest for nature and the environment increased.⁴

The limestone and cement companies were not involved in environmental issues before mid-1970s. Nothing regarding environment, nature and climate are noticeable in the companies’ documents. But that changed, in 1974 the cement industry clashed with prevention of nature for the first time. The Swedish cement company, Cementa, was to enlarge their factory in Slite, Gotland. For the development of the factory a new quarry was needed. The cement company owned land in File Hajdar where

¹ http://www.entek.chalmers.se/~anly/miljo/miljobalken.pdf
² http://www.entek.chalmers.se/~anly/miljo/miljobalken.pdf
³ https://kalkforeningen.se/produkter/miljotillstand/
⁴ https://www.naturskyddsforeningen.se/om/var-historia
a limestone could be quarried. At that time the company needed permission from the County Administrative Board (Länsstyrelsen). Other authorities and organizations would be consulted, and the company needed to do an inspection of the nature in the area. The County Administrative Board forecasted that it would be a conflict about the plans for a quarry in File Hajdar.\textsuperscript{5}

The forecast was correct, and the conflict came into bright light at a public meeting arranged in the municipality. Representatives from nature organizations claimed that the quarry could not be in File Hajdar due to valuable nature and that it was uncertain how the quarry would affect the ground water. Cementa argued that there was no alternative to a new quarry, Cementa claimed that the activities in the cement factory would diminish without the quarry and on long sight the factory would close.\textsuperscript{6} The debate continued in the media and the local society after the public meeting. The unions were worried that the workers would lose their jobs, the local politicians agreed to the plans based on the prospect of keeping the jobs in Slite. But they made a reservation, regarding the water and if it would be any problem it had to be clear that Cementa had to pay for the damages. However not all representatives in the council agreed, for example one of the Social Democrats argued that the council before had mad though decision in care of nature, but when it came to strong economic interests they backed down from the care of nature.\textsuperscript{7} The conflict lines became clear; environmental care stood against development and jobs. The debate would come to repeat several times over the upcoming decades.

The public debate affected the authorities and they performed an investigation about how the water would be affected by the quarry.\textsuperscript{8} The state organization “Geological Survey of Sweden” (Sveriges geologiska undersökning) that performed the investigation had before had the task of helping mining people to find location for their activities but after the investigation their assignments changed. Today their responsibility is making sure that the national quality environmental goals are followed.\textsuperscript{9}

The debate became more severe then calculated and the County Administrative Board changed their approach and suggested alternative places for the quarry.\textsuperscript{10} The cement company also changed their tactic and turned to the government and asked to increase their production from 900 000 tonnes to 2 million tonnes per year.\textsuperscript{11} Cementa had good contacts with the government. Cementa had the same year merged with their competitors, the merger had been initiated by one of the ministers. The

\textsuperscript{5} GF 19740504  
\textsuperscript{6} GF 19740823  
\textsuperscript{7} GF 19740618  
\textsuperscript{8} GF 19741116  
\textsuperscript{9} https://www.sgu.se/om-sgu/verksamhet/  
\textsuperscript{10} GF 19750119  
\textsuperscript{11} GF 19750129
formal reason for asking the government was new rules concerning environmentally harmful industries and it was unclear if the expansion would be tried according to the new rules or not.\textsuperscript{12}

Cementa put pressure on the government, they told the government that they needed help with the permission for the quarry in File Hajdar and a change in the price politics of cement. Cementa also needed reassurance from the government about credit and capital. Cementa claimed that if they would not get assistance from the government they would not be able to make the investments in the factory and the development plans for the industry.\textsuperscript{13} It was a threat that had affected since the company knew that the government was eager to keep the cement production in the country.\textsuperscript{14}

The government concluded that the decision should be made by the County Administrative Board. Though the County Administrative Board was divided, the officials did not want to give Cementa the permission, but the politicians did. Cementa got the permission to start the quarry in December 1975. The decision was appealed but the decision did not change.\textsuperscript{15}

Cementa won the permission but they did not solve the conflict and neglected the influence of the nature organizations and the environmental issues. In the magazine Cementa the CEO of Cementa writes about the plans for the development of the factory without mentioning anything about the conflict.\textsuperscript{16} In an article in the same issue about the factory in Slite, it is stated that the inhabitants in Slite are happy about the major investment but it also noted that a small group of environmentalists wanted to save the File Hajdar from exploration.\textsuperscript{17} The conflict and the results of the conflict segmented the relations between the environmental organizations and the company and the exact same argument and discussions has come back in two other environmental conflicts in the 2001 and 2014.

**Conflict with Greenpeace**

In 2001 Cementa started to burn tires and hazardous waste as replacement to coal and oil. Cementa used their own waste and plastic that was bought from a domestic company, but the company was also interested in buying waste from other countries. There was also a discussion about taking household garbage from the local community and burning it in the factory. The emissions increased after the burning started. Since the burning of hazardous waste was made for a trial period, there was no need for permission from the Swedish Environmental Court (Miljödomstolen). The environ-

\textsuperscript{12} GF 19750201
\textsuperscript{13} GF 19750522
\textsuperscript{14} Dahlström (2015), p. 235
\textsuperscript{15} GF 19751213
\textsuperscript{16} Cementa 1976:4, p. 2
\textsuperscript{17} Cementa 1976:4, p. 8
mental organization, Greenpeace, reacted on the burning of waste and sent a critical letter to Cementa. Greenpeace and representatives from Cementa met and discussed the issues in the end of April without any result.\textsuperscript{18} Two weeks after the meeting between Greenpeace and Cementa, activists from Greenpeace illegally entered the factory and stole plastic bales. They planned to bring these with the Greenpeace’s ship to Stockholm and exhibit on an environmental meeting that were going to be held there.\textsuperscript{19} Greenpeace stayed at the factory area for two weeks. During the stay the organization tried to negotiate with Cementa but Cementa was not interested. More activists joined the protest and during the stay Greenpeace found garbage that were imported illegally.\textsuperscript{20} Instead of meeting Greenpeace Cementa reacted to the criticism in an article in the local newspaper. The company argued that they had diminished their need for non-renewable fossil fuels and that they had made investments for the environment and that the plant in Slite was one of the most environmentally friendly plants for cement production. Cementa concluded that they and Greenpeace have different opinions concerning what good environmental choices are.\textsuperscript{21}

The direct conflict was dissolved through a meeting between Greenpeace and Cementa. Cementa agreed to look over the process of burning waste and a working group with representatives from Cementa and Greenpeace would continue to discuss the waste.\textsuperscript{22} After the occupation there was a debate about the activities in the local community in the pages for opinions by the public. There was a divide between those that thought that the actions by Greenpeace were rightful and those who did not.\textsuperscript{23} The working group with representatives from Greenpeace and Cementa only met once. It was dissolved since Cementa decided to make a criminal complaint and demand damages from Greenpeace.\textsuperscript{24}

The use of waste as fuel continued in the factory in Slite and it was regarded as part of Cementa’s work to diminish the use of fossil fuels. In 2010 the use of waste developed, and more local waste was taken into use in two Swedish factories.\textsuperscript{25}

\textbf{Ojnareskogen}

The cement and the limestone industry have always been closely connected and for a long time Cementa dominated the limestone industry. Cementa has also been the owner of the major limestone company, Nordkalk AB, but in 1990s the company was sold to Partek and since 2010 it is owned by

\textsuperscript{18} GT 20010505
\textsuperscript{19} GT 20010516
\textsuperscript{20} GT 20010519, 20010523
\textsuperscript{21} Bo Ahlkvist in GT 20010519
\textsuperscript{22} GT 20010526
\textsuperscript{23} For example GT 20010531
\textsuperscript{24} DI 20010904
\textsuperscript{25} Cementa 2011:1, p. 11
In 2006 Nordkalk AB applied for permission for extraction of limestone in an estate on Northern Gotland. This was the starting point for lengthy discussion about the limestone quarrying and nature conservation in Sweden and especially on Gotland, the application included permission for activities in Natura 2000-areas and to set up a transport belt between the extraction area and the port. The application was dismissed in 2008, but appealed and in the higher court Nordkalk received the permission wanted. Since the permission process is complicated and permissions are needed for many different parts of the process several rounds in the court system followed. Meanwhile the court processes were going on the environmental organizations (they had grown during the 1990s and 2000s) became more and more engaged in the prospect about limestone quarries. The debate concerning quarries also grew in the public. The debate became more and more intense over the years. In 2012 when Nordkalk were about to start the clearance of the quarry area, an occupation lead by one of the environmental organizations (Fältbiologerna) started and dramatic pictures and films of the clash between police and occupants spread in media.

The debate was so infected that the Swedish government became involved. In the Swedish government two political parties were represented; the Social democratic party that are supposed to stand up for the workers interest and the Green party that has close connections to the environmental organizations. The solution to the tensions for the government was to declare the whole are for Natura 2000. After several more rounds in Swedish courts and the European commission the protection of the area was determined, and the case was finalized in December 2017.

If Nordkalk wants to continue quarrying limestone in Sweden, they need to find another place to quarry limestone. Nordkalk owns land in many different places on Gotland and the process of opening a new quarry in another place is in the planning process. Protests among the locals are already going on in the areas that could be of interest.

Implementation of sustainability
The discussions about sustainability are nowadays of great concern for the companies in the limestone and cement industry. Today the big cement producer, Cementa, profiles itself as a sustainable company and the tagline on the website is: “Cement for a sustainable community building” (Cement för ett hållbart samhällsbyggande). Cementa claims that their cement factory in Slite is world leading in replacing fossil fuels, which makes both the company and the customers reduce their environ-

26 www.nordkalk.com/company/
27 Natura 2000 is a network of nature protection areas in the territory of the European Union.
28 Svea Hovrätt, MS431-14
29 https://www.svt.se/nyheter/lokalt/ost/polis-har-kallats-till-bunge
30 Svea Hovrätt, MS431-14
31 https://www.cementa.se/sv, February 4 2019
mental impact. Cementa and the parent company, HeidelbergCement Northern Europe has set up a vision about reaching climate neutrality in 2030. The vision contains zero carbon dioxide emissions. The whole production chain from production methods to the recycling should be sustainable.\textsuperscript{32} The limestone company, Nordkalk, also communicate their brand with sustainability. The tagline for Nordkalk is “More than lime – responsibility for a sustainable development” (Mer än kalk – ansvar för en hållbar samhällsutveckling). Nordkalk is arguing that the negative aspects of limestone quarrying are less than the positive aspects of limestone in the community. Nordkalk has divided their sustainability work into ecological, social and economic sustainability. Nordkalk also states that the after-treatment of the quarries is in the plan from the beginning.\textsuperscript{33}

To use sustainability and environmental issues in the communication is something that the companies have incorporate in the last years. The first time that the care for nature and the environment was mentioned in official documents were in the 1970s. They were not prioritized areas for the companies, but when it was mentioned it concerned how the products from the companies could help improve the environment. For example in the magazine Cementa in 1976 there was an article about the emission of sulfur by the Swedish industries and that by spreading lime in the waters the emissions could be neutralized.\textsuperscript{34} There was also several articles regarding constructions of houses and material that could save energy in the 1970s.\textsuperscript{35}

In the 1980s examples of how other parts of the society could take use of the cement industry occurred, for example waste heat from one Swedish factory warmed houses in the neighbor area.\textsuperscript{36} The way that cement and concrete could be used for environmental issues continues to be an important subject for Cementa. They publish articles continuously about how the products could contribute. Fly ash from waste incineration could be used in cement production and an efficient system for recycling of concrete was one of the priorities. These things were part of the preparation for the environmental certification ISO 14001.\textsuperscript{37} The regulations and legislation affected the companies and their actions. In an article about recycling of concrete it is stated that the responsibility for the whole lifecycle for the product has been introduced for the packaging industry and will be introduced for other industries and it would soon be introduced for building materials and construction products.\textsuperscript{38}

\textsuperscript{32} Cementa, Folder: Hållbarhetsarbete i alla led – vårt ansvar
\textsuperscript{33} http://www.nordkalk.se/hallbarhet/, 19.02.22
\textsuperscript{34} Cementa 1976:3, p. 25
\textsuperscript{35} For example Cementa 1978:3
\textsuperscript{36} Cementa 1985:1, p. 36
\textsuperscript{37} Cementa 2002:1, p. 13, 2000:3, p. 20-22
\textsuperscript{38} Cementa 1996:1, p. 9
In the magazine Cementa the company do not communicate regarding the protests from environmental organizations. The company writes many articles about the improvement that the company has done for the environmental and in the 2010s every issue has a section that deals with environmental and sustainability issues. There are not many examples of when the company take a standpoint in any political issues. However, one exception is the auctioning of emission allowances, Cementa is negative to a suggestion from the European Union and claims that the regulation must be done globally to have an effect, otherwise the European cement production will be discriminated.\textsuperscript{39}

In 1992 the magazine Cementa for the first time mentioned the effects of the products on the environment. The magazine compared different building materials and the conclusion was that concrete is the best material from environmental and energy perspective.\textsuperscript{40} Five years later Cementa take on the life cycle perspective for concrete.\textsuperscript{41} The life cycle perspective meant that the whole lifespan of concrete was taken into account, from the quarrying of cement via the construction to the demolish and recycling, one important factor in the life cycle perspective is that concrete takes up carbon dioxide from the air and that is balanced with the emissions from the production. The life cycle perspective is emphasized in the communication regarding sustainability.\textsuperscript{42} The new plant in Slite was highlighted as an improvement project for the environment. The plant would gain less emissions and that the sulfur emissions would be cleaned, test facilities had been introduced. Experimentation with the fuel used in the kilns was also included in the new factory buildings, the plan was to increase the use of alternative energy sources. The factory had also permission to burn old tires, that was one way for Cementa to contribute to a better use of global recourses. Testing of other fuels and waste from other industries was done. The goal was to diminish the use of fossil fuels and thereby reduce the environmental effects of the production.\textsuperscript{43}

Since the beginning of the 21\textsuperscript{st} Century Cementa has been eager to show that they put a lot of effort and resources into research regarding the environmental effects.\textsuperscript{44} Cementa had taken a step further and decided to try to decrease the amount of limestone clinker in the cement. The process of making clinker frees carbon dioxide. One possible change would be to use fly ash or slag from other industrial processes. Research was done into how to bind the carbon dioxide in mineral. Cementa continued

\textsuperscript{39} Cementa 2008:3, p. 2
\textsuperscript{40} Cementa 1992:2, p. 19-21
\textsuperscript{41} Cementa 1997:1, 13-15
\textsuperscript{42} Cementa 2013:1, p. 20-21
\textsuperscript{43} Cementa 1997: 2, p. 7
\textsuperscript{44} Cementa 2001:2, p. 18-19, 2001:1, p.8-9
to look at concrete from a life cycle perspective since concrete takes up carbon dioxide continuously.\textsuperscript{45} 2012 Cementa decided to reduce their emissions of carbon dioxide to zero.\textsuperscript{46}

**Conclusion**

Historically sustainability and environmental issues has not been on the agendas of the cement and limestone companies. When the public reacted to the activities by the industries in a negative way the companies were not prepared for it at all. The cement and limestone industries were not used to getting this kind of criticism instead they had been leading the development in the local area and always been on good terms with the local organizations and representatives. The handling of the first clash with environmental organizations did not lead to any change in the behavior or attitude. The cement company got their way and could continue with their activities. The lack of care for the environmental issues and the respect for other people’s view led to the intense conflicts in the 21\textsuperscript{st} Century. The approach towards the environmental organizations was neither humble nor transparent. The industries did not try to arrange meeting arenas or to take up a dialogue with the organizations, instead they met the demand from the protesters through media or not at all.

In the communication on the webpages and in the magazine they are keen on lifting the environmental and sustainability issues. There has been a big change from just a couple of years ago. The debates and conflicts have at last made the companies change tactics and they are now trying to show themselves as leaders for the climate.

\textsuperscript{45} Cementa 2010:1, p. 12-13
\textsuperscript{46} Cementa 2012:2, p.
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