

## Article

# Implementation of general sustainability objectives as tools to improve the environmental performance of industry

Richard Almgren <sup>1,\*</sup>, Olof Hjelm <sup>2</sup>

<sup>1</sup> \*Department of Management and Engineering, Environmental Technology and Management.  
Linköping University, SE-58183 Linköping, Sweden; [richard.almgren@liu.se](mailto:richard.almgren@liu.se) +46705688112

<sup>2</sup> [olof.hjelm@liu.se](mailto:olof.hjelm@liu.se) +4613285647

**Abstract:** This article examines the implementation of the Swedish national environmental quality objectives and discusses what can be learnt for the equivalent process for the set of global UN 2030 goals (SDGs), established in 2015. The empirical basis is a study on 50 large companies in Sweden and their use of these objectives in their policy formulation. The SDGs are crafted with a broader approach than the Swedish national environmental quality objectives. Therefore, the SDGs probably better reflect the agenda of the business community since they have a global character, cover the whole spectrum of important sustainability issues and provide a mutual agenda for the business community world-wide. More than 90 percent of the large companies in the study have explicitly committed themselves to the SDGs, only 1-2 years after they were published, whereas similar commitments hardly exist for the national environmental quality objectives, even 20 years after its establishment. A large majority of the large companies in this study know about the SDGs, have actively endorsed them, and started to adjust their activities accordingly. At the end, the results of these endorsements remain to be seen.

**Keywords:** Agenda 2030, sustainability goals, national environmental quality objectives, industry, integration, implementation

## 1. Introduction

The basic idea behind environmental policy in the business sector is to make companies change their agendas to take environmental considerations into account [1, 2, 3, 4]. Many different environmental policy instruments have been developed for this purpose, mostly to advocate for certain behavior by using different kinds of legislation, such as environmental permitting systems and restrictions on the production and use of certain chemicals and other products. A comprehensive review of research on environmental policy instruments was made by the OECD [4]. Since then, a number of similar studies have been performed [for example 5, 6, 7, 8, 9, 10, 11]. Other ways to improve environmental performance are to change the incentives in the market, such as by public procurement, financial support or subsidies, trading of emissions like the trading system of greenhouse gases EU ETS [12] in the EU or by fees. Furthermore, more soft incentives commonly used are improved knowledge, such as to initiate education and training, perform information campaigns, support the use of life cycle analysis and other means to improve the environmental characteristics of products [13, 14] ask for declarations of the use of energy, support the use of labelling of products with certain features, certify persons or organizations, such as environmental management systems based on ISO 14001 of international environmental management standard [15], and encourage transparency by systematic reporting, such as reports based on GRI [16].

Belonging to the same group of soft policy instruments are non-legislated general policy objectives or systems targeted at a broad audience. These are implemented entirely as a voluntary action. It is not unusual for governments to use objectives, targets and goals as a component in their environmental acquis. For example, the UN has previously published goals on sustainability, such as Agenda 21 [17], Global Compact [18, 19] and the Millennium goals [20]. Within the EU environmental acquis can be found 87 non-binding objectives and 159 legally binding targets [21]. Similar objectives have been established to support the work in international conventions, such as CLRTAP [22], HELCOM [23] and OSPAR [24]. However, it is quite unusual to use such a broad set of objectives and targets at a national level as stated by OECD [25].

This article deals with the national environmental quality objectives implemented in Sweden from 1999-2005 [26, 27, 28, 29], analyses the implementation of those objectives and examines whether they affected the environmental performance of industry. Based on lessons learnt from that, we aim to identify factors that can increase the effectiveness of the implementing the United Nations 2030 goals (SDGs), published in 2015 [30]. It remains to be seen whether the SDGs will substantially influence the sustainability ambitions in companies or if they will become another example of ineffective attempts to guide further global development. According to Hajer et al [31], the SDGs have the potential to become a powerful political vision that can support the urgently needed global transition to a shared and lasting prosperity. However, they also highlight the risk of the SDGs falling short because of the illusion that top-down steering by governments and intergovernmental organizations alone can address global problems. In the end, the question of when a business is truly sustainable needs to be addressed [32]. Also, in practice, the concept of societal transformation takes on largely different meanings for different actors across societies, for example, regarding pace, scope, goal and governability of transformations [33].

The rest of the article is structured as follows: We start by identifying the main properties of the SDGs and the national Swedish environmental quality objectives. This is followed by a description of the methodology used in studying the implementation of the two sets of objectives in Sweden. After the results are presented, we discuss how companies relate to the national quality objectives and if there are lessons learnt for the implementation of the SDGs. Finally, the conclusions are presented, and policy implications are given.

## **2. General sustainability and environmental objectives**

In this section, we elaborate on the two studied sets of general objectives and give an overview of the literature guiding the study and its conclusions. The global sustainable development goals (SDGs) were introduced as Agenda 2030 by the General Assembly of the United Nations (UN) at its summit in September 2015 [30]. The goals are expected to reflect what needs to be done to shift the world to a sustainable and resilient path. The 17 goals are further developed with 169 targets. According to the agenda, the goals and targets will stimulate action over the next 15 years. All countries and stakeholders are expected to implement this plan, but no specific mechanism for the implementation of the plan has been established. The implementation phase is delegated to the various member states of the UN, which are expected to establish their own action plans. Accordingly, governmental committees have been established in several countries, including Sweden, to support the implementation of the 17 goals. The activities are supposed to be based on communication and capacity building.

It is a huge challenge to describe such a complex area as sustainable development in just a few sentences or goals. The Brundtland Commission managed in its book *Our Common Future* to capture the concept into a short sentence, basically to take the future generation into account and thereby balance economic, environmental and social issues [34]. Further, it should be noted that other similar sets of objectives have been established internationally before. Examples of this are the EU Environment Action Program [35], the first one issued in 1973. Furthermore, a comprehensive list of other visions of sustainable development is available in an annex to ISO 26000:2010 [36].

Another system, the Swedish environmental quality objectives, was gradually established during the period 1999-2005 as guidance for the environmental policies in the decades to come. The set of objectives was initially prepared by the Swedish Environmental Protection Agency, SwEPA [37]. The purpose of the objectives and their design can be found in nine Government Bills [26, 27, 28, 29, 38, 39, 40, 41, 42]. This approach to environmental policies was adopted by the Parliament with a broad majority [43]. Sixteen national objectives and 72 interim targets were established. At a later stage, the interim targets were replaced by 24 milestones [39]. None of the mentioned objectives or interim targets/milestones are prescriptive such as would be the case if they were legislated. The objectives were supposed to serve as guidance in the application of legislation. The time span, one generation, was defined as 21 years in the period 1999-2020 [26]. Initially, the objectives and targets were of two kinds, long-term ("one generation") and short-term (10 years). In addition, regional and local objectives were supposed to support the national objectives [27].

From the Bill on Interim Targets [27], four purposes of the system of environmental quality objectives can be identified:

- Describe the state of the Swedish environment
- Integrate environmental concerns in all sectors
- Strengthen knowledge of environmental issues
- Provide a tool for interaction in international fora

Since the set of national environmental quality objectives was established already in 1999, the system has undergone many changes, keeping the basic purposes unchanged. From a corporate perspective, which is the perspective of this article, the second and third purposes listed above are of most interest. Purpose one and four are primarily aimed at governmental bodies, and efforts to meet these two purposes are omitted from this article. When it comes to integration, the Swedish Government [27] provides the explanation that there is a need for a common vision, that all actors need to contribute and that legislation as an incentive is not enough.

The 16 environmental quality objectives are essentially of two kinds: firstly, the ones that in positive terms describe a scientific issue or threat, and secondly, those that provide a utopian landscape objective [44, 45]. To better understand the purpose of the set of environmental quality objectives and to fit the purpose of this article, we have categorized them in the perspectives concerning types of objective (mainly pollution-related and mainly land use-related, respectively) and geographical distribution of causes (global, continental and national; see Table 1). Most of the land use-related environmental quality objectives are related to measures to be taken mainly by national, regional and local governments, while the pollution-related objectives have the business community as an important target group. All the causes of the environmental issues addressed by the pollution-related objectives have a global or continental distribution, whereas the causes for most of the land-use objectives have a national character. However, it must be noted that there are

overlaps in the presented structure in the sense that some objectives belong to more than one category. For example, the environmental quality objective Clean Air has a global and national pollution-related as well as a land use-related dimension in addition to the categorization in Table 1. Other such examples are the objectives of A Varied Agricultural Landscape and Sustainable Forests, where the business community is also an important target group.

The national environmental objectives have been frequently reviewed mostly within a national perspective, although they are phrased within an international context [46-55, 56, 57-67].

From previous studies, some key features can be identified to make objectives and targets of this kind successful. They shall be clearly phrased [55, 68-71, 55, 74], be suitable to the target group [2, 44, 71, 72], include an implementation mechanism [2, 71], be possible to evaluate [73, 76], include a specified deadline [72] and be known to the target group [75]. In addition, to achieve the objectives and targets, industry needs to build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation [32].

**Table 1:** Categorization of the national environmental quality objectives regarding the distribution of causes of the underlying environmental issue (global, continental, national) and type of objective (mainly pollution-related or land use-related)

Main distribution of causes to the environmental issues addressed by the environmental quality objectives	Environmental Quality Objectives	
	Mainly related to pollution	Mainly related to land use
Global	1. Reduced Climate Impact	
	4. A Non-Toxic Environment	
	5. A Protective Ozone Layer	
	6. A Safe Radiation Environment	
Continental	2. Clean Air	
	3. Natural Acidification Only	10. A Balanced Marine Environment
	7. Zero Eutrophication	
National		8. Flourishing Lakes and Streams
		9. Good-Quality Groundwater
		11. Thriving Wetlands
		12. Sustainable Forests
		13. A Varied Agricultural Landscape
		14. A Magnificent Mountain Landscape
		15. A Good Built Environment
		16. A Rich Diversity of Plant and Animal Life

3. Methods

This section describes the approach used to examine the response by companies to the set of Swedish national environmental quality objectives and SDGs [30], including the empirical basis and what information has been used from the studied companies. This study is partly based on a report, originally carried out for the SwEPA, as a contribution from a corporate perspective to the Government’s evaluation in 2016 of the state of the

environment as it can be interpreted from the national environmental quality objectives [77]. Information regarding the use of SDGs [30] was collected during spring 2020.

### **3.1 Selection of companies**

In total, 50 companies were selected, based on the NACE code [78], to get as much diversity as possible of different industries. The NACE code is a commonly used statistical classification of economic activities in the European Union (EU). The 88 sectors provided by the NACE code at a two-digit level were aggregated into 13 groups, where each group can be assumed to have similar impacts on the environment. Within each group, one to seven companies were selected among the largest in their line of business (measured as turnover) and thereby leading in terms of economic contribution in Sweden in their sector, respectively. Of the selected companies, 10 percent belong to the SME group (less than 250 employees). These companies have been omitted in this article when it comes to sustainability issues since their reporting habits were not comprehensive enough to evaluate such issues. Collectively, each group contributes to a significant share of environmental impacts in its sector.

The 50 companies had a total of 1.3 million employees, of which 0.25 million (19 percent) belong to the Swedish part of the companies. As an indication of the environmental relevance of the selected companies, their collective share of direct national emissions of carbon dioxide from all sources in Sweden is around 20 percent.

### **3.2 Data collection**

The published objectives and targets adopted by the companies were studied to illustrate whether the integration of environmental consideration has taken place. To map out the structure of the implemented integration, all published environmental objectives and targets were grouped into the structure of the 16 national quality objectives. The progress achieved to each objective and target was checked through the monitoring programs that were linked to a vast majority of objectives and targets. The results achieved were also checked through the prescribed environmental reports, where applicable.

All the selected companies had publicly made data available on adopted environmental objectives, targets and achieved environmental performance. In most cases (86 percent), data were collected from their latest public sustainability reports. For the remaining 14 percent of companies, data were collected from other public sources, such as information available on their websites, EMAS reports [80] or environmental reports submitted to a public authority (site-specific compliance reports), respectively.

For the first survey in 2015, the latest available sustainability report was used, leading to activities in 2013 or, in a few cases, a few years earlier. The study in 2020 covered activities in 2018 and 2019. Thirty-eight companies in this survey (mainly within NACE 1-39) need to submit an environmental compliance report annually to the authorities. This is a requirement for large sites under the national interpretation of the IED directive [79] in the EU. These reports were used to double-check the information given in other sources, and in a few cases, were the main source of information for a company. Further, most of the sustainability reports and EMAS reports [80] have been audited by an accredited accountant or specialized accountant.

A few interviews were also carried out as part of the first study, mainly to double-check the information given in written sources. In total, 16 environmental experts from 6 of the companies were selected based on a set of pre-defined questions, primarily to capture their views on the role of the set of national environmental quality objectives, as seen from a company's point of view. They were selected among the forestry, mining, iron and steel, pulp and paper and motor vehicle sectors. The interviews dealt with the role of the national environmental quality objectives at the company level and driving forces and

barriers to environmental improvements. The interviews were conducted individually, face-to-face, and in a few cases, by telephone. All the companies concerned have been given the opportunity to review notes covering the empirical basis for their company.

The annual reports or sustainability reports were studied to capture information on whether a company had initiated any steps to support any of the SDGs [30]. Any link to a specific goal was noted.

#### 4. Results

The results are presented following the previously mentioned purposes of the set of environmental quality objectives. The first and most elaborated task of this study was to examine whether the integration of environmental consideration has taken place and – if so – what role the national environmental quality objectives play (Section 4.1). A second task responds to the third purpose of the national environmental quality objectives (see Section 3), namely, to enhance the knowledge of environmental issues (Section 4.2). A short overview of commitments to the SDG is also given to assess whether the SDGs actually have been endorsed by the studied group of companies and, consequently, if it is meaningful to identify lessons to be learnt (Section 4.3).

##### *4.1 Integrate environmental considerations in all sectors*

Integration of environmental considerations into all sectors in Sweden has been going on for many years and has interacted with several other factors to trigger improvement, as previously mentioned. This observation is acknowledged in the bill to the national environmental quality objectives since the Government claims that legislation is not the entire answer to achieving the objectives and targets.

Some of the companies' state that the national environmental objectives are too vague and have a political character to play any clear role as a model for their own efforts to improve their environmental management, other than their role to indicate key areas of importance.

The following review illustrates the type of objectives and targets that have been adopted by the companies and how they can be linked to the set of national environmental quality objectives. Table 2 gives an overview of the established environmental objectives and targets by companies. Objectives and targets could be found within the area of 9 of the 16 national environmental quality objectives. For example, 90 percent of the selected companies have established their own objectives, targets and action programs to tackle their contribution to the climate change issue. Similarly, 48 percent of the companies have established objectives and targets linked to the built environment.

An overview of the established site-specific legal requirements is given in Table 3. It should be noted that the legal requirements are generally targeted to individual sites (factories, etc.) in Sweden, while the reported environmental objectives (Table 2) are established company-wide, implying that they also cover activities outside of Sweden, to some extent also including activities by suppliers. It should also be noted that the legal requirements for emissions of greenhouse gases (GHGs) are linked to the emissions trade system (EU ETS) in the EU [12] and are not visible in Table 3.

**Table 2:** Overview of established environmental objectives of companies in this study

Environmental issues	Number of companies that have established environmental objectives			
	Companies based on the use of natural resources (NACE 1-9)	Manufacturing companies and energy supply (NACE 10-35)	Other types companies (NACE 36- 99)	Share of all companies (NACE 1-99) (percent)
Climate change (Objective 1)	3	31	11	90
Air pollution (Objective 2)	1	3	2	12
Acidification (Objective 3)	2	2	0	8
The use of chemical products with undesirable features (Objective 4)	1	3	4	16
A protective ozone-layer (Objective 5)	0	2	0	4
Eutrophication (Objective 7)	1	5	0	12
Productive forestry and preserved biodiversity (Objective 12)	1	4	0	10
Productive agriculture and preserved agriculture (Objective 13)	1	1	0	4
Environmental issues linked to the built environment (Objective 15)	1	14	19	48
No of included companies	3	32	13	100

**Table 3:** Overview of established site-specific legal environmental requirements for companies in this study

Environmental issues	Number of companies that must comply with governmental environmental legal requirements for major sites			
	Companies based on the use of natural resources (NACE 1-9)	Manufacturing companies and energy supply (NACE 10-35)	Other types companies (NACE 36- 99)	Share of all companies (NACE 1-99) (Percent)
Climate change (Objective 1)	NA	NA	NA	NA
Air pollution (Objective 2)	3	28	2	66
Acidification (Objective 3)	2	16	1	38
The use of chemical products with undesirable features (Objective 4)	3	28	1	64
A protective ozone layer (Objective 5)	0	2	0	4
Eutrophication (Objective 7)	4	24	1	58
Productive forestry and preserved biodiversity (Objective 12)	1	4	0	10
Productive agriculture and preserved agriculture (Objective 13)	0	0	0	0
Environmental issues linked to the built environment (Objective 15)	4	29	2	70
No of included companies	5	32	13	100

NOTE: Legal requirements for emissions of GHGs are linked to the emissions trade system in the EU (EU ETS) and are not visible in this table [12]

Seven of the national environmental quality objectives deal with pollution. As noted above, climate change issues (Objective 1, Reduced Climate Impact) have engaged all the reviewed companies most. An overwhelming share of the 50 companies (90 percent) has adopted and made public their own objectives for the years to come. The targets are either

worded as a reduction of greenhouse gases (GHGs) or the use of energy, or both. The concerned companies have developed long-term roadmaps focusing on creating low-carbon processes, such as those producing steel and cement. Several companies in the transport sector promote the improvement of fuel efficiency and seek alternatives with less carbon emissions. Many companies are testing new types of vehicles, fuels and other methods. Energy efficiency is a top priority issue in most companies. Companies in the forestry and pulp and paper sectors reduce conflicts as much as possible, in part through consultations with those concerned. Many companies cited environmental issues in urban areas (Objective 15, A Good Built Environment), mainly as a management issue. This objective includes a diverse series of issues. The efficient use of materials is commented on, such as the use of waste rock from mines to produce ballast for the construction industry in the region and replacing gravel in concrete production. Reuse and recycling of metals is another issue. A wide range of materials is recycled, such as construction waste, food, fiber, garment, e-waste and metals. Other industries have also developed their procedures for proper waste management. The biodiversity issue (Objective 16, A Rich Diversity of Plant and Animal Life) is expressed by companies in the raw material sector (NACE 1-5, 20-21, 26), where, in a few cases, far-reaching commitments have been made. Many companies make company commitments to conserve biodiversity.

The internal process to reduce environmental impacts of a company is actually a mix of dealing with regulated environmental issues at individual sites as target and environmental issues that are managed by using objectives and targets for the entire company, including operations beyond the national borders. According to this study, already regulated environmental issues are only exceptionally subject to internal objectives and targets within the companies, whereas such internal processes are mainly used for non-regulated environmental issues, such as the climate change issue, which in the EU is subject to a trading system (EU ETS) for the large sources [12]. Almost all companies in this study have established objectives and targets to decrease the impact on the climate. The share for other environmental objectives is lower, mostly because companies in this study have to take into account both their own environmental objectives and the requirements established by law for their sites operating in Sweden. Nilsson [85] discusses this issue and claims that ownership and accountability of sustainability issues must land firmly within the sectors. It should be noted that voluntary systems play an important role in dealing with non-legislated issues. The contribution of companies to SDGs can be estimated by the high use of other sustainability tools of companies in this study, such as the UN Global Compact and GRI [16, 18, 19].

One observation made during the study of sustainability reports of the group of companies in this study was the absence of reference to the set of national environmental quality objectives. When it comes to the integration of environmental concerns in all sectors, the interviewees provide additional insights. It becomes clear that national policies, like the national environmental objectives, are well known. However, they seem to play a limited role in the multinational companies which dominate this study. An overwhelming share of companies declares as an ambition that legal requirements shall not only be complied with but also exceeded. At the same time, an environmental expert at one of the companies explicitly says in an interview that they avoid national systems, which is beyond what is legally required.

To identify lessons to be learnt for the SDGs, it could be noted that both systems are based on goals but lack a specific mechanism for implementation. However, the overwhelming majority of companies in this study has since long established an implementation mechanism for their own objectives and targets. The overwhelming share of companies has implemented its own objective-related systems to tackle environmental issues in terms of an environmental management system, based on the international environmental

management standard ISO 14001 [15]. In this study, 86 percent of the companies have voluntarily implemented an environmental management system based on international standards. Such systems include procedures to identify their significant environmental aspects, which play a role as the basis in establishing tailor-made objectives and targets for the company in question.

#### 4.2 Enhance knowledge of environmental issues

According to the interviews, most of the selected companies are aware of the national environmental quality objectives. They are used, for example, in connection with environmental permitting procedures. Companies suggest that the environmental quality objectives may be relevant in the sense that they indicate the key environmental areas from a governmental perspective when targets are established within companies. However, according to them, some of the national objectives are difficult to manage at a company level, as they have a visionary and national political character.

#### 4.3 Enhance knowledge on sustainability issue and integration into daily operations

The knowledge of the SDGs [30] seems to have grown rather quickly; only 1-2 years after they have been published, more than 90 percent of the large companies have not only endorsed them but also indicated which of the 17 goals are relevant for their businesses and in detail described what kind of support they can provide (Table 4). The SDG goals that seem to affect most companies are No. 12 and 13.

**Table 4:** Commitments to the UN 2030 goals among large companies in Sweden 2018/19

Sustainability goal (UN SDG)	Share (percent) of companies that explicitly have committed themselves to support the achievement of the UN SDG goals			
NOTE: The explanation of the SDGs has been partly shortened in this table.	Companies based on the use of natural resources (NACE 1-9)	Manufacturing companies and energy supply (NACE 10-35)	Other companies (NACE 36- 99)	All companies (NACE 1-99)
SDG 1. End poverty in all its forms everywhere	0	16	7	22
SDG 2. End hunger, achieve food security and promote sustainable agriculture	0	24	7	31
SDG 3. Ensure healthy lives and promote well-being for all at all ages	0	31	11	42
SDG 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	0	13	4	18
SDG 5. Achieve gender equality and empower all women and girls	7	33	20	60
SDG 6. Ensure availability and sustainable management of water and sanitation for all	2	29	13	49
SDG 7. Ensure access to affordable, reliable, sustainable and modern energy for all	7	41	13	62
SDG 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work	7	44	24	76
SDG 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	4	38	18	60

SDG 10. Reduce inequality within and among countries	0	13	13	27
SDG 11. Make cities and human settlements inclusive, safe, resilient and sustainable	4	24	16	44
SDG 12. Ensure sustainable consumption and production patterns	4	53	22	80
SDG 13. Take urgent action to combat climate change and its impacts	7	49	22	78
SDG 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development	2	18	2	31
SDG 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	7	33	11	51
SDG 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice	0	16	18	33
SDG 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development	0	29	13	42
All SDGs				93

**Note to table 4:** The study is based on the latest available information provided in the Annual Report or Sustainability Report of 45 large companies operating in Sweden at the beginning of 2020, implying that the information was valid in most cases in 2018 (76%) and in some cases in 2019/2020 (24%). Hence, in this table, the selection of 50 companies the 5 SMEs have been deleted since the information in their reports does not allow any evaluation of relationship to the UN SDGs.

## 5. Discussion

The following discussion relates to the previously mentioned key features of the set of general objectives (be clear, be suitable to the business agenda, include an implementation mechanism, be possible to evaluate, be timed and known to the target group), how these issues are dealt with by companies and which lessons can be learnt for the implementation of the SDGs in the business sector.

Implementation problems linked to a lack of *clarity* are confirmed by many studies [56, 68, 69, 70, 71, 74, 81]. For obvious reasons, the SDGs are also vaguely phrased and can, therefore, be subject to similar interpretation problems. In fact, most of them rather look like metaphors. On the other hand, companies seem to be able to establish local targets for their own activities, based on these metaphors.

A set of general goals need to be able to fit into the companies' agenda to be *suitable*. Both sets of goals have the character of formalization of long-term phenomena, established since long. The issues covered by the environmental quality objectives have been systematically implemented for several decades. The issues covered by the SDGs [30] have been systematically implemented by the big companies through GRI [16] and the UN Global Compact [18] for at least a decade. The reporting via GRI [16] implies that companies, in broad terms, have dealt with the same issues for many years that are covered by the SDGs [30].

The meaning of the term *suitable* has been discussed. Stakeholders advocate that the set of objectives, rather, should be seen as a tool to guide and inspire [73] and – the original idea – to bridge the communication gap between experts and citizens, according to Rubenson [70], quoting former state secretary Måns Lönnroth. The reason for the latter approach was that environmental policy differs from other policy areas in that it is based on scientific concepts, not citizens' everyday lives. Also, the environmental quality objectives should be seen as purely political objectives and a kind of point for orientation

in time, space and themes, rather than as a basis for management by objectives, which, according to Lönnroth [72], is not a very suitable form for governing. When the issue was politically solved, the case would be considered fulfilled. One can also consider the national environmental quality objectives as a kind of codification of the issues that were on the environmental agenda when this set of objectives was created [72]. In the latter case, different follow-up procedures play a minor role.

The question of whether the environmental quality objectives have really contributed to improving environmental performance has been discussed by many stakeholders. Wandén [86] elaborates on the fact that there are numerous goal conflicts to consider. OECD comments in its evaluation of the Swedish environmental policy, saying that while the overall environmental quality is very good, the country faces challenges in meeting the very ambitious environmental quality objectives it has set for itself [25]. Dalhammar [87] states, for example, that it is debatable if – and in that case to what level – the objectives will contribute to the improved environmental performance of companies. Others comment similarly [44, 71]. Several sources claim that the level of ambition is unrealistically high, and only a few of the objectives will be achieved on time [2, 56, 59, 60, 63, 71]. To continue, Wibeck et al. [74] comment that there is room for considerable interpretation – and misinterpretation – of what measures to take and in what order, and of how these measures should be evaluated. Lundgren [70] and Rubenson [71] make similar comments and state that many interesting fights over interpretation can be foreseen since the objectives and targets, in general, are phrased in very general terms. Arnfalk et al [67] (2008) also raise some doubts; according to these authors, it has been expected that the business community would take action to reduce environmental aspects based on the national environmental objectives. Such actions have certainly been taken, but according to Arnfalk et al [68], are hardly based on these objectives, but rather on environmental management systems and other similar voluntary tools. All the mentioned predictions have come true, since only a few objectives are considered achieved. The final evaluation of the national environmental quality objectives was not published at the time when this article was finalized.

The study indicates that integration of environmental considerations takes place, and in many cases, beyond the spirit of the national environmental quality objectives. Studying objectives and targets published by the selection of companies indicates that they are addressing the same issues as the national environmental quality objectives. It seems reasonable to explain this similarity by the scope of the set of objectives, which mainly coincide with the environmental agenda at the time they were made [72]. In fact, the compilation of environmental issues can be traced back to the early 1980s [84]. The SDGs are also a compilation of well-established issues, which have long been dealt with in Swedish companies since with the support of other sustainability tools, such as the UN Global Compact [18, 19], ISO 26000 [36] and GRI, the Global Reporting Initiative [16].

It should be pointed out, according to Dalhammar [2] and Rubenson [71], that there are no specific *implementation mechanisms* included in the set of environmental quality objectives which is confirmed by the Government's statement that all available instruments shall be used [27]. Thus, the results reflect all kinds of influences for improvement, not only by these objectives [2, 56, 71, 73]. Also, the sustainability issue has been embraced by at least the large and medium-sized companies in Sweden, given the high level of commitments to such systems by companies in this study. It must be stated, though, that many of these companies probably are far from compatible with all the issues mentioned in the present set of sustainability issues in the SDGs [30].

In reality, the implementation mechanism for establishing objectives, targets and improvement programs at the company level seems to be the environmental management

system (EMS), which has been implemented in accordance with the international environmental management standard ISO 14001 [15], independently of which governmental policy instrument that has initiated action in the first place. The commitments to the SDGs [30] can easily be included in such systems.

By studying the environmental quality objectives and their role for implementing improved environmental performance, there is a split view among the concerned stakeholders. Stakeholders advocate that the objectives should clearly define what the government wants to achieve. In this case, objectives, time frames and follow-up procedures play an important role in strategic and tactical considerations [73]. A proponent of this approach was the Swedish National Audit Office [76], which serves directly under the Parliament. The regular evaluations by the Environmental Objectives Council [46-55] and the SwEPA [57-67], as previously mentioned, on the progress of the implementation, have adopted this approach. Others argue that they can be considered as a summary of the Government's environmental policy and the environmental results – the state of the environment – to be achieved within the perspective of one generation [2, 71].

It can be noted that the set of national objectives does not comply with criteria that are normally applicable for management by objectives [74]. As previously mentioned, management by objectives is not a very suitable way of governing at the national or supra-national level [72].

The *evaluation* procedure needs to be carefully designed. According to Larsson and Hanberger [81], it is unlikely that the current evaluation function can effectively support the achievement of the national environmental objectives. In the case of the pollution-related national environmental quality objectives, there is an annoying mismatch. On the one side, there is the scope of the environmental quality objectives, which are mainly formulated at the continental or global level. On the other side there is the action initiated at the national level, implying that improved environmental quality reflects countermeasures implemented on the European continent or globally, where the share of national pollution and linked countermeasures is about 10 percent (1-40 percent, depending on the measured indicator). National governments can only govern activities within a nation. Indirectly, a national government can govern other countries via the EU environmental acquis and international conventions. None of the pollution-related environmental quality objectives, to express it bluntly, would be possible to achieve, even if all activities in Sweden totally ceased, unless sources beyond national borders decrease their emissions likewise. Therefore, it is reasonable to suggest that the main reason that the national environmental quality objectives have not been achieved is the mentioned mismatch. A similar complication can affect the SDGs [30], if not appropriately evaluated.

Both visions of a future state of the environment and sustainability are *timed* long-term, 15-20 years. The Swedish environmental quality objectives are expected to be met by 2020, but this has not been the case, other than for a few objectives. The SDGs are expected to be met by 2030. The transformation of our global society to sustainability is obviously a huge undertaking and will probably not be finalized within 15 years, especially since there is probably no final destination.

No set of general objectives will be achieved if they are not *known* by the target group [72, 74, 75]. Since all the selected companies have implemented environmental programs that include objectives, targets and action programs that are relevant to their businesses, none of these can be considered ignorant of environmental issues. The sources of information for designing environmental programs are manifold, including information from stakeholders, such as customers and owners, authorities and the national environmental objectives as guides for key environmental areas. In this case, both sets of objectives are known to the target group. More than 90 percent of the companies had committed themselves to the SDGs only 1-2 years after publication. Similar commitments

hardly exist for the national environmental quality objectives, even 20 years after their establishment.

## 6. Conclusions

This article examines the implementation of the Swedish national environmental quality objectives and discusses what can be learnt for the equivalent process for the SDGs. One finding is that the most important purpose of the set of Swedish national environmental quality objectives, as seen from a corporate perspective, that is to integrate environmental concerns in all sectors, seems to be well in line with actions taken by industry and also seems to be well known.

However, the established SDGs are crafted with a broader approach than the Swedish set of environmental quality objectives. The SDGs probably better reflect the agenda of the business community since they have a global character, cover the whole spectrum of important sustainability issues and provide a mutual agenda for the business community worldwide. It seems as if some major shortcomings of the SDGs can be overcome, based on the initial application at the company level, such as they all suffer from similar deficit implementation mechanisms as the Swedish environmental quality objectives. Further, action plans have been addressed only via the UN member states and are purely politically phrased, the track to sustainable development is only vaguely expressed and the distance to the actors is large to those who are supposed to make a reality of the 17 identified areas. Evaluations of visions should be made with the perspective they are formulated. One example is the set of national environmental quality objectives, which is evaluated as if pollutants only have national distribution, even though most of the impact on Swedish environmental quality comes from nearby countries and in a few cases from countries all over the world.

It seems reasonable to suggest that the SDGs can substantially contribute to the track of sustainable development in industry, in addition to the already established tools with similar purposes, such as the UN Global Compact, ISO 26000:2010 on social responsibility, and the Global Reporting Initiative (GRI) on reporting habits.

## Author contributions

Almgren: Main author

Hjelm: Supervisor

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Some of the empirical data are based on a report to the national Swedish Environment Protection Agency as basis for an evaluation of the mentioned environmental quality objectives [75].

## Conflicts of interest

The authors declare no conflict of interest.

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