

Occupational Safety and Health in Greenland – a chapter to be written?

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Research knowledge on the management practice of Occupational Safety and Health (OSH) in Greenlandic companies is limited. As a first study of work environment activities in Greenlandic companies, this article presents the results of a survey of OSH management practice in the private sector (>9 employees) in Greenland.

74% of Greenlandic companies indicate that they want to have a work environment better than required by legislation. However, compliance with OSH legislation is challenged as only 45% meet the requirements for the compulsory risk assessment. Additionally, 69% of the companies claim to have the compulsory safety organization, although only 38% have educated the safety organization as required. For small companies and the regions far away from the capital Nuuk, compliance is even lower. The results point to the specific challenges in Greenland, such as the large distance in the country, hampering the dissemination and enforcement of work environment regulation.

The difficulties for the Greenlandic companies in meeting the basic requirements from the work environment legislation creates a severe challenge for the society. The authorities and the social partners need to develop strategies to reach out to the private sector to secure a safe and healthy work environment. A better adaptation to the specific Arctic context in Greenland is highly pertinent.

Introduction

Greenland's labour market has been through a fast transition from traditional self-employment based on hunting and fishing to ordinary salaried employment for most citizens. Following this development are safety and health risks at work. Greenland has adopted the Danish work environment legislation, and the Danish labour inspectorate is responsible for enforcing the legislation. However, Greenland's unique geographical, occupational, social, and cultural conditions may challenge the understanding behind the Danish and European OSH legislation and its implementation,

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and little is known about the Greenlandic companies' management practice of occupational safety and health (OSH).

The first indications of work related safety and health risks date from a survey of the living conditions, lifestyle and health in Greenland, where Bjerregaard indicates that “a very large part of the population is exposed to nuisances in their work place that can influence the health negatively” (Bjerregaard, 1995) and he later points to the lack of knowledge: “poor work environment influences the health which is shown by a lot of surveys from many countries but no surveys have been conducted in Greenland” (Bjerregaard, 2004). Since then, only limited research is published. A few studies of occupational diseases have been conducted, pointing out serious challenges for both employees and companies in the fishing industry (Hjort Bønløkke et al., 2012; Laustsen et al., 2022), and furthermore a few studies in arctic safety in the oil industry, maritime and mining operations identifying the special arctic challenges as remoteness, limited infrastructure and weather conditions (Albrechtsen & Indreiten, 2021). Yet, the main occupations have during a few decades shifted from self-employed hunters and fishermen to employment in all sorts of businesses – ranging from fish industry and construction to services and public employment (Lennert, 2015). Only less than 4% of the employed population in Greenland has traditional fishing and hunting as their main income¹. Management of OSH is therefore a new task for both employees and companies in Greenland, and knowledge about how private companies in Greenland manage and implement the basic legal OSH requirements is needed to develop efficient strategies to improve the work environment.

This paper contributes to this knowledge by investigating the approach to OHS, the ability to meet the regulatory OHS requirements and control measures in practice in the Greenlandic companies. Furthermore, the survey illuminates the OSH differences related to company size and location. We contribute to the OSH literature in the Arctic region by providing a first-of-its-kind survey study of work environment activities in Greenlandic land-based companies. The results call for a more targeted adaption of OSH regulation to the unique Greenlandic context and to further studies of work environment practices in both Greenlandic companies and public institutions.

Background

Greenland is marked by a harsh arctic climate and huge distances with a geography stretching 2670 km from North to South and 1050 km from East to West. The country has around 56,000 inhabitants spread out in 17 larger and 54 smaller settlements along the coastline of Greenland, and as there are no roads between settlements, transportation takes place by either boat or plane/helicopter. During winter, covering more than half the year, and spring, the weather adds more constraints because of sea ice, snow, and fog. Furthermore, the urbanization in Greenland has been remarkably high, and the capital, Nuuk, is now counting more than one-third of all the inhabitants in Greenland versus a fifth 40 years ago. In contrast, the number of people living in settlements with less than 700 inhabitants has decreased from a quarter to one-seventh (Kleemann, 2023: 6). Privately owned companies are mostly situated in the larger cities where the economic basis for business is present. Additionally, 13 government-owned joint stock companies dominate business life in every settlement (Kleemann, 2023: 20), especially within infrastructure, fishing industry, retail trade, and oil supply.

Another important layer in understanding the Greenlandic context is the fast transition from Danish colony to Greenlandic Self-government within half a century, impacting both business structure and democratic influence and traditions (Bianco, 2019). The transformation from a traditional

society with self-employed hunters and fishermen to modernity with salaried employment has been particularly rapid in Greenland compared to other Indigenous societies in the Arctic (Karlsson, 2021). Consequently, Greenlanders may have ambiguous relations to salaried employment as self-sufficiency from hunting and fishing has been highly valued (Kruse et al., 2008). However, cultural values and preferences of the Greenlandic labour force are changing as employment may now be seen as the means to acquire resources for needed equipment instead of having an identity as a salaried employee (PriceWaterhouseCoopers, 2003: 31). Furthermore, the drive for self-sufficiency may create a barrier to the traditional organisation of employment with managers directing and controlling work activities (Lau, 2005). A further related trait is acceptance of conditions as they are and avoidance of confrontations and conflicts (Lau, 2005; Wilson, 2015). These constraints may, together with positive economic development explain a labour market characterized by full employment with vacant positions and large problems with attracting and retaining employees (Karlsson, 2021). The labour force is furthermore marked by a relatively low rate of skilled and many unskilled workers, and a language divide between Greenlandic and Danish with a large share of both only speaking one of the languages (Karlsson, 2021). Increasingly, workers from third countries, mainly from Asia, are hired without speaking Greenlandic or Danish and in many cases not even English. These labour market challenges can be expected to have a spillover effect on the companies' possibilities to manage OSH as high labour migration and absenteeism and reluctance to speak up together may be a constraint for motivation and organisation of systematic work environment activities.

Danish, and thereby Greenlandic legislation², follows the same principles outlined in the European framework direction from 1989 on OSH (Jensen, 2002). In Greenland, Denmark, and the EU, the employer has the full responsibility to secure safe and healthy working conditions for the employees – independent of explicit regulatory rules (Uhrenholdt Madsen & Hasle, 2017). Moreover, the employer has to make risk assessments (workplace assessment in the Danish legislation) of all possible risks and to plan how to control these risks to protect workers from all health hazards. Employees are to be involved in OSH management through election of safety representatives and the establishment of joint safety committees. Managers in the safety groups and the safety representatives in Greenland must complete the statutory work environment education of five days duration. The education is carried out by the Danish Working Environment Authority (DWEA) and ensures basic knowledge of the work environment, the legislation, and its implementation in practice. Most courses are offered in Nuuk in either Greenlandic or Danish, according to DWEA.

Little is known about the work environment in the labour market in Greenland. The number of reported accidents and occupational diseases has increased since 2009 to 619 accidents and 100 diseases in 2016. However, in 2016 Greenland Statistics stopped publishing on OSH (Grønlands Statistik, 2017), and only few studies in the fish processing industry show considerable health problems (Laustsen et al., 2022). Research and public statistics lack information about the work environment in Greenland. The public health survey from 2004 (Bjerregaard, 2004: 83-84) indicates a massive underreporting of work accidents and argues for the expected number to be around 1,500 per year. Knowledge about the work environment has decreased even further since regular studies of public health in Greenland do not compare occupation or sector with health (Larsen et al., 2019).

In 1986, the first work environment legislation was approved in Greenland, which is a delay of decades compared to Denmark, and while the legislation in Denmark has been adjusted often,

there have been very few adjustments in Greenland, with the latest in 2005, but a major revision has just passed into law and will apply from July 2023. The revision entails equality of mental and physical work environment, inclusion of sickness absence in the workplace assessment (WPA), as well as changing the designations from safety organisation to work environment organisation and a higher level of fines for infringement of the law.

In the European countries with a long history of industrialisation and subsequent OSH regulation – Denmark got the first legislation in 1873 – workers still suffer from accidents and occupational diseases, and improvements have been limited since the Millennium (Countouris N et al., 2023). A safe and healthy work environment is, therefore, not a goal, which comes automatically with industrialisation and economic development. Even rich countries in Europe are fighting to improve the work environment (Aleksynska et al., 2019: 66; Inc, 2022: 42–43).

Methodology

We selected a cross-sectorial survey design with telephone interviews to create an overview of the work environment activities in private Greenlandic companies. The National Research Centre for the Working Environment has developed a questionnaire to map work environment activities in Danish companies and compare the activities with regulatory requirements (Bach, 2018). The questionnaire is based on Danish legislation, and has been validated and used repeatedly for research purposes (Madsen et al., 2022; Thorsen et al., 2017).

The Danish questionnaire contains 46 questions covering themes such as workplace assessment, a priority of work environment, safety organisation, preventive activities, risk assessments and instruction and training of employees. We adapted the questions to the Greenlandic context to make the questionnaire shorter and more relevant for the respondents. The adjustments are based on discussions in the research group with Greenlandic students and have subsequently been discussed with an advisory group consisting of representatives from Greenlandic companies, the labour market department, the Danish Working Environment Authority, employers' organizations, and trade unions.

Adaptation to Greenlandic conditions consists in the removal of irrelevant questions, e.g., questions related to recent legislation in Denmark not implemented in Greenland, while a few questions have been added such as weather conditions particularly relevant to Greenland. The Greenlandic version ended with 35 questions covering ten themes including company information, workplace assessment, priority of the work environment, physical, chemical, and psychosocial exposures, safety and accidents, management of OSH, and OSH training.

We translated the questionnaire into Greenlandic by the bilingual members of the research group, and bachelor students studying professional translation made a translation back to Danish. The translation validation showed difficulties in translating several work environment terms not usually applied in Greenlandic – a problem also identified in a study of court proceedings in Greenland (Pedersen & Lauritsen, 2018). After reconciliation, to validate the adaption to the Greenlandic context, we tested the questionnaire in six interviews – three in each language, initiating a few more adaptations.

During data collection, we became aware of four issues of particular importance for Greenland that needed adaptation of the questionnaire. We identified a misunderstanding about fulfilling a workplace assessment and consequently added two additional questions about actions plans and

follow up to indicate a full compliant workplace assessment. Due to the geography many companies appeared to have several separated locations (up to 1000 km distance) without present management but having managers responsible for the work environment located elsewhere, and managers expressed uncertainty about the management responsibility in these cases. We therefore added questions about management of more locations, and added an open answer to clarify how responsibility was handled practically. A recurring misunderstanding was how employees were counted in several physical separated workplaces. Here, some counted each workplace separately, and others assumed that only permanent staff counted, where none of the two assumptions are correct. Likewise, several companies indicated that they did not have a safety representative, and we added questions about these issues to a subsample of the respondents. We furthermore prepared a procedure for the implementation of the interviews, including details about the number of employees.

The study population

The work environment law requires companies with 10 or more employees to establish a safety organisation, and we therefore limited the study population to all land-based companies having 10 or more employees, including both private owned and government owned joint stock companies with a permanent residence in Greenland. Number of employees is calculated as total number of employees independent of geographical location and covering both permanent and temporary employment as well as part time. Since 2018, Greenlandic companies have been integrated into the Danish Central Business Register. We used the register to identify the population, but the register proved they have incomplete information about physical operating places and numbers of employees. Consequently, we used supplementary data to identify companies with more than 9 employees from the social security numbers associated with a company and a payroll of more than 3 million DKK from the Labour Market Insurance company³ combined with the data from the Danish Central Business Register. We explained the interpretation of the rules in the beginning of the interview, and the interviewees accepted joining the interview, even though they stated less than ten employees. Due to the misunderstanding about counting the employees, we included the so-called small companies in the study, as we assume them to have more than 9 employees according to definition in the law.

The selection process carries the risk that there may be companies that are not included in the study, even if they are covered by the selection criteria. This can be misclassification in the Danish Central Business Register or incorrect information from the manager about the number of employees. Yet, we believe that the selections process covers most of Greenlandic businesses with 10 or more employees.

Data collection procedure

280 companies met the criteria for inclusion in the study. We started with a general telephone call to contact the companies to identify the manager responsible for OSH for the interview and for larger companies to map the number of physical units, and whether they have several managers to interview. When possible, the interviews with the OSH responsible managers were complete at this first contact, but in most cases, the interviewers had to call several times to get an appointment to carry out the interview. The interviews were conducted in the language preferred (Danish or Greenlandic) by the Interviewee. All interviews were conducted by bilingual project participants who

possessed both linguistic and cultural skills to conduct interviews on the respondent's terms, including handling of language ambiguities. Most of the 160 respondents had Greenlandic as mother tongue, but only 43 answered in Greenlandic, the reason is – as expressed by one interviewee “the meaning of the Greenlandic expression can be ambiguously unclear”, consequently the Danish version were preferred. A few respondents requested a digital version of the questionnaire and answered through an internet link.

Results

The data sampling ended with 160 completed questionnaires corresponding to a response rate of 57%. The non-respondents were contacted up to 10 times and the most common reasons for not participating were lack of time and interest but also misunderstanding about whether the company was covered by the legislation. All the contacted companies have been interviewed in their preferred language (Greenlandic or Danish) and no one has refused with language as a reason.

The response distributed based on geography and sectors shows no tendency to important bias (Table 1 and 2).

Municipality	Response n	Pct	Total N
Avannaata	8	47%	17
Qeqertalik	7	88%	8
Qeqqata	23	56%	41
Sermersooq (Location of Nuuk)	113	56%	202
Kujalleq	9	75%	12
Total	160	57%	280

Table 1. Responses distributed on the five Greenlandic municipalities.

In this context, it is important to bear in mind the small numbers of companies in the municipalities outside the capital, which means that we are cautious about concluding on these individually but instead use them to contrast the capital municipality.

Sector	Response n	%	Total N
Construction	35	61%	57
Trade	40	51%	78
Industry	4	67%	6
Office and communication	21	54%	39
Agriculture and food	18	75%	24
Private Service	17	61%	28
Social and Health	0	0%	6
Transport	21	57%	37
Education and research	4	80%	5
Total	160	57%	280

Table 2. Responses distributed on sectors.

Data analysis

The analysis focuses on the implementation of the basic regulatory requirements to the work environment activities in Greenlandic companies, and the aim is to provide an overview over the Greenlandic situation by analysing the attitude towards the work environment and the compliance level on WPA and safety organisation followed by a closer look at the challenges caused by geography and business structure.

Greenlandic companies generally indicate a high priority of the work environment – also compared to Danish companies (Bach, 2018). Two out of three Greenlandic companies indicate high priority of the work environment, and only half of the Danish companies do the same (Figure 1). The prevalence of low priority is low and almost the same.

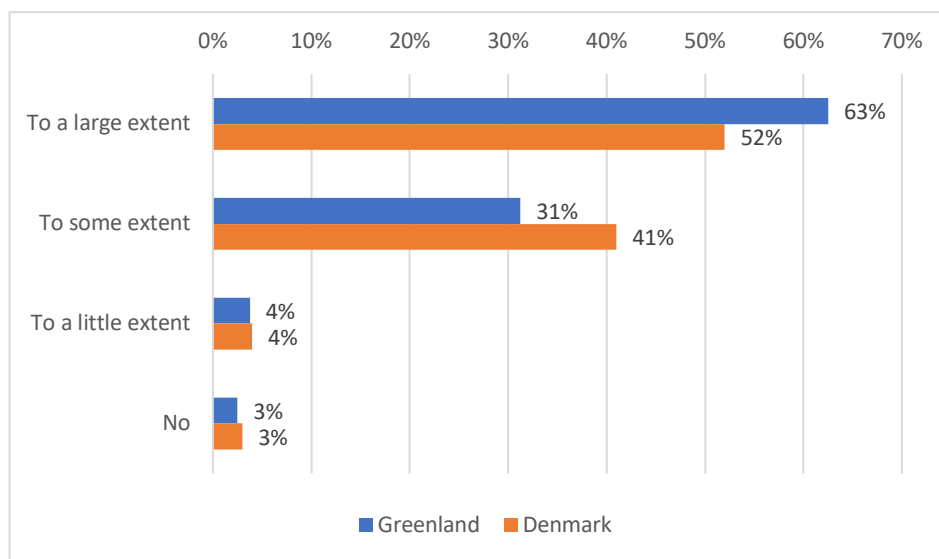


Figure 1. Does the workplace give high priority to the work environment?

In both countries approximately one out of three companies indicate that the work environment should be better than legal requirements (Figure 2).

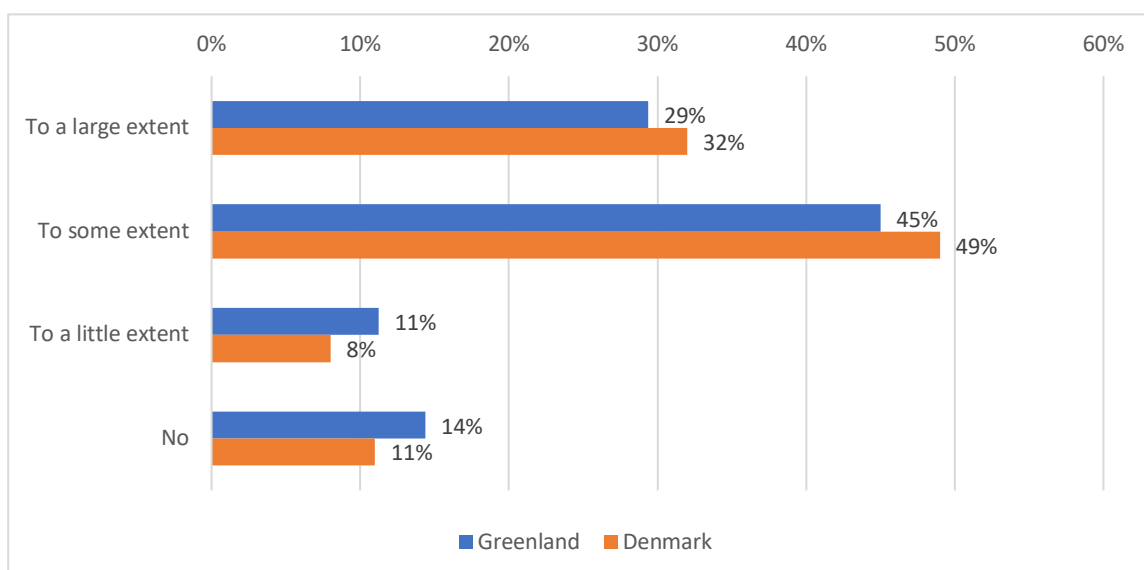


Figure 2. Does the workplace intend to have better work environment than the law requires?

Taken together Greenlandic companies generally indicate a high priority of the work environment at a level comparable to Danish companies.

Workplace assessment

When we turn to the actual legal requirement for the companies to organise work environment activities, the picture is more nuanced and deserves a closer examination. As indicated in section 2, the EU requirement for risk assessment is in Denmark and subsequently in Greenland translated to workplace assessment. Full compliance involves the following four steps:⁴

1. Mapping of the company's work environment risks
2. Assessment of the risks
3. Preparation of an action plan for control risks and solve work environment problems
4. Guidelines for follow-up of activities undertaken, including responsibility, implementation, and revision of action plan

It is mandatory that risk assessments are carried out for all major changes of work organisation and technology that may have an impact on the work environment and must in any case be carried out at least every three years. The results for compliance with workplace assessment in Greenland show that three out of four companies have carried out a workplace assessment at one moment in time and a little more than half have done it inside the three years requirement. These results are lower than the comparable Danish compliance (**Error! Reference source not found.**).

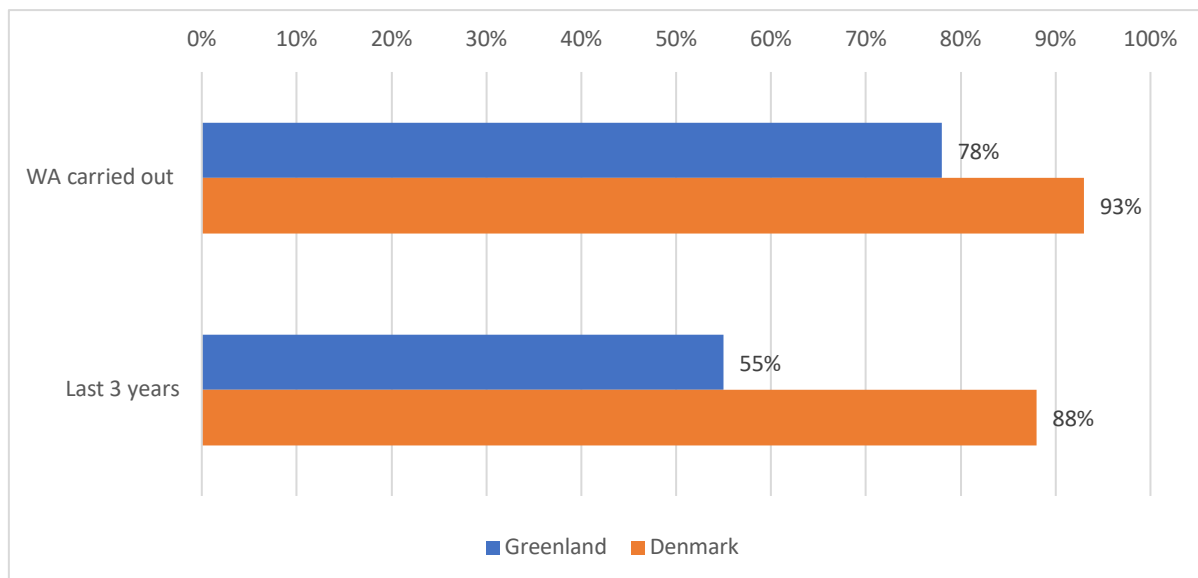


Figure 3. Completed workplace assessment.

The size of the company has an influence on the inclination to comply with the legislation, and the large companies are as expected more compliant in both countries while the smallest companies have the lowest compliance (Figure 4). As in the Danish survey the company size is based on number of employees: small companies 0-9 employees, medium-sized companies 10 -34 employees and large companies are 35 and more employees, but it is important to bear in mind the register challenges in Greenland as described earlier under “The Study Population”.

The Greenlandic companies have a lower compliance rate than the Danish for each size of companies. Especially the required recurring implementation of WPA every third year constitute a challenge for the Greenlandic companies.

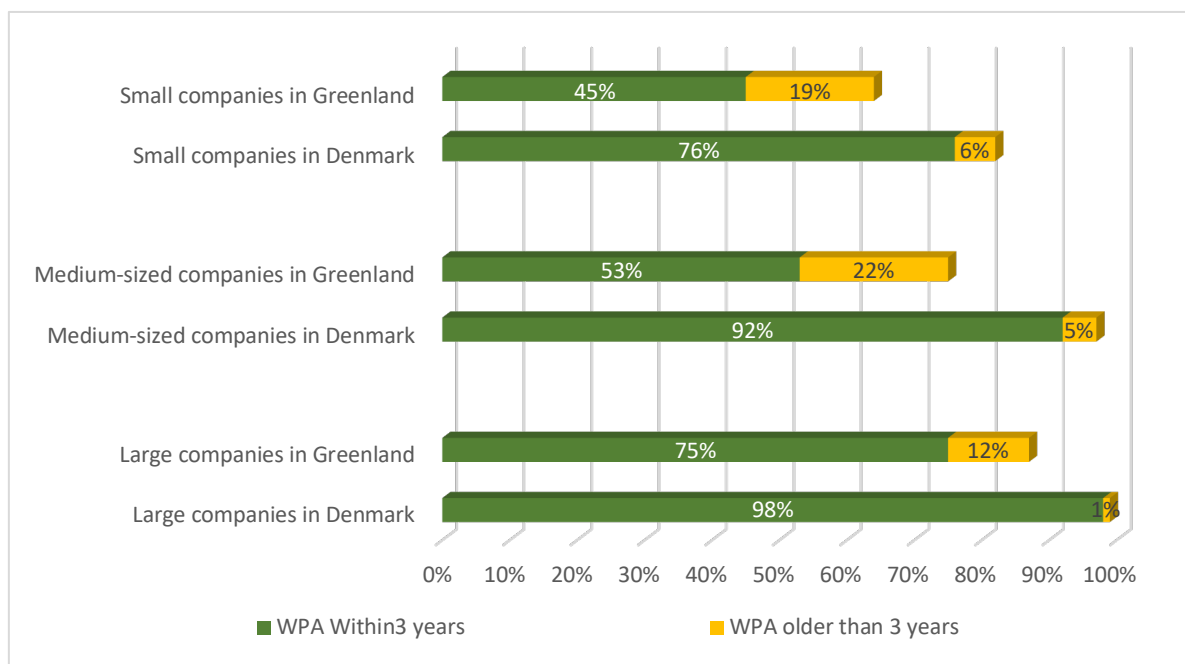


Figure 4. Completed workplace assessment distributed by company size.

However, a fully legal workplace assessment requires both preparation and implementation of an action plan, and with the two additional elements less than half of all companies have full compliance with the workplace assessment requirement (table 3). Even for large companies 40% have not a compliant WPA, and for smaller companies the majority do not have a compliant WPA.

	Large Companies		Medium-sized companies		Small companies		Total	
	N	Pct	N	Pct	N	Pct	N	pct
WPA mapping	48	87%	62	75%	14	64%	124	78%
WPA within 3 years	41	75%	44	53%	10	45%	95	55%
Prepared action plans	36	65%	32	39%	10	45%	78	49%
Concrete initiatives implemented = full compliance	33	60%	30	36%	9	41%	72	45%
Total	55		83		22		160	

Table 3. Compliance with the requirement for workplace assessment in Greenland

Distributed by geography and represented by the five municipalities of Greenland (Table 4) the results show that the compliance rate is higher in Sermersooq with the capital Nuuk. It is by far

the biggest city with most of the companies and the largest ones. The number of respondents from the four other municipalities is low, but added up, the average of the compliance rate is 31% which is considerably lower than the capital municipality with a rate 50%.

	Northwest municipalities -> central municipalities-> southern municipalities									
	Avannaata		Qeqertalik		Qeqqata		Sermersooq		Kujalleq	
	N	%	N	%	N	%	N	%	N	%
WPA mapping	5	63%	4	57%	17	74%	93	82%	5	56%
WPA within 3 years	3	38%	1	14%	14	61%	74	65%	3	33%
Prepared action plans	3	38%	1	14%	10	43%	61	54%	3	33%
Concrete initiatives implemented = full compliance	3	38%	1	14%	8	35%	57	50%	3	33%
Total	8		7		23		113		9	

Table 4. Workplace assessment distributed by municipalities.

A part of the explanation for compliance differences is differences in company size where Sermersooq has 37% large and 49% of medium size companies, while the average for the other four municipalities is 28% large and 60% medium size companies. However, even for large companies, the compliance rate outside Sermersooq is considerably lower (Table 5).

	Sermersooq			Outside Sermersooq		
	Full compliance	Pct	N	Full compliance	Pct	N
Large companies	28	67%	42	5	38%	13
Medium-size companies	21	38%	55	9	32%	28
Small companies	8	50%	16	1	17%	6
Total	57	50%	113	15	32%	47

Table 5. Workplace assessment distributed to Sermersooq versus rest of the country.

Safety organisation

A key feature in the management of the work environment is the safety organisation. Companies with 10 or more employees but less than 20 employees must establish a safety group consisting of the first line manager and an employee-elected safety representative, while companies with 20 or more employees must establish a safety⁵ committee chaired by a responsible management representative. Both the safety groups and the safety committee must include employee-elected safety

representatives. During the interviews, many respondents expressed uncertainty about these rules, and the interviewer had to explain the rules to get an answer.

The frequency of companies is depicted in **Error! Reference source not found.6**. We have included small companies even though they in principle are not required to have a safety organisation as we expect that, according to the definition in the legislation, in practice they have had 10 or more employees.

The prevalence of safety organisations is almost level with Denmark, with the majority of large companies and two-thirds of the medium-sized companies having a safety organisation.

	Large companies		Medium-sized companies		Small companies		Mean	
	N	Pct	N	Pct	N	Pct	N	Pct
Has a safety organization	50	91%	52	63%	9	41%	111	69%
Total	55		83		22		160	
Denmark		93%		69%				

Table 6. Distribution of companies with a safety organisation

Similar to workplace assessments, the capital municipality has a higher frequency with 76% coverage compared to the other four municipalities with 53% of the companies having a safety organisation.

One of the requirements for the safety organization is that the members (managers and safety representatives) receive a compulsory one-week education in a work environment. Completion of the education can be a proxy for a fully compliant safety organization. Table 6 shows the prevalence of a safety organization with all, or most managers and safety representatives educated (**Error! Reference source not found.7**). Companies can be compliant even though all managers and safety representatives are not educated due to employees leaving and waiting time for enrolment at the course.

The results indicate that only a little more than one-third of the companies have a fully compliant safety organisation with a majority of educated members.

	Large companies		Medium-sized companies		Small companies		Mean	
	n	pct	n	pct	n	pct	n	pct
Safety organization	50	91%	52	63%	9	41%	111	69%
Educated Safety Organization	28	51%	25	30%	7	32%	60	38%
N	55		83		22		160	

Table 7. Educated members of the safety groups distributed in company size.

Half of the large companies have educated safety organizations while the share is remarkably lower for medium-sized and small companies. As shown in table 8 the share of educated safety organizations in Sermersooq is 42% while the average 28% for the other four municipalities is remarkably lower. Most courses are organized in Nuuk and companies in other localities have therefore significant cost for completion of the courses as they bear both course fees and travel and subsistence costs.

	Avannaata		Qeqertalik		Qeqqata		Sermersooq		Kujalleq	
	n	pct	n	pct	n	pct	n	pct	n	pct
Safety organization	4	50%	4	57%	15	65%	86	76%	2	22%
Educated Safety Organization	3	38%	4	57%	6	26%	47	42%	0	0%
N	8		7		23		113		9	

Table 8. Educated members of the safety groups distributed geographically.

As for workplace assessment, large companies are more compliant with establishing and training the safety organization – although half of the large companies do not fully follow the rules. The geographical distance similarly plays a role for compliance with the safety organization rules.

Management of several locations

It is common for Greenlandic companies to have several locations distributed on the coast, and 41% of the 123 managers who were asked this question are responsible for more than one workplace (Table 9).

Number locations responsible for:	n	Pct
Total responsible for more than 1 location	51	41%
Hereof:		
• 2-3 places	28	23%
• 4-6 places	12	10%
• 7 locations or more	11	9%
N	123	

Table 9. Management of several locations

Some of these separated workplaces can be more than 1000 km from the manager's residence and require several days of travelling. One fifth of the managers are even responsible for four or more locations, which is likely to be a severe constraint for an effective management of the work environment and leads to questions about the feasibility of fulfilling the responsibilities satisfactorily. With the geography of Greenland, it must be a severe constraint for the safe control of the work environment.

Just below half of the managers with several locations experience themselves that they have proper control of the work environment. More than half consider the consequences of the separation of units to be more constrained.

	n	pct
To a large extent	23	45%
To some extent	18	35%
To a little extent	6	12%
No possibility	4	8%
N	51	100%

Table 10. Possibility to manage the work environment at several locations.

For some of the companies with several units placed in the same city – particular in Nuuk, where most companies have their headquarters, the physical distance constitutes a smaller problem, but most of the companies have locations in different geographical locations where they do not come daily. In the open question, approximately one fourth indicate that they use the safety organisation and the legislative instruments such as workplace assessment to management the work environment at distant locations. It most often also involves various kinds of digital communications. Yet, a large share (approximately half of the companies) indicated that they leave local leaders and employees to take care of the work environment and that they expect them to report if there are any problems.

Discussion

The Greenlandic legislation on work environment is relatively new and only few updates have been made with the latest in 2005, although a major revision come into force from 2023. The findings from this survey constitute the study of work environment activities in Greenlandic companies before this major revision. Yet, the changes in legislation are all adopted from Danish legislation without any adoption to the Greenlandic context.

We consider the response rate of 57% as a satisfactory response rate for company-based surveys (Pielsticker & Hiebl, 2020), but of course, it would have been interesting to dive more into the company size of non-respondents to clarify. However, due to the register challenges, it is not possible to verify this sufficiently. From other studies, we know that small companies tend to have a lower response rate as well as larger challenges with the work environment (Sørensen et al., 2007). Despite this, we consider the sample to be a valid representation of companies in Greenland in our target group, as explained in the study population section.

The first important result is that Greenlandic companies have adopted the work environment as a key issue on their agenda. This result is very positive as Greenland has only had explicit work environment legislation for approximately 35 years, whereas Denmark has more than 150 years of experience with public regulation of the work environment. Despite this difference, Greenlandic companies indicate a priority of the work environment at the same level as Danish companies. In addition, the establishment of the basic safety organisation with safety groups (a manager and a safety representative) and a safety committee is on level with Danish companies.

However, a high priority is not equal to a high level of management of the work environment in practice. Next to the short history of work environment management, Greenland companies face several other constraints, including a small population dispersed on a large geography, resulting in many small companies and often with several physical separated locations. Furthermore, the working population has a limited experience of salaried employment and may, especially for unskilled labour, consider employment as a means to acquire the necessary resources for a return to fishing and hunting (Karlsson, 2021). A low level of some of the required work environment activities is therefore not a surprise. This is particularly the case for workplace assessment, which is one of the key elements in the work environment law. A significant majority of Danish companies have carried out a workplace assessment inside the required three years, whereas only a little more than half of the Greenlandic companies have done so, and when it comes to taking tangible action to improve the work environment, less than half of the companies has done so. These results suggest that most Greenlandic companies have knowledge of the requirement for a workplace assessment but only, to a more limited extent, initiate tangible activities.

A similar problem is having an efficient safety organisation where only a smaller part of the companies has secured that the members of the safety organisation have the compulsory work environment education. The cost of having a trained safety organization on both the manager and employee side may explain why only a minority of the respondents have a trained safety organization and thus meet the requirements of the legislation.

The share of companies with an educated safety organization is remarkably higher compared to the companies outside Nuuk. One explanation is the education costs for the companies outside Nuuk, causing companies to wait for the courses offered closer to their location. Furthermore, the course language adds another constraint, as bilingualism is more limited outside Nuuk.

These results indicate that the geography constitutes a major constraint. The compliance level in the municipality Sermersooq, dominated by the capital Nuuk, is much higher than the other four municipalities, with many smaller towns and settlements and large physical distances. The headquarters of the major companies including the ones owned by the Government of Greenland are in Nuuk, and companies in Nuuk have easier access to a higher skilled labour and education in work environment. The labour market in Nuuk is challenged by a lack of labour force and high turnover can force the companies to improve the work environment and display their achievements to potential employees. Also, the supplementary questions about management of workplaces in different locations underline the geographical challenge.

Even the relative high level of priority must be considered with reservations. It is the first time an adapted Danish questionnaire has been applied in the Greenlandic context. The interviewed managers may tend to give positive answers as they are aware of the legislative requirement and there may be quite a distance from the opinion of the responsible manager to the practice in the fish factory or the construction site. Although the same contradiction may be expected at Danish workplaces, and our survey has a satisfactory response rate above the Danish study, the non-repliers could be expected to give a lower priority to the work environment. All in all, our results will therefore represent a group of replying companies with a better performance than non-repliers, and even for the repliers, the practice at the workplace level may be less effective than indicated by the replying companies themselves.

Conclusion

The work environment at Greenlandic workplaces is of growing importance as most Greenlanders work in salaried employment and the labour market is challenged by full-time employment, high labour turnover, and high absenteeism. The companies put a high priority on the work environment at the same level as Danish companies, and they have in most cases established a safety organisation. However, for the more tangible preventive activities such as completing a full workplace assessment cycle – including mapping, planning and implementation – only a minority of companies do so. The same is true for securing the compulsory education of the members of the safety groups. The challenges are especially found among companies outside Nuuk and in the medium-sized and smaller companies, as well as in companies with several units at physically separated locations. With a group of non-respondents and many respondents with a distance to the shopfloor level, many workplaces may even have larger problems related to implementation of the compulsory work environment activities.

Perspectives

The high priority of the work environment among Greenlandic companies and the relatively low level of compliance with the basic requirement for work environment management point toward a need to develop strategies that help companies improve their work environment management practice.

A strengthened work environment policy, in cooperation between the Greenlandic authorities and the social partners, such as labour unions, business associations etc., would create possibilities to improve safety and health at the workplace. Such an effort can have a potential not only for safety and health but also for some of the labour market challenges with high labour turnover, exclusion from the labour market and high absenteeism (Karlsson, 2021).

The Greenlandic government has already initiated such a process with the amendment of the present law with the changes of the Danish work environment law passed in 2005. Yet, a process of tailoring the practical enforcement to the Greenlandic context is still pending. In planning that process, an integrated process between all involved parties with orchestration of the stakeholders' activities would have a stronger impact (Hasle et al., 2017).

Future research

This is the first study of work environment activities in Greenlandic, and to a large extent for the whole Arctic, as only very few studies of OSH and work environment have been published outside the fields of oil, gas, and mining industries. More research is needed to confirm whether the results can be found in other Arctic societies. It would also be relevant to study work environment activities in public employment, which is covering a little less than half the population.

Furthermore, during the data collection, we registered uncertainty regarding the legal requirements related to how temporary employees were to be counted related to the establishment of a safety organization, and another uncertainty addressed the range of responsibility for the managers. Naturally, this leads to the question of how the law is implemented in the workplace in practice. Hence, it would be of high relevance to carry out more detailed case studies of work environment practice at the shopfloor level to get an understanding of both barriers and possibilities for preventions of occupational risks. It would be particularly relevant to study the influence of the Greenlandic culture and possibilities for handling constraints related to geography, sector structure, and

competence. Such case studies at the shop floor can be used to better understand the mechanisms hampering the full implementation of work environment activities, as well as possibilities for improvement.

Notes

1. Greenlandic Statistic:
<https://stat.gl/publ/da/AR/202218/pdf/2021%20Besk%C3%A6ftigelsen.pdf> fig. 1.
2. <https://at.gl/da/regler/love/lov-om-arbejdsmiljoe-i-groenland/>. Accessed 21.04.2023
3. <https://www.aes.dk/english/about-labour-market-insurance>
4. §11a, part 2 Order no. 1048 of the Ministry of Employment of 26 October 2005 as amended and §3, part 3 Executive Order no. 1168 of the Danish Working Environment Authority of 8 October 2007
5. §5 and §6 part 1 Order no. 1048 of the Ministry of Employment of 26 October 2005 as amended

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References

- Albrechtsen, E., & Indreiten, M. (2021). Arctic safety. *Safety Science*, 137(February), 105165. <https://doi.org/10.1016/j.ssci.2021.105165>
- Aleksynska, M., Berg, J., Foden, D., Johnston, H., Parent-Thirion, A., Vanderleyden, J., & Vermeulen, G. (2019). *Working conditions in a global perspective* (Vol. 2019). Publications Office of the European Union. <https://doi.org/10.2806/951806>
- Bach, E. (2018). *Virksomhedernes Arbejds miljøindsats 2017 (VAI2017)*. Det National Forskningscenter for Arbejds miljø. file:///C:/Users/hasle/Downloads/NFA_Fakta_om_virksomhedernes_Arbejds milj_indsats_2017_VAI_2017_2018%20(2).pdf
- Bianco, N. (2019). Ender Grønlands økonomi og erhvervsudvikling i fisk? *Politik*, 22(1). <https://doi.org/10.7146/politik.v22i1.114839>
- Bjerregaard, P. (Ed.). (1995). *Levevilkår, livsstil og helbred i Grønland* (Vol. 1995). Dansk institut for klinisk epidemiologi; Landsstyremrådet for sundhed, miljø og forskning.
- Bjerregaard, P. (2004). *Folkesundhed i Grønland* (1. udgave, 1. oplag, Vol. 2004). Direktoratet for Kultur, Uddannelse, Forskning og Kirke: Rekvireres ved henvendelse til Atuagkat.

- Countouris N, Piasna A, Theodoropoulou S, & (eds). (2023). *Benchmarking Working Europe 2023*. ETUI and ETUC. <https://www.etui.org/publications/benchmarking-working-europe-2023>
- Grønlands Statistik. (2017). *2017 Statistisk Årbog*. Grønlands Statistik.
- Hasle, P., Limborg, H. J. H. J., Grøn, S., & Refslund, B. (2017). Orchestration in Work Environment Policy Programs. *Nordic Journal of Working Life Studies*, 7(3), 43–62. <https://doi.org/10.18291/njwls.v7i3.97092>
- Hjort Bønløkke, J., Gautrin, D., Sigsgaard, T., Lehrer, S. B., Maghni, K., & Cartier, A. (2012). Snow crab allergy and asthma among Greenlandic workers – a pilot study. *International Journal of Circumpolar Health*, 71(1), 19126. <https://doi.org/10.3402/ijch.v71i0.19126>
- Inc, G. (2022). State of the Global Workplace: 2022 Report.
- Jensen, P. L. (2002). Assessing assessment: The Danish experience of worker participation in risk assessment. *Economic and Industrial Democracy*, 23(2), 201–228.
- Karlsson, V. (2021). *Salary is not the solution to everything* [Aalborg University]. https://drive.google.com/file/d/1HFhkUC9sLWciQmFmHl-tlLd0n6NWz65S2/view?usp=embed_facebook
- Kleemann, N. (2023). Grønland i tal 2023. 5. udgave.
- Larsen, C. V. L., Hansen, C. B., Ingemann, C., Jørgensen, M. E., Olesen, I., Sørensen, I. K., Koch, A., Backer, V., & Bjerregaard, P. (2019). *Befolkningsundersøgelsen i Grønland 2018 – Levevilkår, livsstil og helbred*. Statens Institut for Folkesundhed, SDU. https://www.sdu.dk/da/sif/rapporter/2019/befolkningsundersogelsen_i_groenland
- Lau, C. (2005). Motivation og glæde i arbejdet. In *Arbejdsmarkedet i Grønland—Fortid, nutid og fremtid* (pp. 76–90). Ilisimatusarfik.
- Laustsen, B. H., Ebbenhøj, N. E., Sigsgaard, T., Rasmussen, K., & Bønløkke, J. H. (2022). Work environment, occupational diseases, and accidents among seafood industry workers in Greenland. *Danish Medical Journal*, 69(2). Scopus.
- Lennert, M. (2015). Education in Greenland 1973-2004/2006—An analysis based on three living conditions surveys. In *SliCA: Arctic living conditions. Living conditions and quality of life among Inuit, Sami and indigenous peoples of Chukotka and the Kola Peninsula* (Vol. 2015, p. 426). Nordic Council of Ministers.
- Madsen, U. C., Vester, S., Hasle, P., Leonhardt, L., & Dyreborg, J. (2022). Differences in occupational health and safety efforts between adopters and non-adopters of certified occupational health and safety management systems. *Safety Science*, 152(April), 105794. <https://doi.org/10.1016/j.ssci.2022.105794>
- Pedersen, L. H., & Lauritsen, A. N. (2018). *Tolkning i det grønlandske retsvæsen*. Institut for Menneskerettigheder & Ilisimatusarfik. <https://menneskeret.dk/udgivelser/tolkning-groenlandske-retsvaesen>
- Pielsticker, D. I., & Hiebl, M. R. W. (2020). Survey Response Rates in Family Business Research. *European Management Review*, 17(1), 327–346. <https://doi.org/10.1111/emre.12375>

- PriceWaterhouseCoopers. (2003). *The Cost of Not Successfully Implementing artikel 23*. <https://www.tunngavik.com/documents/publications/2003-02-17-Pricewaterhouse-Coopers-The-Cost-of-Not-Successfully-Implementing-Article-23.pdf>
- Sørensen, O. H., Hasle, P., & Bach, E. (2007). Working in small enterprises – Is there a special risk? *Safety Science*, 45(10), 1044–1059. <https://doi.org/10.1016/j.ssci.2006.09.005>
- Thorsen, S. V., Madsen, I. E. H., Flyvholm, M.-A., & Hasle, P. (2017). Associations between the workplace-effort in psychosocial risk management and the employee-rating of the psychosocial work environment – a multilevel study of 7565 employees in 1013 workplaces. *Scandinavian Journal of Public Health*, 140349481769637. <https://doi.org/10.1177/1403494817696377>
- Uhrenholdt Madsen, C., & Hasle, P. (2017). Commitment or Compliance? — Competing institutional logics in the field of OHS management. *Nordic Journal of Working Life Studies*, 7(2).
- Wilson, E. (2015). *Energy and minerals in Greenland. Governance, responsibility, and social resilience*. International Institute for Environment and Development. <http://pubs.iied.org/16561IIED>