Optimal Tourism Balance Workshop:

What are the research needs for knowledge-based tourism management in SVALBARD?

Findings from
the Optimal Tourism Balance Workshop
in Longyearbyen, Svalbard
September 11-13, 2019

Visit Svalbard

Association of Arctic Expedition Cruise Operators AECO

NINA
Norwegian Institute for Nature Research

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Report title: Optimal Tourism Balance Workshop: What are the research needs for knowledge-based tourism management in Svalbard?

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Organizers: Visit Svalbard, Norwegian Institute for Nature Research (NINA), and Association of Arctic Expedition Cruise Operators (AECO)

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List of acronyms

AECO	The Association of Arctic Expedition Cruise Operators
ARCSAR	Arctic and North Atlantic Security and Emergency Preparedness Network
EU H2020	European Union Horizon 2020 program
GPS	Global Positioning System
HFO	Heavy Fuel Oil
IMO	International Maritime Organization
JRCC NN	Joint Rescue Coordination Centre North Norway
LAC	Level of Acceptable Change - *The Limits of Acceptable Change (LAC) model was developed for managing protected landscapes by determining what environmental impacts from "desirable" social activities are acceptable, and then determining management actions to ensure that the activities remain constrained with in the LAC. https://responsibletourismpartnership.org/limits-of-acceptable-change/*
LL	Longyearbyen lokalstyre
LYB	Longyearbyen
MA10	Management Area 10 - *Management Area 10 is roughly the area from the fjord Van Mijenfjorden in the south to the fjord Isfjorden in the north (including Nordenskiöld Land) and also parts of Dickson Land, Bünsow Land and Sabine Land. Traffic regulations applying to this area differ from those outside of this area. In the provisions there is a distinction between non-resident visitors, residents, tour operators and scientists. Within Management Area 10 visitors may travel on their own without notifying the Governor of Svalbard. http://cruise-handbook.npolar.no/en/svalbard/travel-regulations.html*
MRO	Mass Rescue Operation
NGO	Non-governmental Organization
NINA	Norwegian Institute for Nature Research
NOK	Norwegian Krone
O-VRAT	Off-vessel Risk Assessment Tool
SAR	Search and Rescue
WWF	World Wildlife Fund

Executive summary

Tourism is and will continue to be an important industry in the Arctic and a valuable source of income for local communities, but it has to be carried out in a considerate manner and bring local benefits. The Association of Arctic Expedition Cruise Operators (AECO), the Norwegian Institute of Nature Research (NINA) and Visit Svalbard organized **the Optimal Tourism Balance workshop** in Longyearbyen, Svalbard on September 11-13, 2019, to discuss knowledge-based tourism management in Svalbard. The workshop brought together more than 50 participants from key research institutions, government organizations, local businesses, and local community. The workshop received funding support from the Svalbard Environmental Protection Fund.

Optimal balance must take **the environment, the local community,** and issues related to **search and rescue** (SAR) and safety into consideration. Therefore, the workshop participants were divided into thematic groups based on their professional background and interest. Within these themes, the workshop participants identified key challenges, research needs, possible solutions, and ideas for new research projects. The groups found a consensus in what needs to be done, and felt that this was a unique opportunity to combine the understanding and need of the researchers, the community, and the operators when it comes to tourism management in Svalbard.

Environment

The environment and wildlife in Svalbard are both robust and sensitive to the activity from tourism. Tourism undeniably has an impact on environment, wildlife and cultural heritage and tourism cannot be developed without accepting it, however it is difficult to assess what the cumulative impact is on the environment. There is a need to define the acceptable impact and acceptable change in order to set rules and regulations for knowledge-based environmental management in Svalbard.

Challenges

Tourism has both **global and local impact** on the environment. Global concern and challenges are connected to, for example how tourists are travelling to Svalbard, how emissions from cruise tourism and flying affect the climate, how waste is managed, what the regulations on heavy fuel oils and pollution are, and so on. Local challenges on the other hand include **disturbance and impact on wildlife** and specific Arctic species, footprint on vegetation, wearing and tearing, and impact on **cultural remains**. A re-occurring concern at the workshop was **unorganized tour operators** and that the guides might not have necessary knowledge and training. Lack of knowledge on sensitive land and marine areas, effects of sound, light, and pollution in marine life, invasive species, increasing number of visitors, and the lack of monitoring of tourists' activity were also mentioned as key challenges.

Solutions and research focus areas

The workshop generated some solutions to the challenges mentioned above. Profiling the visitors and packing information in an understandable way would have an impact from environmental management perspective and it would be possible to target the right kind of tourists. Making a comprehensive **area survey** on what areas are sensitive around the island and making sensitive marine areas for go and no-go zones, were also suggested. This would help to **relocate groups** based on number of people on land during certain time. Establishing **Svalbard Nature Rangers** was proposed in order to monitor and protect the sensitive areas. Several suggested that there should be **mandatory membership to Visit Svalbard or AECO** and that all guides should have a training program and certification approved by the Governor of Svalbard.

In a broader sense, the group agreed that it would be important to find out what the **cumulative impact from tourism on animals and nature** is in Svalbard. More specific research ideas were also mentioned, such as making a comparative study of GPS-tracked human traffic with GPS-tracked animals, incorporating citizen science in research and management, i.e. real-time app with feedback information on rules and vulnerability, exploring actions and solutions to limiting the number of visitors, and examining the impact of cruise tourism in marine mammals.

Local community

Tourism triggers a major structural change in a community. Svalbard attracts more non-Norwegians, the turnover is extremely high plus the numbers in the population register might be inaccurate, the housing situation is described as critical, and there is a clear risk of social dumping. In addition, the attitude towards tourism varies among people living in Longyearbyen. By some, the economic benefit is questioned given the social loss.

Challenges

Regarding the local community in the context of tourism, **lack of knowledge and common strategy** was repeatedly mentioned during the workshop. Unorganized tour operators and stakeholders exploiting the destination are seen as a risk and more knowledge is needed in order to develop a functional strategy. The community sees unskilled and/or uncertified guides as a threat also because they fear that the destination's brand might be at stake. More local value creation is desired, and the existing rules and regulations are perceived as insufficiently adapted. Another area of concern are the **practical issues** related to the booming tourism industry, such as scarcity of housing, seasonality and instability of tourism-related jobs, unequal employment contracts, illegal and/or morally questionable working practices, and growing pressure on infrastructure.

Tourism can also be seen as having a **polarizing effect** onto the community. Some describe the decision to replace mining with tourism as authoritarian, without letting the community participate in the decision-making process. Others share their perception of uncontrolled growth and unorganized industry calling for regulations and limitations. The worry is risking the place's identity of "untouched wilderness" and the town's attractiveness, not only to tourists but also to permanent residents.

Solutions and research focus areas

Optimal tourism balance from the community's perspective would include more focus on local benefits and value creation. It is necessary to take into account the need of local businesses and focus on quality, even at the cost of lowering the quantity. Rules and regulations need to be locally co-decided and spatial planning must take developments in tourism into consideration. Marketing should be more efficient in terms of targeting the optimal client. This issue is related to the overall need of a well-coordinated destination management. If the negative impacts of tourism onto the community are to be mitigated, the industry must be able to offer all-year-round jobs that are based on fair and legal working conditions. The town needs better tourism-related infrastructure.

Four main research focus areas were elaborated during the workshop. The first is research that can be used while developing a **strategy for tourism based on local values**. Another specific area is research that would provide **knowledge about tour operators, visitors, and residents including the guides**. A potentially fruitful area of research might be the sphere of **innovations and technologies** tested and/or used in the high Arctic. Given the unique political and diplomatic status of Svalbard, more research on the existing legal framework and future possibilities to adapt to the new challenges posed is also necessary.

Search and rescue

As the tourism activity in Svalbard increases, consequently the probability for accidents and along that the need for robust search and rescue increase as well. The conventional cruise vessels are increasing in size and passenger capacity and at the same time the expedition cruise vessels are coming up with new itineraries in the Arctic maritime region as their vessel technology is advancing. The authorities are concerned that in an event of mass rescue operation or a larger incident with a cruise vessel, the capacity of search and rescue resources in Svalbard would not be able to match the size of the incident.

Challenges

The SAR groups at the workshop identified that the **regulations today are not in line with the changing realities**. There has been an increasing number of **unorganized tour operators** and self-arranged tours, as was mentioned in the other groups, and the workshop raised concerns that the authorities and local community do not know what the tourists are doing, are they safe, what kind of competence they possess, and whether they have the right equipment if something were to happen. In addition, there are no official Svalbard specific certification requirements for guides and crew. This raise concerns as new operators or operators who are not part of Visit Svalbard or AECO might not have enough competence and experience when it comes to Arctic conditions and safety.

The current regulations are also not realistic when it comes to technology requirements, as is seen in the recently adopted **Polar Code**. There is also a lack of effective mass rescue operation (MRO) equipment and communications network (satellite and radio), which is required for safe and efficient operations. The authorities are also concerned about **new vessel technology**

and structure, including ice breaking capability, allowing the expedition vessels to find new itineraries.

In general, there is very **limited SAR capacity in Svalbard**, including SAR resources, personnel, infrastructure, medical facilities, and overall community capacity. There is also a lack of knowledge on what the local impact on Longyearbyen would be in case of a large-scale incident.

Solutions and research focus areas

The groups suggested enforcing **official certificates and courses** to guides and crew, which would include safety issues. More efforts could also be made **to educate the tourists to be safe**, and to make sure that they understand the safety hazards and proper code of conduct. For the gaps in technology, the groups suggested to map out what kind of existing equipment there is for MRO situations and rescue and survival, and **what is possible with the current technology and equipment**. Finding those gaps and possibilities would also give some indication on what kind of needs there are for further innovations. The groups were also unanimous that there should be more **training together** with the tour operators, the community and the responders. That would also help to identify all possible stakeholders and resource assets, and assess how to best utilize the volunteer and industry network.

The groups found that there should be more research focus on the **actual risks and consequences** that a large-scale incident would have on Svalbard and the communities. In order to enforce new rules and regulations, **the magic number** on the acceptable number/group of tourists in certain areas based on safety considerations and capacities should be mapped first. This would also include examining, which ships are coming to Svalbard, and what their preparedness and competence is for SAR operations.

1 Introduction

The Optimal Tourism Balance workshop was held in Longyearbyen, Svalbard on September 11-13, 2019. The workshop was organized by the Association of Arctic Expedition Cruise Operators (AECO), the Norwegian Institute of Nature Research (NINA) and Visit Svalbard.

Picture 1. Trine Krystad welcoming participants to the Optimal Balance workshop

The workshop aimed at discussing what is the optimal balance between the tourism industry, the local community, environmental management, and emergency preparedness. The workshop participants were divided into groups based on their professional background and knowledge to discuss the three themes dedicated to the workshop:

1) Environment
2) Local community
3) Search and rescue

Within these themes, the workshop participants discussed various topics including legal framework, infrastructure, resources, environmental footprint, business and economy, new technology, preparedness, and education. The workshop was facilitated by professional moderators from Teambyggerne AS. The moderators led the participants through a three-day workshop of presentations, brainstorming, breakout sessions, and discussions. This report summarizes the activities, discussions, and findings from the Optimal Tourism Balance workshop. The organizers would like to thank the participants and Svalbard Environmental Protection Fund (SEPF) for making this workshop possible, and hope that SEPF are happy with the outcome of the workshop and the report.

1.1 Background

There has been a tremendous increase in tour operators and tourists wanting to explore Svalbard. Tourism is an important industry in the Arctic however it should be carried out in a considerate manner and bring local benefits. The development has raised questions on what kind of data we already have available on these issues, what do we need to know more about when it comes to, for example emergency preparedness, the tourists themselves, their environmental footprint, the education of guides, the community development, and so on.

The initiative for the Optimal Tourism Balance workshop started when Visit Svalbard, AECO and the tour operators found that research institutions continuously approached them to participate in already planned research projects as end-users and project partners. The end-users however felt the need and willingness to take part in the project idea development from the beginning and therefore started to discuss ideas on research projects connected to tourism in Svalbard. This led to an idea to arrange a workshop where Visit Svalbard, AECO and NINA would together invite research institutions, government agencies, local businesses, and community representatives to discuss the knowledge gaps, actual needs for more information and data, which could eventually lead to new local knowledge-based project ideas and initiatives.

1.2 Workshop method and structure

The workshop comprised from a series of factual and expert presentations, brainstorming, group work, and group presentations. The approach for the workshop was “all hands on deck”, and participants were expected to contribute to the conversations, ideas and the end result.

The first day of the workshop was dedicated to understanding what tourism in Svalbard is and making sure that all participants are on the same page. Presentations were held by Visit Svalbard, AECO, and NINA. The presentations are summarized in chapter 2. There were also three expert presentations during the second day of the workshop on challenges and knowledge gaps connected to each of the topical themes. This gave the participants a chance to get more familiar with each topic and find a common approach for the next group discussions. The expert presentations are summarized in chapter 3 under each theme.

The group work was structured in three group work sessions in order to facilitate the desired outcome:

1) Defining the problems and challenges related to tourism in Svalbard within each topic,
2) Understanding the challenge and finding the knowledge and research gaps,
3) Exploring possibilities, and coming up with solutions and research project ideas.

In each session, the facilitators gave the group a problem statement that the sub-groups had to discuss and find the most important points to present at the end. In this way, the whole group got an idea on what the current knowledge gaps are and what could be done in order

to fill those gaps. Finally, on the last day of the workshop, each group pitched their best ideas for new research projects.

2 Summary of presentations

"Svalbard tourism – state of affairs and latest numbers" by Ronny Strømnes, Chairman of the Board, on behalf of Visit Svalbard

There are 77 members of Visit Svalbard, out of which 30 are tour operators. It was pointed out that about 130 tour operators in 2018 and 159 in 2019 operated on Svalbard. In September 2019, there were **14 hotels and guesthouses** with 457 rooms, able to accommodate 951 people at once. In 2018, there were over **156,000 overnight stays** at hotels and guesthouses, which means growth by 7,5% from 2017 and by almost 90% from 2009, and over 72,500 guest arrivals to hotels and guesthouses (+7% from 2017). Over 5,000 people stayed at Airbnb, and an average stay at hotels and guesthouses was **2,4 days**.

Picture 2. Ronny Strømnes giving insight to the latest figures in Svalbard tourism

The top 5 visiting nationalities are **Norwegian** (over 90,000 visitors in 2018), Swedish (9,000 visitors in 2018), followed by German, British, and French. When it comes to Visit Svalbard **digital channels**, visitsvalbard.com has 2,5 million side views per year and an annual activity sales equal to 105 million NOK. About 110,000 people follow Visit Svalbard on social media, with the Chinese and Americans growing fast in numbers.

There were 30% less conventional cruise passengers in summer 2019 compared to 2018. An average ship size carries 1,708 passengers, but the size varies from 340 to 4,030 passengers per ship. Among other target groups for tourism in Longyearbyen, Strømnes mentioned soft adventure seekers, expedition tourists, day tourists (cruise), festival tourists, tour operators, cruise lines and press/media.

"Arctic cruise tourism and industry efforts to ensure sustainability: Economic value from cruise tourism in Svalbard" by Frigg Jørgensen, AECO

Picture 3. Frigg Jørgensen talking about cruise tourism in Svalbard

Frigg Jørgensen, the executive director of the Association of Arctic Expedition Cruise Operators, gave a presentation about cruise tourism in the Arctic and also presented the results from the economic impact study, which was published during the workshop. In 2009, there were 17.8 million cruise passengers worldwide. For 2017, the projected number was 25.3 million. The industry is witnessing a steady rise and the trend is likely to continue. The AECO members had over **25,000 expedition cruise passengers in the Arctic in 2018**.

The polar expedition cruise industry is awaiting 30 new vessels within the next 5 years with advanced vessel structure and technology, new operators, and new itineraries. Among the Arctic expedition cruise destinations, the most visited destination among AECO members is Svalbard, but AECO sees a lot of potential in Canada and Franz Josef Land, although the development is slow. Destinations such as Alaska and Iceland are already seeing a large number of expedition and conventional cruise passengers.

The AECO network currently includes 76 members, 40 passenger vessels and 10 yachts. AECO´s members must adhere to the network´s guidelines that are site and community specific. Since 2019, a field staff online assessment is mandatory for all members (1150 field staff were tested). AECO is developing measures to enhance safety in terms of SAR, uses various tools and applications (e.g. O-VRAT mobile app), and collaborates on several research projects.

AECO and Visit Svalbard recently carried out a survey of **the economic impact of cruise tourism in Svalbard** focusing on cruise passengers´ spending in Longyearbyen. The results show that the economic contribution generated by cruise tourism in Svalbard in 2018 is estimated to be **110 million NOK**. Two thirds are spent by **expedition cruise passengers and operators** (NOK 73,1 mill – average **4,235 NOK** per passenger), one third is spent by **conventional cruise operators and passengers** (NOK 36,4 mill – average **810 NOK** per passenger). The spending includes ashore activities and goods and services purchased both by tour operators and directly by passengers.

"Effects of tourism in the Arctic and Svalbard" by Bjørn P. Kaltenborn and Hogne Øian, NINA

Picture 4. Bjørn P. Kaltenborn presenting a desktop study made by NINA

Bjørn Kaltenborn from NINA presented results from a desktop study on the effects of tourism, which NINA carried out prior to the Optimal Balance workshop. According to the study, the most urgent issues to discuss are **the environmental effects** of tourism, **the growing cruise industry**, the gap in knowledge when it comes to other forms of tourism**, challenges for SAR,** and **institutional aspects** of tourism. The Arctic region has been changing rapidly and now has a high geopolitical and economic importance. Therefore, it is important to think long term when it comes to tourism and environmental management.

Kaltenborn pointed out that there are global and local environmental impacts of tourism, and we need more **local specific knowledge and data** on the cumulative impacts of tourism on the environment in Svalbard. The cruise industry is the best-covered form of tourism when it comes to data and impact studies for the environment. Looking at air emissions from Arctic shipping, it was pointed out that marine traffic is only responsible for 2% of all CO_2 emissions, with the cruise industry responsible for 5% of that amount. There is an expected increase by 50% in black carbon if the Arctic becomes ice-free. Kaltenborn noted that there should also be energy budgets from other types of Arctic tourism where we have little knowledge and studies on.

Human traffic presents a challenge to the environment when it comes to disturbance to wildlife and vulnerability in Svalbard, but there is a great gap in knowledge when it comes to human behavior. We also have somewhat limited knowledge about human disturbance on Arctic species, such as Arctic foxes, walruses, seals and whales. However, there are many studies done on reindeer and polar bears. On general level, there is enough data to make sensible guidelines and it is possible to draw good examples and general principles from sub-Arctic regions, but when prioritizing research needs, they need to be Svalbard specific. Kaltenborn mentioned that in some ways the Arctic is highly resilient, but it is affected by the type of activity, season, intensity of use, and landscape types.

3 Main themes and discussions

This chapter summarizes the main points from the group work and presents the research project ideas that were generated by all the groups.

3.1 Environment

Concerns were raised during the workshop on the impact that tourism has on the environment, wildlife and cultural heritage in Svalbard however it is difficult to assess the magnitude as there is limited knowledge on all pressuring factors and their collective impact on the environment. Some groups found that in Svalbard there is a need to limit the number of visitors and set rules and regulations for the tour operators and sites. In order to find the limit of acceptable change and enforce new rules, the workshop participants recognized that there is a need for more research conducted on sensitive areas, knowledge and training, affect and disturbance on specific species, and areas that are popular with tourists.

The workshop formed two groups for the environmental topic. Both groups had scientists and researchers, local tour companies, and authorities to discuss possible solutions and best practices on environmental management in the light of growing tourism in Svalbard.

3.1.1 Main challenges and concerns within environmental management and tourism in Svalbard

Expert perspective
"Tourism in Svalbard from an Environmental perspective", by Nina Eide, Norwegian Institute of Nature Research (NINA)

Nina Eide from the Norwegian Institute of Nature Research gave a presentation on environmental impact of tourism looking into footprints from global and local perspectives, and giving suggestions on how to minimize the impact. She pointed out that ecological footprint is a term that is used all over the world and the ultimate goal is to make it small. When looking closer into the environmental footprints for Svalbard, one needs to approach it from several stages:

1) how do tourists get to Svalbard (for example by cruise ships, smaller vessels, planes, etc.), which is a global concern and has impacts related to i.e. pollution, CO2 and other emissions, weather, heavy fuel oil (HFO), waste, etc., and
2) being in Svalbard, which is more of a local concern as tourists visit the towns, go on coastal cruises, walk further on land with rubber boots, hike, go dog sledging, snow scootering, skiing, approach wildlife, and so on.

Eide pointed out that we have good knowledge about how tourists travel to Svalbard and what kind of impact that has on the environment, but there is a knowledge gap when it comes to their activities, who they are, what their knowledge about environment and wildlife is, and what is the impact of their actions locally. She divided the local impact into three categories: **impact on wildlife, vegetation, and cultural remains**.

Picture 5. Nina Eide illustrating challenges of tourism to the environment

Wildlife in Svalbard is both robust and sensitive to the activity of tourists. We know in general how wildlife responds to tourism, however lack data on specific species. Some species, for example are vulnerable for disturbance on individual level but robust when they are in groups. There is limited knowledge on the cumulative impact of disturbance to Arctic species and what are the immediate and long-term effects of tourism. There is also an impact on vegetation, for example with **wearing and tearing and leaving footprints** on steep, wet and coarse ground, however these are easy to observe and see. Something that can be difficult to observe and understand, is the impact on cultural remains. Cultural remains are often accessible but sometimes we do not have the knowledge to distinguish, what or which objects belong to cultural heritage or are part of cultural remains, for example rocks and bones. Unlike wildlife and vegetation that can return to their natural state, **cultural remains are not resilient.**

As most people come to Svalbard to experience the wilderness and silence, the environment and experiences in return are the most vulnerable in the light of increasing tourism. Therefore, it is important to consider the environmental impact when it comes to specific sites in Svalbard. Eide highlighted that in order to minimize the impact, actions are needed. She mentioned that there should be a **limit to the number of visitors** a site can take during certain times, **activities need to be more coordinated**, and **sensitive areas need to be avoided**. In order to map the sensitive areas and their carrying capacity, there needs to be **vulnerability assessments for sites** and **site specific guidelines** available to the wider industry. Nowadays, it is getting easier to spot sensitive sites with satellite pictures. She also mentioned that more dramatic actions to minimize impacts such as fencing, dedicated paths and info signs might not be popular in Svalbard, as the tourists come there to experience the wilderness.

Group discussions

One of the main challenges identified during the group discussions was the difficulty in **defining the acceptable impact and acceptable change** in order to set environmental laws and wilderness acts. Any tourism has impact and tourism cannot be developed without accepting it, but institutions need to lead a dialogue and **agree on the management together with the industry**. The baseline is, that there should be a balance between the possibility of keeping Svalbard as a tourist destination of wilderness and wildlife, but also if the volume goes up there is a risk that the market and environment will be destroyed as a consequence. The challenge is **finding the balance point** and a way to **regulate the visitor experiences** without limiting the local economic stability too much**.**

In relation to this, the groups were concerned about unorganized tour operators and the fact that all operators are not required to be members of Visit Svalbard or AECO, and that the **guides might not have necessary knowledge** in order to minimize the impact on the environment. There is also a **lack of consolidation for courses and education.**

One group mentioned that **invasive species** are starting to become a challenge in Svalbard due to shipping and their dispersal from ballast water. They identified the lack of rules and measures when it comes to invasive species. **HFO and other pollution** from marine traffic is also a concern that should be assessed by proper risk assessments.

One group mentioned that the discussion on Svalbard tourism tends to circle around cruise industry, however it is also important to discuss land based operations and their impact on the environment. A huge challenge is also unmonitored private sail boats and vessels that come to Svalbard, as there is no knowledge on where the boats go, where they land and what they do at the landing sites.

One group mentioned that there is a research gap in the marine environment when it comes to **the effects of sound, light, and pollution in marine life**, i.e. what kind of noise disturbance do motorized vessels pose to whales and seals.

3.1.2 What are the possible solutions?

The groups agreed that the optimal tourism balance should promote economic stability in the local community but also keep the ecological footprint as low as possible. This acceptable level should be decided by the local community and it should be driven by the consideration for the nature and the environment. Ideally, LYB and Svalbard should also attract educated tourists and avoid the bucket list visitors.

The groups came up with possible solutions to the challenges mentioned above;

- Mapping who the tourists are, their attitudes, expectations etc.
- Packing information in an understandable way that has an impact from the environmental management perspective
- Making a comprehensive area survey on what areas are sensitive around the island, making sensitive marine areas for go and no-go zones
- Relocating groups based on number of people on land during certain time
- Setting a capacity number for how many tourists there should be at one site at a time
- Making prepared access points to watch wildlife from the distance
- GPS tracking tourist activity in relation to wildlife activity
- Limitation on different groups or number of ships, for example conventional cruise ships vs. expedition vessels
- More control and monitoring of private sail boats and ships
- Introduce Svalbard Nature Rangers
- Mandatory membership to visit Svalbard and AECO
- All guides should have a training program and certification
- Using drones for mapping vegetation impact

    - Differentiate between the use of drones for tourist and for research
- Using remote sensing and satellite images
- Develop citizen science
- Looking at best practices from the other parts of the world
    - There are a lot of regulations in Antarctica, maybe some of them can apply to Svalbard

In addition to profiling the visitors, the groups thought that perhaps it would be useful to **use economy and marketing as a tool to set a limit** on what kind of tourists we want to see and how expensive some activities are. Some thought that if **citizen science** is utilized, i.e. in a reporting application format, it could have positive effects from environmental management perspective. This would allow the tourists to feel like they are part of the management process and reporting system, and have a simple way of communicating and receiving feedback from the authorities. Citizen science in this regard could also contribute to mapping where tourists go and how they affect wildlife by installing GPS trackers on, for example boats and snowmobiles. This could give some indication on where the tourists are going, how many hours they use in specific areas, whether they are in the same area all the time, and so on.

When it comes to monitoring, one group suggested establishing **Svalbard Nature Rangers** to protect and supervise the designated sites and areas. The Svalbard Nature Rangers would patrol the grounds and make sure that the tourists and visitors are following the rules. Several participants also suggested enforcing a **mandatory membership to Visit Svalbard and AECO**, but also to have training programs and **certifications approved by The Governor** in order to make sure that the guides are well educated.

Picture 6. Environment groups pitching ideas on possible solutions

3.1.3 Research needs and suggested research projects

Based on the identified challenges and possible solutions, the groups pinpointed areas where there is more need for research and also generated some possible research project ideas. The pitched ideas are summarized in the table below:

Table 1. Suggested research project ideas for the environment

Research project ideas	Why and how?
1. What is the cumulative impact from tourism on animals and nature in Svalbard?	Need to understand the sum of all pressuring factors. - There is a tendency to look at all impact factors separately - We must try to find the cumulative impact as a whole
2. Comparative study of GPS-tracked human traffic with GPS-tracked animals	Will give knowledge on impact on animals (feeding time, area of use etc.) from traffic (snowmobiles, dog teams, skiers etc.) - GPS-trackers on visitors and animals (polar bears and reindeers) - Give info to government bodies about how traffic might be directed away from/into special areas - Purpose: reduce impact on animals
3. Profiling visitors to Svalbard	Social science on who the tourists are, their attitudes, expectations etc. - Which tourists do we want to come to Svalbard? - Standards research, easy to make and structure - Knowledge for operators, segmented marketing and campaigns - How to pack information in an understandable way that has impact from environmental management perspective - Purpose: shaping information to influence tourist behavior in favorable manner for animals and environment
4. Citizen science: real-time app with feedback information on rules and vulnerability	Tourists/users reporting real-time in an app and getting feedback and information on rules and vulnerability in the area they are in - More real-time info for the management - Visitors/users will be included in the dialogue about environmental management - Give visitors better understanding of the reasons behind rules and regulations
5. Sensitive areas surveys to inform allowable tourist activity and impacts	Making a comprehensive area survey on which areas are sensitive around the island

	- Sensitive marine areas for go and no-go - Landscape parameters that come from satellite monitoring - Make good knowledge-based choices on landing sites - <u>Purpose:</u> Limit the impact on animals and nature

6. Exploring actions and solutions to limiting number of visitors	Research project on what the action and solutions on limiting number or visitors would look like.
	- How to arrange it?
	- How to coordinate it with operators?
	  ○ Relocating groups based on number of people on land during certain time and day
	- Qualified Svalbard guides on board
	  ○ What would the qualification be and how to implement it?
	- <u>Purpose:</u> Reduce impact on the environment

7. Current status of existing research on impacts of vessels on marine life	What is the impact of cruise tourism on marine mammals? - Identifying knowledge gaps - What impact does i.e. noise, light and pollution from ships have on these organisms - <u>Purpose:</u> Developing regulations based on the impact

3.2 Local community

Unlike in other places in the Arctic where the rights and needs of Indigenous populations have to be taken into consideration, there are **no native local communities** in Svalbard. Both the Norwegian settlement of Longyearbyen, the Russian settlement of Barentsburg and the international community of Ny Ålesund are rather "synthetic" and strongly influenced by the character of prevalent economic activities. This being said, the term "local community" used further in the report needs to be read with caution.

During the workshop, most of the attention was paid to Longyearbyen, while specific issues relevant in the other settlements were discussed only marginally. In Longyearbyen, tourism is a decisive factor because it has become the economic backbone that keeps the town running, and at the same time triggers a significant and fast structural change. **Growth in tourism** correlates, for example with the growing number of non-Norwegian inhabitants and challenges related to the housing crisis and social dumping. People living in town perceive tourism as a double-edged sword, feelings are mixed about the **economic benefit** versus **social loss**, and the path to the optimal balance is yet to be walked. As said during one of the workshop discussions around Group 5: "It is difficult to have a balance between tourism and local community if the local community is unbalanced itself."

3.2.1 Main challenges and concerns within local community and tourism in Svalbard

Expert perspective

"Tourism in Svalbard from an authority's perspective" by Solveig Oftedal, Svalbard tax office

Picture 7. Solveig Oftedal giving an expert perspective for the local community topic

The goal to be achieved, as presented by a representative of the Svalbard tax office, includes a viable local society attractive to families where tourism belongs to priority areas, together with science and possibly also other industries. Specific goals for the tax office are a compliance of rules and fighting against workplace misconduct. Optimal would be equal terms and safe and inclusive working life. The case of Svalbard is unique because there is no residence permit or work permit necessary, no tax treaties are signed with other countries, membership in the National Health Insurance Scheme is based on citizenship or employment, and the so-called Allmenngjøringsloven,[1] a law that guarantees fixed wage tariffs, is not valid here.

[1] A new business strategy for Svalbard was presented on 3 October 2019 in Longyearbyen by a Norwegian government representative. It was announced that Allmenngjøringsloven will be valid on Svalbard within several months, earlier than in a year's time.

Oftedal presented important figures regarding the population of LYB. On 9 September 2019, 2399 people were registered in the so-called befolkningsregistret (population register). Out of those 846 are non-Norwegians of 52 nations, which makes the figure equal to 36% of the total population. The turnover is about 20-25% every year. In 2018, 44 new people received a D-number (which is a temporary identity number a foreigner gets if they have the intention to stay in Norway for longer than 6 months). The interesting issue in Svalbard is, that there is a segment of population that keeps living with a D-number for a long time, which is impossible on mainland Norway, and it has significant consequences in terms of rights and services available. Who are these people, how do they live and work, and what does it feel like to have a temporary status for many years?

There are also question marks hanging above the issue of enterprises and work contracts registered in Svalbard. There are 390 enterprises registered in Svalbard, out of which 296 had reported salary payment. There is a big variation in extent, profitability and compliance. Out of 65 randomly selected work contracts, 22 were for full-time employment, 12 were exclusively for seasonal employment and 31 were for short-time employment with huge diversity in hours, duration and payment. A better overview over these and related issues would be useful.

Have the authorities been unable to foresee what was going to happen when significant structural changes were triggered? It seems that more people live in LYB than the register can tell, and also that living and working conditions are growing profoundly unequal. More research on issues that lie in the knowledge gaps would be most welcome by the tax office.

Group discussions

Among the main challenges within this area, several points, which can be divided into three categories, were mentioned during the workshop. Some of the issues listed could certainly be included in more than one category.

Lack of knowledge and common strategy

- Risk of a growing number of unorganised tour operators (not part of Visit Svalbard and/or AECO network)
- Little knowledge about stakeholders that exploit the destination and have no positive local impact
- Unskilled and/or uncertified guides (a system of quality evaluation missing), insufficient quality guaranty risking the destination's brand
- Insufficient integration of common and clearly defined values and goals (little local value creation)
- Lack of locally adapted rules and regulations (risk of uninformed or disrespectful tourists)
- Viewing tourism as isolated from other synergic activities (e.g. Polar Permaculture)
- Lack of strategy towards the rising Chinese and American market
- Climate change impact on product development (adaptive capacity)

It was repeatedly mentioned that the growing number of **unorganized** (and thus unknown and uncontrolled) **tour operators** that often employ **unskilled and uncertified guides** is a big

concern for all stakeholders. What is at stake is the **destination's brand**, which is crucial in order to guarantee the economic viability and overall sustainability of the business in the future. The question of **local value creation** (e.g. strengthening the link to local grassroot initiatives) is also important in the debate about a common strategy that fosters local sustainability. A common strategy includes **rules and regulations** safeguarding basic needs and rights of people who permanently live in LYB. Such guidelines need to be widely spread and also respected, which again is difficult to achieve as long as more and more tours are organized without being part of established networks.[2] In addition, if the trend of the growing numbers of **Chinese and American tourists** is to proceed, a strategy for accommodating them ought to be discussed. The same goes for the ongoing change in terms of **climate.**

Practical issues

- Scarcity of housing available for people working in tourism, especially guides
- Ripple effect of Airbnb
- Seasonality and instability of tourism-related jobs
- Risk of even more seasonal growth meaning a challenge for labour supply
- Social dumping, unequal working contracts, illegal and/or morally questionable working practices
- Policies and regulations that are at odds with Svalbard Environmental Protection Act and white paper on tourism
- Lack of balance between small and larger business actors
- Missing infrastructure that would make the meetings of tourists and local inhabitants less painful
- Not enough areas dedicated to tourist activities in MA10
- Insufficient strategy for waste management (could be an opportunity for circular economy)
- Growth in expedition cruise ships and charter flights[3]

Practical issues related to challenges posed by tourism do not necessarily belong to those that can be solved easily. A tricky issue seems to be the one with **housing**, where many people working in the tourist and service industry struggle immensely with finding a stable, decent and economically reasonable place to live. It has not been clarified where the responsibility of the employer begins and ends, and the issue is being discussed heavily on the local level. The unfortunate phenomenon of Airbnb, which can have detrimental effects in places such as LYB where housing is scarce also because of other issues such as thawing permafrost and avalanche danger, seems to be diminishing at the moment thanks to the initiative of Longyearbyen Lokalstyre (LL), but is still present. The housing problem is related to the high

[2] Research on to which extent the existing rules and regulations are respected by the organized businesses would also be useful. It would support the argument of good practice and prove that organized tourist industry is more sustainable than the unorganised one.

[3] Nevertheless, more connections by plane have a local value for people living in LYB since they are more mobile and flexible thanks to more frequent flights.

rate of **seasonal jobs** available, which can hardly create jobs attractive to – possibly Norwegian – families. Also the issue of **unequal working conditions** and **unfair**, in some cases probably illegal **work contracts**, stirs a lot of emotions in the local debate. The market is perceived as unbalanced since there are some major players, which smaller actors can hardly compete with. **Infrastructure** such as sideways, information signs or restrooms is of practical importance (LL is currently working on improvements).

Picture 8. Local community groups during group work

Polarizing effect

- Perception of tourism as something that had been decided without including the community in the decision-making process (insufficient participatory decision-making)
- Perception of uncontrolled growth and unorganized industry
- Discrepancy between the strategic objective of 250,000 guest nights in 2025 (almost twice as many as in 2019) and the local perception of the current situation as unsustainable[4] in terms of quantity
- Growth affecting the Arctic "untouched wilderness", which belongs to the reasons for travelling to the Arctic and is part of the place's identity
- Is LYB becoming an unattractive place to stay and visit?
- Clash between economic gain and social loss

The polarizing effect that tourism has had so far on the local community is a broad and complex issue. In general, there is evidence for stating that people living in LYB have sharply **polarized opinions** on what the impacts of tourism have proven to be like. There is a gap in terms of **power distribution** – some feel that tourism as a path for the future has been imposed without taking the view of the "locals" into consideration.

3.2.2 What are the possible solutions?

Seeing **tourism as an opportunity** is a must in case the optimal balance is to be achieved. In group discussions and plenary sessions, the workshop participants addressed mostly the issues of **local benefits** and **value creation**, and how the **business needs** could match the needs of the people of LYB. **Quality** is the desired value communicated both to tourists and locals.

[4] In academic literature, the term *overtourism* is used in similar contexts.

A socially sustainable path would include e.g. **locally co-decided rules and regulations** that are widely applied and respected, advanced **spatial planning** (with special attention paid to **cultural heritage**), measurements based on deep understanding of **impacts of tourism on nature and people** and tourism facilitated in **MA10**.

The networks of **Visit Svalbard** and **AECO** are examples of good practice and should be supported in the future. A solution to the current boom of unorganized and often not locally based tour operators would be having them incorporated in the established networks and/or encouraging them to contribute to the local added value. Local value creation was a sort of a mantra among the groups working on the topic of local community: Local preparedness and adaptation need to be strengthened, local engagement in the decision-making process should be more substantial, tourism should be profitable for local business actors ("keep it local") and it should provide economic stability, not turbulence.

Much attention was also paid to discussions about how to target the **optimal client**, namely the one that is knowledgeable, genuinely interested in Svalbard, willing to spend money and stay long (longer than the current 2.4 days on average). Should certain groups of tourists face limitations in terms of acceptable quantity? A related issue is the one of tourist activity spreading during the whole year, avoiding growth and overcrowding in the already busy season (approx. March – August) and stimulating growth during the slow season and generally speaking also on week days. That would help establish **all-year-round jobs** that seem to be necessary if people who work in the tourist industry should be motivated to live in LYB permanently and possibly with their families.

A complex issue that is linked to jobs available in tourist and service industry is the one of attracting a growing number of **non-Norwegians** to the island looking for job opportunities. This development is at odds with the strategy of the Norwegian central authorities to support LYB as a Norwegian family community. A solution to this phenomenon was not identified but it certainly is a hint for future research ideas. Can tourism play a positive role in fostering Norwegian sovereignty and presence on Svalbard?

Tourism is both a risk and an opportunity in terms of **infrastructure**. At the moment, the local perception is rather that the capacity is not sufficient, even though local authorities are working on improvements. Infrastructure includes housing for employees and facilities and services used by the visitors such as health care (especially the hospital), roads, sideways, toilets and so on. Especially the housing issue cannot be easily solved given the history of LYB, the legal framework valid, the complex topic of ownership, and the challenges related to a recently less predictable environment (avalanche and landslide danger areas, thawing permafrost etc.).

When discussing the employee's perspective, the problem of **unfair and precarious working conditions** was mentioned. The legal framework ought to be harmonised with the desired outcomes, including tourism generating stable, fair and well-paid jobs that would motivate

people stay longer (current length of stay is about 4 years on average, but about 45% of inhabitants have been living in LYB for less than 2 years)[5].

All actors need to collaborate in order to achieve a **well-coordinated destination management** that will walk the line with the official Norwegian vision/strategy for Svalbard. Is such a strategy clear enough and has it been properly communicated to the people of LYB? By some, tourism is perceived as running wild on Svalbard and a broad consequence analysis is needed. What are the impacts? In addition, an interesting point raised was the one of the former "three legs of LYB", namely mining industry, research and tourism. Do we need a substitute for mining now that it has substantially decreased and might fade out in the future? Can a new kind of industry contribute to the economic stability of LYB, hand-in-hand with tourism? A diversified economic base is always beneficial because it makes the community more resilient compared to being dependent on one major income, e.g. from tourism. Can the idea of "smart Arctic city", LYB as a technological "testination" and zero-emmision society be viable?

3.2.3 Research needs and suggested research projects

Comparing the current knowledge about the status quo and the optimal knowledge necessary to achieve the optimal balance, the following areas of knowledge gaps were identified:

Strategy based on local values
It is necessary to identify and analyze **local needs and values** appreciated. Tourism, both on sea and on land, needs to be scrutinized in a detailed cost-benefit analysis. We should zoom in the local perspective, understand what local inhabitants expect from tourism and how social cohesion could be increased. Qualitative research is needed here, e.g. in the form of interviews and workshops, and an effort to define where the tipping point is that makes the volume and impact unacceptable. The main question would be: How can tourism contribute to a society that people want to have in 2050? Comparisons with other places (such as the Galapagos, Bhutan etc.) can be useful tools for understanding the global context of tourism and possible local responses. The concept of Level of Acceptable Change (LAC) was evoked and it was mentioned that LAC for the case study of Svalbard should be elaborated taking into consideration how tour operators and independent visitors behave in MA10. Knowing more about what is happening means investments into research. In this context, the possibility of using resources gained thanks to tourism for research projects was hinted, creating a sustainable tourism economy that supports hands-on research.

Knowledge about tour operators, visitors, and people of LYB including guides
Both **qualitative and quantitative** research methods are necessary in order to get a complete picture of all relevant phenomena on stake. This includes better statistics in terms of population structure and turnover, statistics on tour operators, accidents, unorganized tours and individual visitors and taxes paid (the list of factors is not complete). For example:

- How many people move in and stay over 6 months without registering officially?
- How many come only for a few months, and how is this related to the housing situation?

[5] Source: Skatteetaten, numbers valid for 31 August 2019

- How does the language barrier, in other words the growing number of people living in LYB with none or limited knowledge of the Norwegian language, correlate with tourism and influence the character of the community?
- How many tourists come here that are not ”visible” in the numbers under the category of hotel guests?
- What is the role of tourism in realizing local visions and values?
- What models can we use to define optimal balance and tipping point?
- How do we define the measurement criteria?
- What does ”sustainable tourism” mean to tourists and what does it mean to local communities?
- Is it possible to find a balance acceptable for both?

The so-called **grey zone** in tourism is a matter of big concern and more research needs to be conducted in this respect (motivations, countries, ways of operating, employment practices etc.). It needs to be studied e.g. what it would take to inform guides and operators properly and for operators to manage the business optimally. When it comes to the issue of **trash and pollution**, it is necessary to investigate to which extent the operators are willing to "talk the talk and walk the walk".

We also need to focus more on the **guiding community** (crucial for the business) and learn about the living and working conditions of the guides, how they can be motivated to stay more permanently, and the **values** they stand for and transmit to the guests. This should be compared with research on the **take-home messages** eventually interiorized by the guests.

When it comes to the **types of tourists** attracted to Svalbard, more knowledge on how the stakeholder should design their communication strategies in order to target specific segments of the clientele (and thus secondarily discourage the less desired type of client) and achieve **behavioral change**.

An interesting point was made about the **gender aspect** in the context of tourism, given that females play a decisive role here.

One thoroughly elaborated research project divided into work packages was presented on Day 3. It summarized many of the points discussed during the workshop. The main research question was: **Are the current rules and regulations relevant to the current situation?** The work packages suggested were:

- WP1: Baseline information: rules and regulations, statistics
- WP2: Operators: gaps among operators, organized-unorganized-grey zone
- WP3: What kind of knowledge do the operators have? Where do they have the info from? Deviation reports? What do they want to sell? Certification vs. concession
- WP4: What do the locals want and care about? Who are they? What are their needs? What do they interpret as LAS in terms of nature and society?
- WP5: Are the current rules and regulations sustainable? (Tourists, authorities, locals, guides, operators)

- WP6: Who are the tourists? What are their expectations and preferences? Are there gaps between what is marketed and what the guests experience?
- WP7: Are the current rules and regulations relevant to current and future conditions? What will it take to change the rules and regulations? Who are the authorities? What do we need to change?

The project was meant to carry on inter- and transdisciplinary research, and its impacts would be: rules and regulations adapted to actual needs and fostering a viable economy, safer and more environmentally sound operations, a better overview of people and nature, economic sustainability in the future.

Picture 9. Group 4 presenting their research project idea with several work packages

Innovations and technologies

There is a potential for **innovations**, testing **new technologies** and **entrepreneurship**. More knowledge on possible interests among the operators should be available. Many fresh ideas were mentioned, e.g. possibility to use virtual/augmented reality, microscopic explorations of nature or boosting a new visitor center with technologies that enable to explore alternatively without having to travel to remote areas on Svalbard. MA10 could be used as a test site for new kinds of tourism and also for measuring its impact. **Tourism and scientific research** should not be seen as opposing each other and we should search for overlapping areas (e.g. usage of citizen science). Innovation is also needed in the spheres of waste management, energy, information, safety and data management and storage.

Legal framework

Research about the rule of law and **legal background of the existing framework** is needed in order to understand whether the current rules and regulations are sufficient. It is not quite clear what it would take (technically, legally) to change the regulations, e.g. to introduce a standardized and obligatory guide certification or follow up in a more efficient way the grey zone of the market.

Table 2. Suggested research project ideas for the local community

Research project ideas	Why and how?
1. Local visions and values: A study of quality of life on Svalbad (Longyearbyen, Barentsburg)	Research questions: - What is the role of tourism in realizing local visions and values? - What models can we use to define optimal balance and tipping point? - How do we define the measurement criteria? Purpose: To understand the status quo from the local perspective and adapt for the future taking the communities' views into consideration = striving for sustainability
2. Knowledge about tour operators, visitors, and people of Longyearbyen including guides	Research questions: - How many people stay without being registered officially? How is short-term stay related to the housing situation? - How does the language barrier correlate with tourism and influence the community? - How many tourists are invisible under the category of "hotel guests"? - What is the role of tourism in realizing local visions and values? - What models can we use to define optimal balance and tipping point? - How do we attract the optimal client? - How do we define the measurement criteria? - What does "sustainable tourism" mean to tourists, guides and local communities? - Is it possible to find a balance acceptable for all? Purpose: Understanding better the current development in order to plan for the future

3. Accuracy and relevance of rules and regulations	Research question: - Are the current rules and regulations relevant to the current situation? Work Packages: see above <u>Purpose:</u> To adapt rules and regulations to actual needs and foster viable economy, to have safer and more environmentally sound operations, to have better overview of people and nature, to work for an economic sustainability in the future
4. Innovations and technologies	Research questions: - Which innovations and technologies could be tested on Svalbard? - How can technological innovations help improve sustainability on Svalbard? - Which of the technological innovations can be relevant for tourism? - How could we measure the impact of tourism in MA10? - How could tourism and science benefit from each other? <u>Purpose:</u> Use the potential of the extreme place (“destination Svalbard”) so that sustainable tourism (and life in general) can be fostered
5. Legal framework	Research questions: - What is rule of law and legal background of the existing framework? What is needed if amendments are to be made? <u>Purpose:</u> Consolidate the status quo with the needs of the place and community

3.3 Search and rescue

A special concern for the emergency preparedness and response authorities is the increasing cruise tourism around Svalbard. The presenters during the first day of the workshop noted that the conventional cruise vessels are increasing in size and passenger capacity and at the same time the expedition cruise vessel are coming up with new itineraries in the Arctic maritime region. In an event of mass rescue operation or a larger incident with a cruise vessel, the capacity of search and rescue resources in Svalbard would not be able to match the size of the incident. Svalbard also poses great challenges for search and rescue with difficult weather conditions, long distances, poor communications network, and the community preparedness to receive a large amount of injured people.

Similar concerns arise also from land-based tourism, especially with unorganized tour operators and self-arranged tours. With that, questions were asked whether there should be rules and regulations in place to limit the size of the vessels or groups coming into Svalbard, whether there could be more monitoring for unorganized tours and operators, or whether it is possible to increase the search and rescue capacities and technology in the area.

The workshop formed two groups for the search and rescue topic.

3.3.1 Main challenges and concerns within SAR and tourism in Svalbard

Expert perspective
"Tourism in Svalbard from a SAR perspective", by Bent-Ove Jamtli, JRCC NN

At the start of the second day before the group work discussions, the director of the Joint Rescue Coordination Centre North Norway (JRCC NN), Bent-Ove Jamtli, presented the main challenges and concerns on emergency preparedness and search and rescue connected to increasing tourism in Svalbard from the rescue authority perspective. The JRCC NN is responsible for coordinating maritime, aeronautical and land search and rescue in Northern Norway, including Svalbard. Their search and rescue region and area of responsibility reaches from 65 degrees North to all the way to the North Pole. The Governor of Svalbard is also responsible for emergency response in Svalbard area. As a chief of Police, the Governor of Svalbard manages the local Rescue Sub-Centre.


Picture 10. Bent-Ove Jamtli talking about challenges with SAR in Svalbard

Northern Norway is highly focused on developing its Blue Economy, driving towards Blue Arctic and increased maritime

activity. In most parts of Arctic Norway, sea ice is not a problem for maritime operations, except in Svalbard. Just a week before the workshop, a small cruise vessel M/S Malmö got stuck in ice in the northern part of Svalbard. As the risk was too high to keep the passengers on board, JRCC NN and the captain of the vessel decided to evacuate all the passengers but keep the crew on board. A Norwegian Coast Guard vessel towed M/S Malmö back to open waters and no further damage was done, however Jamtli underlined that this case is a reminder that **ice creates problems around Svalbard** even during summer and early autumn, but also as operators are starting to stretch the activity towards later in the season. Some of the maritime areas in Svalbard are poorly mapped, resulting in areas with a high risk of grounding.

Climate change and changing weather patterns also create concerns in Svalbard. For example, polar lows are creating new weather conditions that affect safety and preparedness, as was seen in the case of the major avalanche in 2015 in Longyearbyen. Changing weather and melting permafrost are creating **unstable conditions** and situations that are unusual for Svalbard. Jamtli also listed other challenges for emergency response specific to the Arctic region and Svalbard including **lack of infrastructure, limited hospital capacities** to treat injured patients, **scarce resources**, and the **vast distances to the nearest assets**. He noted that communication is crucial for safety, and coordination of SAR operations, and a special concern at the moment is **the poor satellite and radio coverage** in other parts of Svalbard except LYB and Isfjorden. However, development in this regard is underway and Svalbard should have better satellite coverage in 2022.

From the SAR perspective, the **worst-case scenario** related to maritime tourism in Svalbard would be a fire on board a large passenger vessel as these incidents often develop fast and exceed the response and hospital capacity. It would be extremely difficult to rescue a large number of people with the **resources that are currently available in Svalbard**. Large-scale incidents often rely on volunteer resources, and Jamtli noted that Svalbard needs more trained volunteers. He also pointed to concerns of increasing interest in extreme routes and itineraries in the tourism industry as the authorities are unsure how to mitigate the risks for new upcoming activities. As an example, he noted that one of the new expedition vessels is already planning on breaking ice all the way to the North Pole. In this regard, **SAR preparedness is lacking behind when it comes to the industry.** As the industry is soon ready to start earlier in the season with vessels that have ice breaking capability, the authorities are concerned of **Black Swans** – they do not know what is going to happen and where it can lead as they have no prior experience with it. They are also looking into new winter activities that are getting more popular, such as private and unorganized sail and ski trips, in order to connect to the tour operators on how to transfer knowledge to make it safer.

Jamtli wanted to underline that the tourism industry has a lot of knowledge and experience from Svalbard and other parts of the Arctic, but as the new operators are blowing new ground, it is maybe **not possible to transfer all the knowledge and experience** to them fast enough. He highlighted that good progress has been made to reduce risk and consequences during the Arctic SAR table-top exercises held together with AECO and the SAR agencies inviting the cruise operators and academia to attend.

On the subject of transferring knowledge, he mentioned the ARCSAR, the Arctic and North Atlantic security and emergency preparedness network and project, which received 3,5 million Euro from the EU H2020 funding. The project has many international partners from the government organizations, academia and the industry and they are together looking into new innovations, how to transfer knowledge from Indigenous peoples, sharing best practices in different countries, looking into technology, methods, and procedures that can improve emergency preparedness and prevention, and so on. He wanted to mention ARCSAR as the project will provide a lot of new data and research in the SAR field.

Group discussions

During the first group work sessions, the SAR groups defined the main areas of concern when it comes to tourism and search and rescue in Svalbard, in order to identify the right topics to discuss and find the knowledge gaps. The groups identified the main challenges and questions within the following areas of concern:

Knowledge, competence and regulations

- How do we make tourism to be part of the industry and society in LYB, in order for them to care about the safety and preparedness of the community as well?
- Growing number of unorganized tour operators and the uncertainty from SAR and safety perspective
    - Are they educated enough, are they taking safety into consideration?
    - Difficult to monitor
- Visitor's self-preparedness and education
    - What kind of information there is on safety hazards, how is it distributed, what do we want tourists to know?
- Actual risks and consequences
    - Consequences include loss of life, threat to environment, reputation for destination Svalbard, company, and the authorities
- Competence, equipment, and regulations in terms of changing realities
    - Number of passengers is increasing with larger vessels
    - Competence and experience needed for new areas of travel
    - Season is extending for cruise tourism
    - New activities that we might not be prepared for in terms of SAR
- We have a lot of results, recommendations, and knowledge through exercises, reports, best practice guidelines, but how to measure the uptake of that knowledge?
- Preferably there should be regulations rather than guidelines both on equipment and competence
    - Certifications for guides and personnel working on board

Similar to the identified challenges within the other themes, the SAR groups also found that one of the main challenges when it comes to tourism and preparedness is **identifying and attracting the right kind of tourists to Svalbard**. Ideally the tourists would understand and respect the safety considerations in Svalbard, for example with wildlife and weather conditions, and be interested in contributing to the society. The conversation in both of the

SAR groups was mainly concentrated on maritime tourism, such as cruise tourism. They found it important to know what the guests and crew on board know and expect from SAR and preparedness.

Picture 11. SAR group discussing challenges with tourism and safety in Svalbard

From the SAR authorities and community's point of view, it is hard to monitor the development of self-arranged and unorganized tourists and **the SAR capacity might not match the increasing risks**. It is also difficult for the authorities to monitor whether the guides, captains or crew have the right kind of experience and training when it comes to the Arctic conditions. Especially, if they do not belong to associations such as AECO or if some of the international regulations do not affect them, e.g. small private yachts.

Capacity and local impact

- Lack of preparedness for the worst-case scenario, i.e. mass rescue operation (MRO)
    - Lack of SAR units in Svalbard, distance to the units is normally long
    - Longyearbyen does not have the capacity, both facilities and personnel, to deal with a large operation like this
- Lack of knowledge on what kind of local impact an accident would have on Longyearbyen, healthcare and so on.
- Lack of practice on how to utilize the maximum local capacity
    - Volunteers, industry, local authorities, other tourists
- No infrastructure

Related to the topic of knowledge and regulations, one key element with making regulations and risk assessments is to first **define the maximum number of tourists** in comparison to SAR and the community's capacity for large-scale incidents. This has not yet been defined in a comprehensive way in order to discuss the topic further. There is a definite **lack of response capacity for a worst-case mass rescue operation** when it comes to the availability of SAR

units, community facilities, communication and equipment technology, and knowledge on how to best utilize all available resources. Each organization, government body, tour operator and ship knows its own preparedness procedures and SAR capacities, however there should be more **knowledge on the joint preparedness and capacity** counting together the responders, the local community, all volunteers, the ships and industry, neighboring countries, and all other possible resources, and how to utilize the network in the best possible way.

Technology and innovations

- Gaps in the Polar Code
    - IMO Polar Code sets requirements for life-saving appliances and equipment for vessels sailing in the Arctic waters, in order to survive the maximum expected time of rescue. The Polar Code defines this to be less than five days.
    - SAREX exercises have been testing the standard equipment and the five day rule, and found inconsistencies between the recommended equipment and what is realistic in Arctic waters.
- Lack of communications technology
    - Satellite and radio
    - Affects coordination in SAR operations
    - Affects safety and sharing of information, i.e. ice charts
- Lack of effective rescue equipment
    - Winching one person at a time is slow in MRO
    - Lack of knowledge on what is available and what the possibilities are
- New vessel technology more advanced than the current SAR capacity

3.3.2 What are the possible solutions?

On the second day, the participants discussed what the optimal balance would ideally look like when it comes to SAR and tourism in Svalbard. **The industry, local community, and SAR authorities should find a balance between the increased activity and mitigating risks.** The groups agreed that the optimal balance should be a based on local capabilities including:

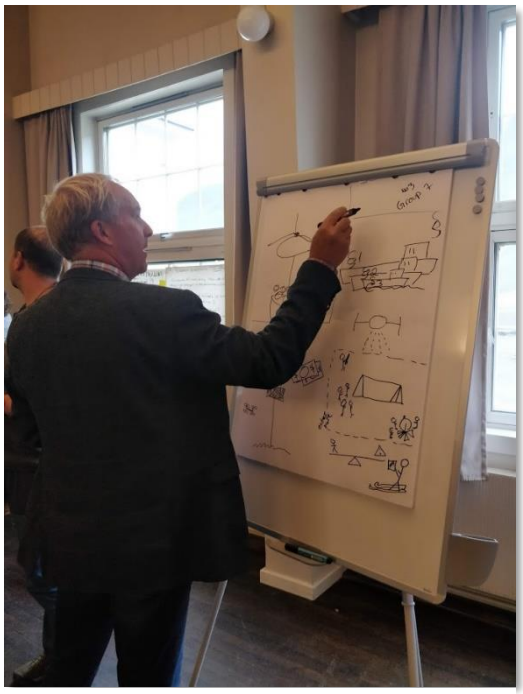
- Local economy
- Local capacity and management
- Local SAR capacities
- Local opportunities to provide experience

Based on the ideas of the optimal balance and the identified key challenges and research needs, the groups were asked to brainstorm and suggest ideas for possible solutions. When discussing knowledge, competence and regulation issues, **preparedness and mitigating risks and consequences** is a good place to start. One of the groups identified areas where further efforts could mitigate the risks and challenges:

- Certificates to guides and crew
- Training together with the industry, community and responders
- Individual routines and knowledge is important to share
- Equipment needs to be tested
- Better utilization of services, i.e. the Norwegian ice service

In order to regulate or set limits to numbers of tourists or areas to visit, a possible solution could be to first find what **the magic number** is when it comes to the acceptable number/group of tourists in certain areas based on safety considerations and capacities. This could include further examination to the possibility of different regulations for different sizes of vessels. The groups also discussed possible solutions for the competence and experience side and found that further competence, courses and training for the Arctic maritime industry needs to derive from the gaps of existing regulations. Mapping the gaps would help to find specific needs, training courses and content for guides, crew members and so on.

One part of preparedness is also to **educate the tourists to be safe, and make sure that they understand the safety hazards and proper code of conduct**, also in emergency situations. One of the groups discussed that there should be better ways of informing tourists on dangers and safety, but also realized that there is a limit on how much one can affect the tourists' personal interests and willingness to learn.



Picture 12. Group 7 brainstorming solutions

When it comes to the Polar Code, one group mentioned that in order to fill some of the gaps in the five day survival requirement, one possibility could be to find **what would it actually take in order to survive five days**, including evacuation to life boats, finding a safe spot to establish a camp, setting up the camp and so on. This would give some indication on what kind of equipment should be developed and how to do that in the best possible way.

The groups acknowledged that there is probably a lot of **technology and innovations already available for mass rescue operations,** however the groups did not have enough knowledge on **what is available and how could it be used**. As an example, one of the group wanted to find a solution to evacuating passengers from a cruise ship to a near-by shore and establishing a temporary emergency rescue camp or shelter at a reception site on land near the distress vessel. This would make a rescue operation more efficient as the helicopter would not have to fly only some people at a time to an actual town or community, and the passengers would be safe and cared for at a temporary solution while waiting for further logistics. Questions however remain as to who would finance the shelter, what would it look like, how much would it cost, who would have the ownership of it, and what would the procedures be like.

The groups also saw potential in developing other technology and innovations further such as apps for citizen science on ice movements, equipment to hoist more than one or two people at a time with a helicopter, and drone and satellite technology.

3.3.3 Research needs and suggested research projects

On the final day of the workshop, the groups were asked to present their views on the most needed research in finding the optimal tourism balance in connection to SAR and safety, and suggest possible research projects. As the tourism industry is part of the local community and economy in Svalbard, research should focus on the facts on how to make it safer and look into the preparedness side. This encompasses all aspects of the discussed challenges. The main research project ideas are summarized in the table below:

Table 3. Suggested research project ideas for SAR

Research project ideas	Why and how?
1. Camp Rescue	How to organize emergency reception camps on land or on another vessel in case of mass evacuation? - What equipment, who owns/funds the equipment, where is it located? - What kind of procedures there would be for it? Training? - Who would be the main user? - What kind of collaboration does this need? - Purpose: to increase the SAR capabilities and operational efficiency in Svalbard.
2. Magic Number	What is the Magic Number when it comes to the acceptable number/group of tourists in certain areas based on safety considerations and capacities? - In order to enforce any regulation limiting the number of tourist in certain areas, there is a need to find what that number is. - Consider different regulations for different size of vessels? - Compare SAR capacity to the group numbers. - This would have to consider all aspects including community involvement, environment etc. - Purpose: map if there is a need to regulate the number of tourists arriving to Svalbard
3. MultiResc	How to efficiently rescue multiple people, instead of winching up only one or two at a time?

	- Develop new or use existing technology from other industry areas to increase the speed and efficiency in Mass Rescue Operations - Purpose: to increase SAR capacity and efficiency in SAR operations.
4. Competence and training project	Mapping training and competence needs in the Arctic maritime industry - Specific needs and training courses for guides, crew members etc. What do they contain? - Needs that come from existing regulation like the Polar Code - Take the guest point of view into consideration, guides/guests/passengers are a resource when it comes to SAR operations - Purpose: mitigate risks and increase operational efficiency
5. Projects developing and implementing new technology, i.e. Ice Watch App	Develop and implement new technology that is needed in preparedness, safety and SAR - Map ongoing research projects on what the needs are and what has been developed in order to start implementation - How to start implementing the technology? - Purpose: increase the uptake of innovations and provide new technology in order to increase safety - I.e. Ice Watch App developed by the Norwegian Ice Service to send out ice information on a smart phone • Provide real-time information on ice movements • Citizen science can be utilized to provide observations • Purpose: guides and operators need high resolution data, would improve safety and provide real time data and picture
6. Sustainable tourism economy project	Fund research on the total environmental impact and social economy by enforcing a tourist tax, which would be dedicated to funding research projects that increase sustainable tourism economy - Tourism is increasing in Svalbard however we do not know how it affects society

	- Enforcing a tourist tax could provide funding to make tourism safer for the people and the environment - Putting on a tourist tax, so we could use that funding to make it safer for the people and the environment - In this umbrella, funded by the tourists, we could carry out research on how to make tourism sustainable in the future

4 Conclusions

"Over the past three days, we have brought together people with different perspectives and areas of expertise. We have identified knowledge gaps and research needs. We hope that the workshop can help inspire new research projects that will contribute to sustainable tourism management in the Arctic" Trine Krystad, Visit Svalbard.

The Optimal Tourism Balance workshop focused on various topics within the three main themes of environment, local community, and search and rescue. The idea of the workshop was to find concrete research ideas and opportunities based on challenges, needs, and various perspectives from professionals in academia, local community, local business and authorities. The group agreed that in order to achieve optimal tourism balance and knowledge-based tourism management, common approach is needed by combining aspects from all of the themes, and addressing the knowledge gaps identified during the workshop.

The workshop identified an extensive list of needs for further research from all the main themes. The groups in general came to an understanding of what needs to be done in order to manage tourism in a safe and sustainable way, and steer the development to strengthen the local community. Few similar topics were brought up from all the groups including the need to profile the tourists that come to Svalbard: who they are, what their attitudes are, expectations and knowledge, and why they come to Svalbard. Almost all the groups were also concerned about the increase of unorganized tourism in Svalbard and the need for stricter rules, regulations, courses, and certifications to guides and tour operators. All groups also mentioned the need for new technology and innovations that can help with monitoring and safety.

The participants thought that the workshop had a very positive impact on research cooperation and building a network for future initiatives. Concrete ideas on these were found through brainstorming. The groups hoped that the workshop results can feed into new research proposals and an overall strategic plan on what kind of tourism should Svalbard experience in the future.

4.1 Spin-off and other project ideas

At the end of the workshop, the participants suggested several individual ideas and possible spin-off projects. The ideas are compiled in the following list:

Environment

- Extent of and impact from field visits by researchers
    - Model of environment friendly research, best practices
- Cooperation between guides and research scientists
    - What is the ideal meeting point for sharing knowledge
- Research on company level
    - Integration and development of sustainable business models
- Local, regional and international NGOs

    - Identifying stakeholders relevant to wildlife and nature (i.e. WWF)
    - They are often knowledgeable, highly motivated and very good at communicating with tourists
- How can Miljøvernfond (Environmental Protection Fund) contribute more to minimize the impact from tourism?
- Thorough research on the impact of motor noise in the sea and seismics on hearing and communication of whales
    - Many beached whales have ruptured eardrums = seismics?
- New energy mix

Local Community

- What is the role of East-Asian economic migrants?
- Tacit knowledge: What are the opinions and reflections of those moving out from Svalbard?
- What would the growth potential for local tour operators be if they were obliged to offer all-year-round work and pay taxes on Svalbard?
    - It would lead to fewer operators, more taxes to Svalbard, fewer inexperienced guides, fewer injuries and more control.
- Once in a lifetime: Svalbard should be visited as a "once in a lifetime" experience, not thanks to a 500 NOK flight and cheap activities.
- Innovation in how we use the cabins throughout Svalbard for tourist activities

Search and Rescue

- Follow-up on project results, exercises, incidents and other lessons learned, to measure the “real uptake” of the results.
- How to utilize the local volunteers and community resources in a best possible way?
    - Identify stakeholders and what are the standard operating procedures?

In connection to the preparations for the Optimal Balance workshop, Visit Svalbard and AECO's administrations discussed ideas for research projects connected to tourism in Svalbard. The ideas are based on the two administration's experiences, and the result of the needs they have identified. In order not to anticipate and influence processes and work during the Optimal Balance workshop, these ideas were not presented to the participants before the workshop. The workshop identified many of the same areas of research, but the list also includes additional ideas. The list of ideas and questions can be found in Annex 1 of this report.

4.2 Way forward

This workshop represents the first of many steps ahead to answer the difficult, yet important, question: What is the optimal balance for tourism at Svalbard? It is important in the future to understand tourism needs from the tourism stakeholder’s perspectives. The workshop facilitated discussion, raised questions and topics related to a responsible tourism industry, which the workshop organizers encourage and wish for the relevant tourism stakeholders to proactively take further. Ideally, this initiative will contribute to knowledge-based development of tourism in Svalbard.

The workshop recognized several areas for further research initiatives that hopefully inspire researchers, and research and funding institutions to develop targeted projects and funding instruments to solve challenges and answer to the identified research needs. The workshop organizers wanted to highlight the need for early contact and communication with practitioners, industry, and relevant stakeholder organizations in the early stages of research in order to understand the industry and community needs for applicable research results. They welcome follow-up ideas and collaboration proposals leading towards the optimal tourism balance in Svalbard.

5 ANNEXES

5.1 Annex 1. Full list of project ideas discussed by Visit Svalbard and AECO in prior to the workshop

In connection to the preparations for the Optimal Balance workshop, Visit Svalbard and AECO's administrations discussed ideas for research projects connected to tourism in Svalbard. The workshop identified many of the same areas of research as listed below, but the list also includes additional ideas.

Ideas	Further questions/thoughts
Impact of HFO in Svalbard	Could be a pretty basic study that just calculated current and future emissions and contrasts a scenario of increased emissions from HFO (due to traffic growth) with a scenario where HFO is banned, associated costs for the industry if HFO is banned. The responsible research institution would have to be someone who specialized in these kinds of calculations. 1) Emission/pollution of present traffic 2) Cruise industry cost if HFO ban 3) Local community loss of revenue if HFO ban. Modelling - Vessel Questionnaire - Post Visit Reports are important sources.
Study the impact of Clean Seas guidelines for Visitors	Underlying question: is that the right communication method?) (Environmental Psychology, Plymouth Marine Lab which has been part of MARP could be a partner) -> However these two studies require a base to start from, ideally the state of landing sites/people's mind set before the introduction of the guidelines.
Feasibility study or similar on how to better utilize tourists in environmental and other monitoring in Svalbard.	Someone who do not see citizen science as competition to their own research.
What are the largest barriers for best possible utilization of hydrographic data collected by industries.	How can the barriers be overcome?
Study that looks at the possibility of introducing more non-lethal polar bear deterrents	(e.g. sprays) in Svalbard and/or drone recognizance before landings. Could look at experiences from other regions, challengers connected with implementation (e.g. if drone recognizance could disturb wildlife).
Best possible mix/synergies of use of local (present and coming) food resources.	Local food= fish/crab/shrimp. Hunt? Other local food resources (herbs, mushrooms) Study economic, environmental and social/cultural value and impact of bringing catch to port (and hunt to the table?) for use in restaurants/tourism businesses- and the impact of tour operators (e.g. cruise operators) catching fish themselves. Are

	tax issues connected to landing e.g. sea products in Svalbard an issue?
Study of incident and near misses - connected to risk assessments (OVRAT) to improve risk assessments and lower the risks of incidents	
Study whether it would be possible to enhance waste handling in Longyearbyen	It is of interest in relation to compliance with MARPOL Annex V. Capacity in Longyearbyen - limitation in regards tourism?
Improve marine litter retrieval in Svalbard.	Is it of interest in relation to safety at sea (nets, etc that can damage vessels), and the destination not being polluted.
Enhance prevention of pollution/littering in settlements and among visitors. Encourage Waste reduction plans.	
Prevention of littering of fishing gear	
Finding the optimal balance/tourism-mix, a holistic approach to finding the "best" tourism for Svalbard.	Include mapping of tourism activities in order to identify values; e.g. un-organized vs organized, rentals vs tour productions, etc.
Survey total capital turnover and economic value creation of tourism in Svalbard	Cruise has been covered
How to improve statistics, figures and numbers for tourism in Svalbard	Based on local needs and targeted for local use
Licensing, authorizations, concessions, etc.	What is possible, what is wanted
Mapping of all unorganised tourism activities, volume, value, risks	Project that can built on information available at the Governor of Svalbard
Acts, regulation and management.	Is the frame work and management supporting the overall objectives for tourism development? Do we have the tools to ensure

	sustainable development in regards to environment, safety and society?
Climate change impact on tourism development. Need for adjustments.	Consequences that need regard in tourism/product development, e.g. safety, environment, infra-structure.
New technologies to reduce environmental impact - tomorrows tourism	
SoMe (social media): values and risks	What is responsible marketing, and how does one encourage responsible marketing in the industry, and can we educate the visitors in SoMe impacts
Utviklingstrekk i landbasert turisme	Mapping - How to design a study to map local attitudes? Local study. Risk attached to trends. Travel industry research.
Local community study. Attitudes towards tourism.	Reasons for potential negative attitudes. How to enhance positive synergies between locals and tourism
Social situation and conditions.	Undeclared work, conditions, housing, lack of tariff agreement, nationalities, seasonal workers - impacts?