

# Value of Collaboration: The Opportunities and Limits of Shared Value Creation in the Collaborative Practices of Mining

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**Abstract:** This study examines the value of collaboration in the branch of mining and asks what kind of value can be expected from the collaborative practices of mining, and what are the opportunities and limitations of shared value creation. The research was conducted as an interview study (n=17) in the Finnish municipality of Sodankylä that has been a forerunner in Finland in developing collaborative practices with the mining industry. The study constructs a value typology, which illustrates the expected value of the collaborative practices in mining, and a framework to evaluate the value of collaboration. The results show that the value of collaboration consists of different dimensions, and that the value may be process, outputs and outcomes related, or relate to the productivity of value creation. In addition, the results reveal that there are two different perceptions of the potential value of collaboration: win-win and trade-off. In conclusion, it appears that the collaboration process itself can create value for all, but the collaboration cannot meet everyone's value expectations related to outputs and outcomes. Therefore, there are opportunities for shared value creation in the collaborative practices of mining, but it is not possible to meet everyone's value expectations.


## 1 INTRODUCTION

Mining activity affects massively to its surroundings: its economic, ecological and social impacts are large and manifold. This makes mining a very contested industry also in Finland. However, different kinds of collaborative practices between the mining companies and various affected stakeholders has potential to alleviate and overcome disagreements and conflicts between different actors. An agreement-based collaboration (e.g. in the form of community development agreements, CDAs, or impact and benefit agreements, IBAs) offers mining companies a new form (along with the traditional instruments of public regulation and voluntary industry initiatives) to carry out social responsibility and put sustainability efforts into practice (O'Faircheallaigh 2015).

A northern municipality in Finnish Lapland, Sodankylä has been a forerunner in Finland in developing collaborative practices with the mining industry by aiming for voluntarily initiated agreement-based collaboration that could be realized e.g., in the forms of a foundation, a fund and a mining forum. The municipality has created a mining

programme that expresses the municipality's goals and principles related to mining and provide the foundations for the collaboration with the mining industry (Sodankylä 2018). This study focuses on the expectations of and hopes for the collaboration in Sodankylä.

The aim of the study is to find out what the value expectations of different actors from the collaboration in the branch of mining are, and how the value expectations overlap and differ from each other. Based on the identified value expectations, it is possible to analyse the opportunities for the creation of shared value and its limits. Thus, the study aims to answer the research question: *What kind of value can be expected from the collaborative practices of mining, and what are the opportunities and limitations of shared value creation based on the value expectations?* The study is part of a research project "Collaborative remedies for fragmented societies – facilitating the collaborative turn in environmental decision-making" (CORE), which studies and develops collaborative action in environmental planning and decision-making, and is

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The research aims to contribute in three ways. First, the study constructs a value typology, which illustrates the expected value of the collaborative practices in the branch of mining. Thus, the perceived value of collaboration and related value co-creation is conceptualized in the environmental decision making context, where different stakeholders affect collaboration and are affected by it. Currently, the research about value co-creation is rather business-oriented, i.e. the focus has been on the co-creation practices between a firm and its customers, and the value and its different dimensions have been conceptualized based on this view (Sánchez-Fernández & Iniesta-Bonillo, 2007; Busser & Shulga, 2018). This study broadens the perspective to include different stakeholders of the mining industry, so the constructed value typology reflects a stakeholder-oriented (vs. customer-oriented) perspective on the co-created value in an environmental decision making context.

Second, by analyzing the expected value of collaboration, the study provides insights about how the value of collaboration could be evaluated and constructs a framework to evaluate and measure the value of collaboration. Third, the study critically examines the concept of shared value creation (Porter & Kramer 2011) in the context of mining industry. The idea of creating shared value has gained a lot of recognition in the literature and has also been contested (Crane et al. 2014; de los Reyes et al. 2017; de los Reyes and Holz 2019) but applying the concept to the mining industry has been rare (Devenin 2018; Fraser 2018; 2019). This study identifies opportunities and limitations for shared value creation in the context of mining collaboration.

The paper proceeds as follows. Section 2 introduces a short theoretical background of the study by explaining the concepts of value and shared value creation. Then, Section 3 describes how the research was conducted. Section 4 presents the results. The expected value of collaboration in mining is discussed and a value typology and a framework to evaluate the value of collaboration are presented. Furthermore, the opportunities and limits of shared value creation are discussed based on the found-out differences and similarities in value expectations. Finally, Section 5 presents discussion and conclusions.

## 2 THEORETICAL BACKGROUND

In this study, the collaboration is seen as a potential value co-creation process where value is created for different actors and creating shared value is possible. This study focuses especially on the expected value of collaboration, and not on the realized value. The value expectation is defined as expected (or desired) benefits minus expected (or potential) costs.

### 2.1 Concept of Value

Value as a concept can be understood in different ways, for example, as a preference and a principle (Wallace & Jago 2017). In this study, value is understood as a preference and a desired end state rather than as a principle, ideal, or norm that defines preferences. The value can be defined simply: the perceived benefits minus the perceived costs, which reflects a one-dimensional perspective on the value. This means that value is not just benefits, but benefits relative to costs (Porter & Kramer 2011). A value can also be understood multidimensionally to consist of different dimensions and elements. In this case, the perceived value is described using different value typologies (Sánchez-Fernández & Iniesta-Bonillo 2007).

Value creation has typically been approached in the research literature from the perspectives of the company and the customer, with the focus being on business value and the value experienced by the consumer. For example, the typology of perceived value presented by Holbrook (1999) includes eight types of consumer value: efficiency, excellence, status, esteem, play, aesthetics, ethics and spirituality. Business value has been conceptualized, for example, by Park et al. (2010), who identify four ways by which the blended environmental and economic value can be created: cost reduction, revenue generation, resiliency, and legitimacy and image.

Typologies show that perceived value can be based on many different factors and that it is possible to take different perspectives on the rather vague and subjective concept of value. This study aims to contribute to this stream of research by providing an understanding of the value of collaboration in the context of mining that is a very complex environmental decision making context involving many stakeholders.

### 2.2 Creating Shared Value

Vargo & Lusch (2016) define value co-creation as “the actions of multiple actors, often unaware of each

other, that contribute to each other's wellbeing". Thus, value co-creation happens in collaboration where different actors interact with each other. However, there may also be challenges associated with value co-creation. The value creator may not be able to capture value in the long run and the value may slip to other parties (Lepak et al. 2007). Furthermore, the co-creation of value does not necessarily lead to an increase in joint value, but the consequences can also be negative, i.e. value co-destruction (Plé & Cáceres 2010).

Related to the concept of value co-creation, Porter & Kramer (2011) have introduced the concept of creating shared value (CSV) as a strategic tool for businesses to redesign their purpose for the service of society. The concept of shared value can be defined "as policies and operating practices that enhance the competitiveness of a company while simultaneously advancing the economic and social conditions in the communities in which it operates" (Porter & Kramer 2011, p. 6). The strategy aims for win-win-solutions in three ways: by reconceiving products and markets, by redefining productivity in the value chain and by enabling local cluster development. Porter & Kramer (2011) argue that CSV is integral to a company's profitability and competitive position and thus, differs from corporate social responsibility (CSR) actions.

In their broad critique, Crane et al (2014) have contested the value of the CSV strategy. One of the key critiques is that the concept does not take into account the tensions between social and economic goals and may lead to "islands of win-win projects in an ocean of unsolved environmental and social conflicts" (Crane et al. 2014, 139). Thus, Crane et al. (2014) argue that the strategy does not go beyond trade off thinking but ignores it. Furthermore, de los Reyes et al. (2017) claim that the CSV does not work as a standalone strategy but need to be accompanied by ethical frameworks. De los Reyes and Holz (2019) claim that you should not count on CSV to extinguish destructive business, because even though the strategy can improve sustainability performance up to a point it does not question the underlying premises behind legacy businesses and fails to generate transformative innovations. The criticism points out convincingly that implementing the strategy in practice may be challenging and may require supporting strategic guidelines. Porter & Kramer (2011) themselves note that shared value creation requires managers to develop new skills, such as ability to collaborate broadly and to develop a deeper understanding of societal needs and heightened forms of collaboration.

### 3 RESEARCH METHOD

The research was conducted as an interview study (n=17) in June–August 2018 in the Finnish municipality of Sodankylä. The purpose of the interviews was to generate an understanding of the views of the different parties about the expected value of collaboration. Thus, the focus of the interviews was on finding out what value is expected and desired from collaboration in mining. Alongside this, experiences about the value of the collaboration that has already taken place were examined.

Judgmental and volunteer sampling were used to select the interviewees. The aim was to include representatives from the two key parties, i.e. the municipality and the mining companies, and as diverse as possible group of representatives of different stakeholders. All the interviewees had some experiences about the collaboration in mining, but the scope and the nature of the collaboration varied.

The selected interviewees represent the following bodies: the municipality (4), mining companies (2), reindeer herding (3), nature conservation (3), municipal council (2), entrepreneurs (2) and fishing (1). In the analysis, the answers of the representatives of the municipal council, entrepreneurs and fishing were combined into the category "Others". The set of interviewees therefore includes the main parties and key stakeholders. However, not all stakeholders are represented: for example, the opinions of the youth, tourism industry and different villages of the municipality are missing from the data.

All interviews took place face-to-face, except for one, which was conducted over the phone. The duration of the interviews ranged from 35 minutes to 99 minutes, with an average of 66 minutes. Each interview was transcribed, and a summary of the transcription was made, which was sent to the interviewee either by e-mail or post for review and for possible additional comments. The interviews produced a total of 270 pages of transcription material and a total of 107 pages of summary material.

Data was analyzed inductively. The first phase of the analysis was based on categorization, which is a process to classify and label units of data (Spiggle 1994). So, in the first phase, data was classified by coding. Transcriptions and summaries were read and expectations of benefits, expectations of costs and risks, and views on limitations of value co-creation were identified. Each identified value expectation (expected benefit, expected cost, limitation) was given a name and it was tabulated with the associated data unit (typically a piece of text of a few sentences). This resulted in tables of the expected benefits,

expected costs, and value creation constraints experienced by each party.

In the second phase, these identified categories were compared and combined: some of the categories remained the same, some were changed. The third phase was based on abstraction, i.e. grouping empirically grounded categories into higher-order conceptual constructs (Spiggle 1994). A more abstract and theoretical level was sought, and the identified categories were grouped into more general conceptual constructs (i.e. value dimensions).

## 4 RESULTS

### 4.1 Expected Value of Collaboration in Mining

The results show that value expectations for collaboration are diverse and consist of different dimensions. Altogether eleven value dimensions were identified (Table 1). In addition, it was discovered that value expectations were either related to the collaborative process itself (process related), to the direct and concrete, hoped-for consequences of the collaboration (outputs related) or to the more abstract, hoped-for impacts and changes (outcomes related). Table 1 summarises the results of the expected value of collaboration and includes both expected benefits (+) and expected costs/risks (-). The results show that the potential benefits of collaboration are highlighted in relation to its costs and risks.

Table 1: Expected value of collaboration.

Value dimension and its elements	Value expectations: process related (P), outputs related (OP) and outcomes related (OC)
<b>Ecological value</b>  Nature protection (biodiversity, water quality)  Minimization of environmental impacts	+ No ore prospecting or mining in nature conservation areas (OP) + Securing the water quality: taking into account the effects of mining on the water system and the combined effects of different mines, more frequent and varied measurements (OP) + Improving the operations of the mining companies and preventing the worst-case scenarios (OP) + Consideration of environmental issues and sustainable development in mining (OC) + Preserving biodiversity (OC)
<b>Economic value</b>	- Takes time: no compensation or reward for the time spent (P)

Use of time	+ More efficient use of time (P)
Money	+ Money from the mining companies: economic benefits for the municipality (OP)
Effectiveness	+ Increase in funding from the mining company (OP)
Efficiency	+ A permanent mechanism for the accumulation of money (OP)
Competitive advantage	+ Guarantee fund for risks and the time after the mine closure (OP) + Investments of mining companies (e.g. in housing production) (OP) - Costs / money spent on funding (OP) + More rational allocation of money (where it is most beneficial; identifying targets that maximize benefits) (OP) + More efficient use of money (financing bigger targets) (OP) + Smooth and rapid progress of business in the mining companies (by avoiding conflicts) (OP) + Efficiency benefits from cooperation between mining companies (e.g. joint monitoring and reporting) (OP) + Wide-ranging municipal economy (OC) + Competitive advantage to mining companies from responsibility (OC) + Municipality attractive to mining companies (OC) + More benefits for the community from mining (OC)
<b>Ethical value</b>	+ Transparency and openness in collaboration (P)
Transparency	+ Communication based on facts and researched information (P)
Honesty	+ Honesty and getting the right facts (also the bad news) from the mining companies and municipality
Factuality	+ The initiative of municipality to negotiate with mining companies and the firmness to make justified demands (P)
Responsibility	+ Impartiality, transparency and reliability of discharges monitoring, and possibility to participate in the monitoring of water discharges if desired (OP) + Transparent channeling of money, and public and transparent management of the possible fund (OP) - Increase in bureaucracy and in the exercise of power with the fund (T) + Exceeding legal requirements in safety and environmental issues (OP) + The use of best available technology in mining companies (OP) + Commitment of the mining companies to act responsibly (OC)



Table 1: Expected value of collaboration (cont.).

Value dimension and its elements	Value expectations: process related (P), outputs related (OP) and outcomes related (OC)
<b>Existential value</b>	+ Securing the reindeer husbandry industry (OC) + Securing the right to one's own living environment (OC)
Protecting and securing the living environment and livelihoods	+ Securing the local economy, local industries and local culture (OC)
<b>Functional value</b>	+ Systematic form of collaboration: coordinated, structured and regular collaboration (P)
Regular and coordinated collaboration	+ Commitment and continuity in collaboration (P) + Participation and broadly inclusive collaboration (P)
Commitment and continuity	+ Participation of young people (P) + Participation of all ore exploration and mining companies in the region (P)
Extensive participation	+ Joint planning (mining companies and the municipality) (P) + Influencing and empowerment (P)
Communication	+ Communication and constructive dialogue (P)
Joint planning	- Changes in collaboration practices as the managers of mining companies change (P)
Influencing	- Being involved in collaboration contributes to the promotion of mining projects (OP)
Various forms of cooperation and win-win solutions	+ Joint monitoring and reporting within different mining companies (OP) + Implementing different forms of cooperation and related win-win solutions (OP+OC) + Maximizing the benefits of mining at the municipal level, i.e. local exploitability of mining (OC)
<b>Knowledge</b>	+ Access to information (correct factual and up-to-date information in an understandable form) (P)
Access to information	+ Emergence and disclosure of different views and interests (P)
Knowledge of other parties' interests	+ Growth of one's own experience, knowhow and competence (P) + Identification of common benefits and interests (OP)
Creating new knowledge and understanding	- Creation of excessive, over-optimistic expectations (OP) + Creating an understanding of the municipality's interests in mining (OP) + Creating a better overall picture of mining and mineral exploration activities in the municipality (OP)
<b>Legitimacy</b>	- Seeing collaboration as an action of insiders (P)

Legitimacy of collaboration	+ Peaceful working conditions in the mining companies (OP) - Seeing the support of the mining companies as bribery and as buying of social license (OP) + Trust and acceptance of the mining activity (OC)
Peaceful working conditions	
Trust	
<b>Psychological value</b>	- Creating a negative mood: fear of how mining will affect your own life and livelihood, and the uncertainty about whether one has ability to influence (P)
Mental welfare	
<b>Social value</b>	+ Understanding the other parties (P) + Fostering personal relationships (P)
Understanding the other parties	- Stigmatization: belonging to a pro-mining / anti-mining camp (P) + Employment of local residents and entrepreneurs, and creation of new jobs and businesses (OP)
Relations	
Status	+ Investments in the well-being of local people (e.g. noise barriers, quiet asphalt, pedestrian and bicycle ways) (OP)
Jobs and new companies	+ Improving municipal services: more diverse and better services (OC) + Improving the welfare of local people living in the vicinity of the mine (OC) + Securing recreational use of areas (OC) + Welfare in the municipality (OC) + The viability and attractiveness of the municipality (OC)
Welfare	
<b>Strategic value</b>	+ Taking a long term and comprehensive perspective (P) + Consideration of alternative strategies to mining (P) + Setting goal status high and promoting win-win thinking (P) + The success of the mines and the success of the municipality go hand in hand (OC) + Acting in line with the company strategy (and related sustainable values) (OC)
Holistic perspective (broad, long term and alternative thinking)	
Win-win thinking	
Action in line with the sustainability values and strategy	
<b>Sustainability</b>	+ Social sustainability: lower extraction volumes and longer duration of mining (OP) + Mining companies' participation in developing the municipality (OP)
Social sustainability	+ Preservation of pure nature for future generations (OC) + Future generations' rights to nonrenewable resources (OC) + Prevention of adverse effects of the structural change (OC)
The rights of the future generations to natural resources and pure nature	

Table 1: Expected value of collaboration (cont.).

Value dimension and its elements	Value expectations: process related (P), outputs related (OP) and outcomes related (OC)
Long term development and coping with the structural change	+ Sustainable development and the welfare of future generations (OC)

Based on the results about the expected value of collaboration in mining, a framework was constructed to evaluate and measure the value of collaboration (Figure 1).

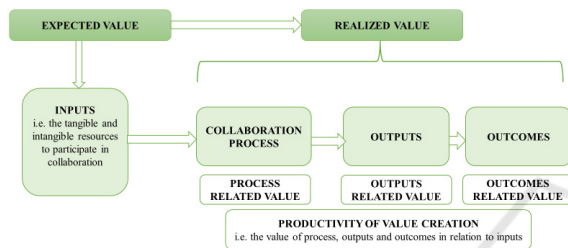


Figure 1: Evaluation framework for the value of collaboration.

The framework illustrates how the value of collaboration is multidimensional – it is not only about the success of the process or the successful end results. The value expectations of collaboration may be process, outputs and outcomes related, or relate to the productivity of value creation. Because collaboration takes time, the benefits of collaboration are weighed against the time spent (and other potential inputs). Thus, the framework also illustrates what needs to be considered when planning a collaboration process. Process, outputs and outcomes related value as well as productivity of value creation are components of the realized or expected value.

## 4.2 Opportunities and Limits of Shared Value Creation

There are both similarities and differences in value expectations between different actors. The municipality and stakeholders expect more money from mining companies while mining companies expect more rational allocation of money. Mining companies emphasize the development of the collaboration model, where shared interests could be found (related to e.g., availability and training of labor) and indirect economic benefit for the whole region, whereas other actors also hope for direct economic benefit. The shared value expectation is

that mining would benefit the municipality and its residents more. All actors also aspire welfare in the municipality and wide-ranging municipal economy. However, actors have opposing views on the means to achieve these effects. Value expectations can thus be congruent at the level of outcomes and opposite at the level of outputs.

Although many of the value dimensions, such as ethical value, sustainability, social value, knowledge and economic value are mentioned as expected value by many of the actors, different value dimensions are emphasized by different actors. For the mining companies, the key expected value dimensions of collaboration are functional value, legitimacy and strategic value, along with economic value. Municipality especially highlights economic value, functional value and social value. Existential value is emphasized among the representatives of reindeer herding, and ecological value and sustainability among nature conservation representatives.

For the *mining companies*, the key expected benefit is the identification of common interests, implementing different forms of cooperation and related win-win solutions. Key motivation for the collaboration is the building of trust and the approval of mining, and related peaceful working conditions and smooth and rapid progress of business when conflicts are avoided. In addition, acting in line with the company strategy (and related sustainable values), gaining competitive advantage from responsibility, and efficiency benefits from cooperation between mining companies are important value expectations.

For the mining companies, the risk of collaboration is that the collaboration creates over-optimistic expectations, which can lead to the experience of betraying promises. They also see the risk that collaboration will appear as an action of insiders or as a bribery and a way to buy a license to operate. However, the potential benefits of collaboration are highlighted in relation to its potential costs and risks.

For the *municipality*, the key value expectations are regular and systematic collaboration and the related financial benefits. It is interesting that in their argumentation, the representatives of the municipality also think about the value of collaboration from the point of view of the mining companies. Like mining companies, they also aim for finding the common interests and win-win-solutions.

Representatives of *reindeer herding* value expectations relate especially to the investments in the well-being of local people and to the securing of reindeer husbandry industry. However, they are rather skeptical whether the collaboration provide any

real benefits: it is just something you must be involved with in order to gain something. The obvious cost of collaboration is the time it takes. A key constraint on value creation is perceived to be the displacement of reindeer herding by mining activity, and the fact that there are no ways to reduce adverse effects, even if there is a common will for that.

The most important value expectation of *nature conservation* representatives is that the mining agreement prohibits mineral exploration and mining in protected areas. In addition, the strong consideration of environmental issues, such as water impacts, is desired, as well as looking at things in a long-term and comprehensive way.

Overall, actors have two different perceptions of the potential value of collaboration: win-win and trade-off. Some strongly emphasize the possibility of finding common needs and interests through collaboration, the so-called win-win situations, while some see collaboration more as a minimization of harm: due to incompatible goals, not everyone can win (trade off). Mining companies clearly represent a win-win approach to collaboration. Representatives of the municipality are more moderate in their win-win thinking. Stakeholder representatives have a more trade-off approach to collaboration and they see more limitations of value creation, such as the fact that mining companies commit on a voluntary basis and their actions are tied to goodwill.

Based on the results it seems that the collaboration process itself can create value for all (process related value). However, the value expectations related to outputs and outcomes differ in some respects significantly from each other and there is probably a limited possibility for collaborative action to resolve some of these differences (the value of outputs and outcomes). Therefore, there are both opportunities for shared value creation as well as limitations.

## 5 CONCLUSIONS

The study asked: *What kind of value can be expected from the collaborative practices of mining, and what are the opportunities and limitations of shared value creation based on the value expectations?* The results show that the value of collaboration in general can be diverse and consist of different dimensions. The analysis revealed eleven value dimensions: 1) ecological value, 2) economic value, 3) ethical value, 4) existential value, 5) functional value, 6) knowledge, 7) legitimacy, 8) psychological value, 9) social value, 10) strategic value, and 11) sustainability. These value dimensions reflect the

different motivations to participate in collaboration. The costs and risks of collaboration were not emphasized in relation to the potential benefits.

The results revealed that the value of collaboration can be related to the collaborative process itself (process related), or to the direct and concrete consequences of the collaboration (outputs related) or to the more abstract impacts and changes (outcomes related). Thus, collaboration and communication can be valuable by themselves, but they are also instruments to produce other values.

As concluded in the previous section, there are both opportunities for shared value creation as well as limitations. Some value expectations are mutually exclusive, and it is not possible to create value for everyone. For example, expectations about the smooth and rapid progress of business in the mining companies and the delimitation of 'no ore prospecting or mining in nature conservation areas' are partly mutually exclusive value expectations.

It is good to note that actors have two different perceptions of the potential of collaboration to create value for all. Win-win ideas can appear as empty talk without a realistic basis for those whose perception is based on trade-off thinking. Mining companies want to strengthen the benefits of mining, i.e. how mine would benefit the locals even more. However, strengthening the benefits of mining cannot directly eliminate the risks or harms of mining. As this is not possible, some stakeholders do not believe that collaboration will generate significant value.

In addition to the value of collaboration, its expected and desired benefits, it is also justified to critically consider the conditions and limitations of shared value creation. The pursuit of certain values in collaboration does not guarantee that they will be realized if the means or resources to achieve them are lacking. Both realization and non-realization of expected benefits in collaboration is possible.

The value typology and the analysis of the potential of shared value creation is based on the study about perceived value *expectations* and not on the experiences of *realized* value. Studying the *expected* value of collaboration is important because value expectations or aspirations affect how the value of collaboration is ultimately perceived. Furthermore, value expectations tell about the motives for collaboration: why do the different actors want to participate. Understanding the motives also helps to develop the collaboration further and actualize the expectations into realized values. In the future research it would be interesting to study the realized value of collaboration and compare whether, how and why it would differ from expectations.

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