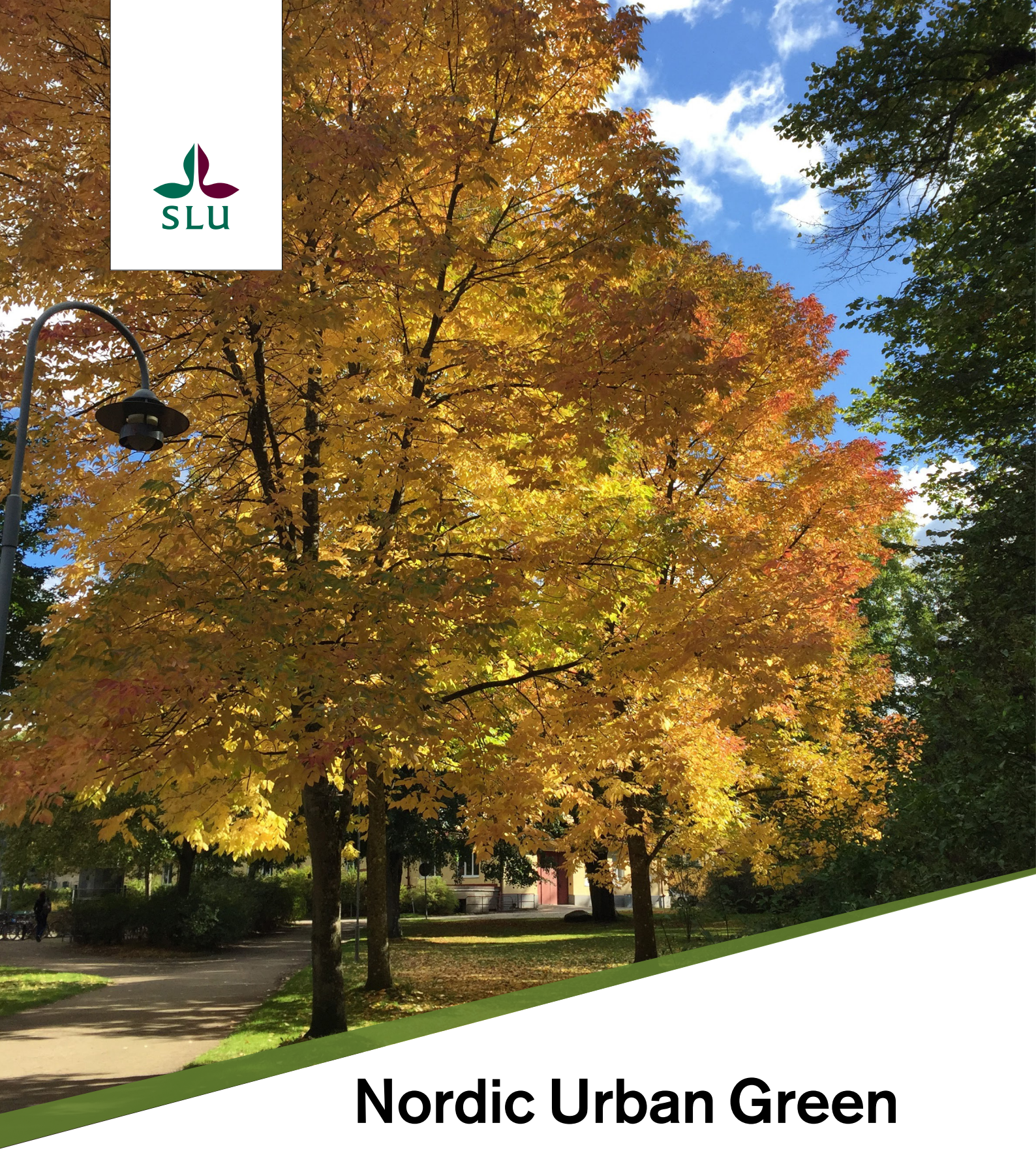

Nordic Urban Green Space Survey

A study of how urban green spaces currently are being perceived by green space managers, and what challenges exist ing larger cities in the Nordic countries.

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Summary

The Nordic Council of Ministers has appointed a working group for Nordic Sustainable Cities 2019-2022 (Hållbara städer). The working group is coordinated by Boverket (SE), and has as its vision to create a model for the world's most attractive cities, by the use of urban green spaces. As a part of this, Boverket has commissioned the Swedish University of Agricultural Sciences (SLU) to study and document urban green space management practices across the five Nordic countries. This study therefore examines how municipal green space managers from larger cities in the five Nordic countries currently perceive the prerequisites for their work, the urban green areas and what challenges they see as the most prominent in the future.

The study was conducted using a case study approach, via interviews with three green space managers from each of the five Nordic countries.

The studied Nordic cities in general experience the effects of densification as a result of increased building activity in inner city areas. This is often resulting in higher pressure on existing green spaces, but also generating new ones, which tend to be small and fragmented, not meeting the many wishes and demands asked for by the diverse user groups. While budgets are sufficiently allocated in new development projects, it is a challenge to withstand the maintenance budgets, forcing managers to prioritise. Due to primary political interest in inner city areas, there is a risk of managers not prioritising the more peripheral areas, from where resources are often transferred to the newly developed areas. This creates a new type of urban aesthetics, primarily in the urban peripheral areas, with increased amounts of biodiversity and higher amounts of multi-functionality, compared to the smaller and more heavily programmed inner-city areas. Urban green space managers are relying on the existing municipal planning tools, and to varying degrees act strategically in terms of developing own sector oriented plans and strategies, of which those being politically adapted are seen as the most powerful.

Acknowledgements:

We would like to thank Patrik Faming and Ulrika Åkerlund, Boverket, for fruitful sparring and cooperation throughout the development of this study, just as we are indebted and thankful to the 14 green space managers who provided us with their time and insights, (please see Table 1). A special thank you to our colleagues Åsa Ode Sang and Märit Jansson for performing an internal review of the report.

Content

Introduction

Urban green spaces (UGSs) have multiple values, through what is often referred to as ecosystem services (MEA, 2005). The amount of ecosystem services provided depends on the physical qualities and functions of UGS, and they provide benefits which have values for both people and society (Haines-Young & Potschin, 2008). The amount of values are affected by UGS management work, and require a long-term perspective, on various scales and within various contexts, involving experience based on both practice and theory (Jansson et al., 2020).

UGS managers address many of the current environmental and ecological trends and challenges prevailing in society. These include climate change adaptation and mitigation and solutions for modern urban challenges, leading from urban stormwater management (Qiao et al., 2018) to urbanisation and increased densification of cities, with increased pressures and loss of UGS (Soga & Gaston, 2016) as a result. Individualisation and an increased human demand for engagement and involvement (Buijs et al., 2016), as well as demographic changes resulting in increased pressure on public funding (EU, 2017) are common trends and challenges also experienced by UGS management today. There is a general understanding, and demand, that such challenges can be dealt with or even solved by active governance and management of UGS (Randrup & Jansson, 2020).

UGS management is more than maintenance, as the UGS organisation has numerous tasks to fulfil within the green sector, but also tasks and obligations relating to other sectors, such as health, education, and culture (Randrup & Persson, 2009). These tasks are performed at different levels too; At the policy level, where long-term and visionary goals set the direction, at the tactical level, where plans and guidelines are created, and at the operational level, where the practical work of upkeep and maintenance is carried out. Ideally, a strategically minded UGS management organisation covers all three levels. However, operational maintenance, takes up the majority of many UGS organisation's resources (Randrup & Persson, 2009). This may relate to where in the organisation the UGS managers are located, and thus how distant UGS management is from the political level.

Recently, the Nordic Council of Ministers appointed a working group for Nordic Sustainable Cities 2019-2022 (Hållbara städer). Boverket (SE) coordinates the working group, with a vision to create a model for the world's most attractive cities by the use of UGS. As a central mean, the amount of greenery in Nordic cities increased, and the quality of the existing green spaces should be enhanced. This is expected to contribute to sustainable urban development within a changing climate and develop and strengthen Nordic cities' attractiveness. As specific means, the working group is commissioned to develop a suite of best-practices within urban green space planning and management, and influence the Nordic and ultimately the EU policy and strategy making in relation to future urban green space planning and development.

Boverket has commissioned the Swedish University of Agricultural Sciences (SLU) to study and document UGS management practices across the five Nordic countries. This report includes how practice relates to, and perceives contemporary challenges to UGS. The study feeds into the overall project of developing best practices.

Purpose

The purpose of this study was, on a practice management level, to create a Nordic overview of how green space managers currently perceive:
(1) urban green space development and the prerequisites for their management, and
(2) the most prominent challenges for future development of urban green spaces.

Method

Figure 1. The approximate population size distribution of the involved cities. Source: Geonames

The study was conducted using a case study approach, in which three green space managers represented local perspectives from each of the five Nordic countries. The selected managers represented the three largest urban areas in each country, excluding the capital city. The capital cities were not included because of their complexity in gaining a full overview, based on just one interviewee. By selecting three cities from each country both small and larger Nordic cities are represented in the survey.

The managers were identified using the researchers' existing networks or via snowballing through professional networks or national park management organisations. In some cases the managers were identified via the city's technical director. Those identified were the cities' formal green space representative (e.g. Head of Green Spaces, Park Superintendent, Head of Green Space Maintenance etc.).

The 15 cities included in the survey were (see also Figure 1 and 2):

- Sweden: Gothenburg, Malmö and Uppsala
- Norway: Bergen, Trondheim and Stavanger
- Finland: Espoo, Tampere and Vantaa
- Iceland: Kopavogur, Hafnarfjöröur and Akureyri
- Denmark: Aarhus, Odense and Aalbo

Results from only 14 interviews are presented, as it was not possible to identify an UGS manager in the Icelandic City of Akureyri.

All managers were interviewed via a semi-structured approach, in which six themes were pre-defined, and in some cases structured in sub-headings. The interview guide was based on recent surveys addressing municipal green space managers in Sweden (Randrup et al., 2017) and Norway (Fongar et al., 2019), which were built upon similar surveys made in the UK (Neal, 2014; 2016). For all answers, personal reflections were sought. The following themes and questions were approached:

- Roles and organisation, focusing on formal role and position within the municipal organisation.
- Discourses, focusing on the prevailing discourses regarding the UGS management.
- Status on quality and needs, focusing on how the term 'quality' is perceived, and if the sought

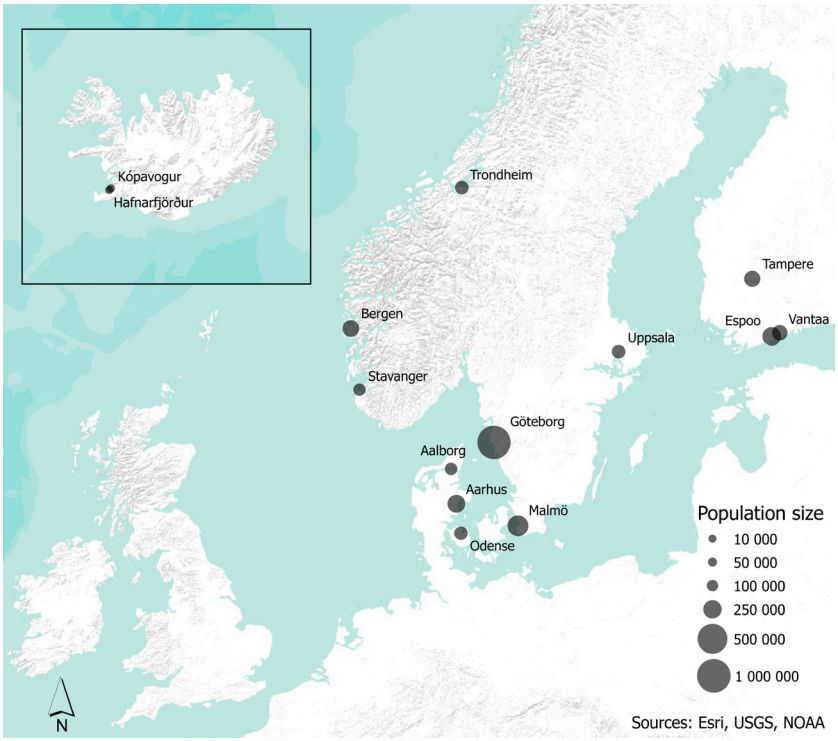

Figure 2. Geographical distribution of the involved cities, shown in relation to size. The sizes range from 26 808 to 572 799, with the two Icelandic cities all having less than 35 000 inhabitants, while the average of the other involved cities have 221 774, with Gothenburg as an outlayer. Data: Population size © Geonames

qualities are achieved today. The current budget situation was also reflected upon.
- Changes in relation to quality and needs, focusing on how quality, amounts of green spaces, sizes of green spaces and budgets have changed during the last 3-5 years, as well as how the situation was presumed to develop during the coming 3-5 years.
- Plans and strategies, focusing on the current use of strategies and plans for management of urban greens spaces.
- Wishes for future policy and/or planning documents as well as good local examples to be shared with the Nordic community.

All questions are listed in the Appendix.

All interviews were conducted via telephone or Skype, within an average duration of 1 hour per interview. All interviews were recorded and transcribed for key answers and responses. Each transcript was 3-5 pages long.

Each interview was based on the managers' current job situation, and thus, it was assessed how the manager perceived the local context. By comparing results, an overview on a Nordic level was created.

A qualitative analysis was performed, with no differentiation between cities, (e.g. in relation to size or the managers location within the organisation), in relation to the various perceptions of size, budget, use of plans etc.

On March 9-10, 2020, the initial results were discussed with the working group for Nordic Sustainable Cities 2019-2022, as well as with some of the interviewed managers. This provided valuable inputs to the discussion and perspectives of the results.

Results and discussion

In the following, the results are presented and discussed, grouped into six overall themes;

Perception of role and organisation

The UGS managers are experiencing a gradual shift further away from the political decision level. However, the managers, in general, seemed satisfied with their placement within the organisations, and especially in relation to being part of a technical department, which currently is experiencing a lot of political interest, with climate change and biodiversity as two central contemporary themes.

Figure 3 shows the organisational level for each of the managers. Six out of 14 are on level four. On level four, the manager has three executives "above them" in the organisation in order to reach the political decision level. Six out of 14 are on level three; with only two located on level two (see Figure 3). Many of the managers are positioned within the technical department, as a subunit focusing on UGS (see Table 1). Five have the title as City Gardener, eight being Head of Department/Section/Unit and one has the formal role as Production Manager.

Compared to the Nordic study performed in 2009 (Randrup & Persson, 2009), the results indicate a potential shift within urban green space management with the UGS managers positions being pushed down a level. This is by some managers perceived as a shift towards reduced power in relation to the overall policy level. There might be several different reasons for such a trend, none of which have been explicitly expressed within this study. However, one manager explained this shift with the loss of a City Gardner. The title is expressed by some managers to be an

Figure 3. Organisational level related to each city and country. Level one represents direct contact with the politicians, level two represents one executive above, level three represents two executives above etc.

City	Name	Level	Title	Department / Section / Unit
Stavanger	Torgeir Sörensen	3	Head of Department	Dept. of Parks and Roads
Bergen	Anne Berit Storheim	4	Head of Section	Section for Parks
Trondheim	Tove Haugland	4	Head of Department	Dept. of Urban Space and Green Infrastructure
Odense	Allan Back Laursen	3	Head of Department	Dept. of Roads and Parks
Aarhus	Kim Gulvad Svendsen	2	Head of Department	Maintenance Department
Aalborg	Kirsten Lund-Andersen	2	City Gardener / Head of Dept.	Department of Park & Nature
Gothenburg	Johan Rehngren	3	City Gardener	-
Uppsala	Anders Larsson	3	City Gardener	-
Malmö	Agneta Sallhed Canneroth	3	Head of Unit	Unit of City Environment
Vantaa	Pirjo Kosonen	4	Head of Unit	Maintenance
Espoo	Anne Mannermaa	4	Production Manager	Maintenance
Tampera	Timo Koski	4	City Gardener / Manager of Parks and Gardens	Unit of Green Space and Storm Water
Kopavogur	Birkir Rutson	3	Head of Department	Dept. of Streets Department
Hafnafjordor	Ingibjörg Sigurdardottir	4	City Gardener / Head of Sect.	Section of Green Spaces

Table 1. The table shows the interviewees, organisational level within the organisation, title and department, section or unit.

important part to gain power, both internally with the politicians as well as externally, as it creates a clear picture of who is responsible for the green spaces. The loss of the title City Gardener has resulted in reduced power for some managers. Thus, the title could have a potential role in "ensuring" positions. Yet, comparing the managers involved that have a City Gardener, the position within the organisations can vary largely (from level 2-4).

"This organization is worse than before because previously we had a City Gardner who was Head of Division. (…) I don´t have the possibility to impact on the larger picture. As Head of Unit I have no mandate or power in my title."

It is possible that the role of the "title" itself, is more important than what the "role" is actually expected to do. One manager describe the role as being a translator between the professional knowledge and the politicians, indicating a need to have a close relation to both the knowledge specific expertise and to the politicians. It is evident that the managers are divided between having management as a strategic theme, and primarily having focus on the operational maintenance. Most of the managers are placed within a technical department, some with budget responsibility while others have a superior strategic role, e.g. in the role as City Gardener, with no budget or personnel responsibility.

"I am a translator between politicians and professional knowledge."

The technical department is, in general, perceived as a good place to be within the organization, as this department has responsibility for many large and influential aspects within the municipal organization. In addition, political interest is perceived as visible in the technical department.

"The technical area is very visible for both politicians and citizens. This makes the area very relevant for making politics. It is a highly prioritized area and very prominent to be part of seen from a political perspective."

However, for the urban green space management to be successful, cooperation between different departments is crucial and seen as a factor for success by many managers. As the urban green spaces are something to be handled throughout the process (from planning to maintenance), many different actors and departments need to take urban green space into account.

"…. because there is a good cooperation between the maintenance and design people. We can have opinions on the design, so I think we have a good collaboration and quality."

Organisational silos would usually be perceived as hindering cooperation (see e.g. Randrup & Persson, 2009; Randrup & Jansson, 2020), but the acknowledgement of the value of independent departments within larger organisations might also be a good thing. The silos fill an important role by functioning as hub-of knowledge from where the people working within the management field can seek knowledge, support and work as discussion-forums.

"We need the silos, but we also need to shoot holes in them so others can shine in with their perspectives."

Perception of prevailing discourses

Densification is an overall trend being perceived by the Nordic green space managers. This may lead to cuts in existing green spaces, but is primarily seen as a transformation of former industrial or harbour areas, leading to new, but generally too small green spaces.

Figure 4 shows the many discourses being mentioned by the 14 managers. The various discourses have been divided into four groups, based on how many times the term was mentioned, with Densification as the dominant. Ecological perspectives of sustainability constitute another main group (climate adaptation, environmental matters, biodiversity, stormwater management and multi-functionality), while the need for a holistic approach to UGS management, and even threats to UGS constitutes the third group of discourses. The list contains numerous other discourses, all mentioned once or twice.

Densification is an important trend or discourse in most cities, affecting urban green space management in several ways. While discussing the impacts of densification, it is essential to differ between re-development of the existing city, and new developments on non-programmed or undeveloped land, as the two processes affect UGS differently. The process of re-development transform brown-fields, harbour areas and other often inner-city areas to housing or commercial sites. This change may result in new green spaces, as further shown under section *Perceived size and amount of UGS.* New developments are also often experienced as taking place on (green) spaces which are not fully programmed or without a clear purpose.

"Transformation of industrial areas is positive for the development of new green spaces."

"Green spaces have been reduced both seen from amount and size. They have exploited parts of our largest park, but there are also other green spaces being created. And when a park is being exploited, it is only the parts that are not being used, so they don´t really remove any value in that sense."

The many discourses focusing on a holistic view of urban green spaces (e.g. connectivity, strategic green, biodiversity), indicate a transition away from a local perspective on individual parks, to the need of a more strategic, and biodiversity driven approach in management.

"A change is seen from purely recreating functions to more nature, biological, biodiversity agenda. Also the health aspect is increasing."

"Nature is in increase which is a matter of changing from traditional maintenance to a more nature like impression – which is a combination of budgetary re-prioritizing and an overall increased biodiversity interest. A new impression is arising"

Perception of Quality

The most prevailing "qualities" that constitute qualitative UGS are usability and variation. Both have a clear user-oriented perspective.

A second group of quality perceptions, based on number of times they were mentioned, includes relevance, accessibility, multi-functionality, technical quality and connectivity.
Several of the mentioned qualities have focus on the user or the use of the green spaces (e.g. attractiveness and user satisfaction). However, also aspects of quality which to some degree can be perceived as technical (e.g. technical quality, accessibility (in terms of distance), and size) are perceptions being raised by the managers and argued being a critical aspect of quality of urban green spaces (see Figure 5).

Nine out of 14 managers believe that they are delivering high quality green spaces today. Five out of 14 say it is a question of both yes and no, arguing that some areas do meet the quality expectations, while others do not.

Six out of 14 managers have experienced an increase in quality during the last 3-5 years, while half (7 out of 14) have experienced a stable level of quality in the last years. Only one manager had experienced a decrease in the quality of UGS (see

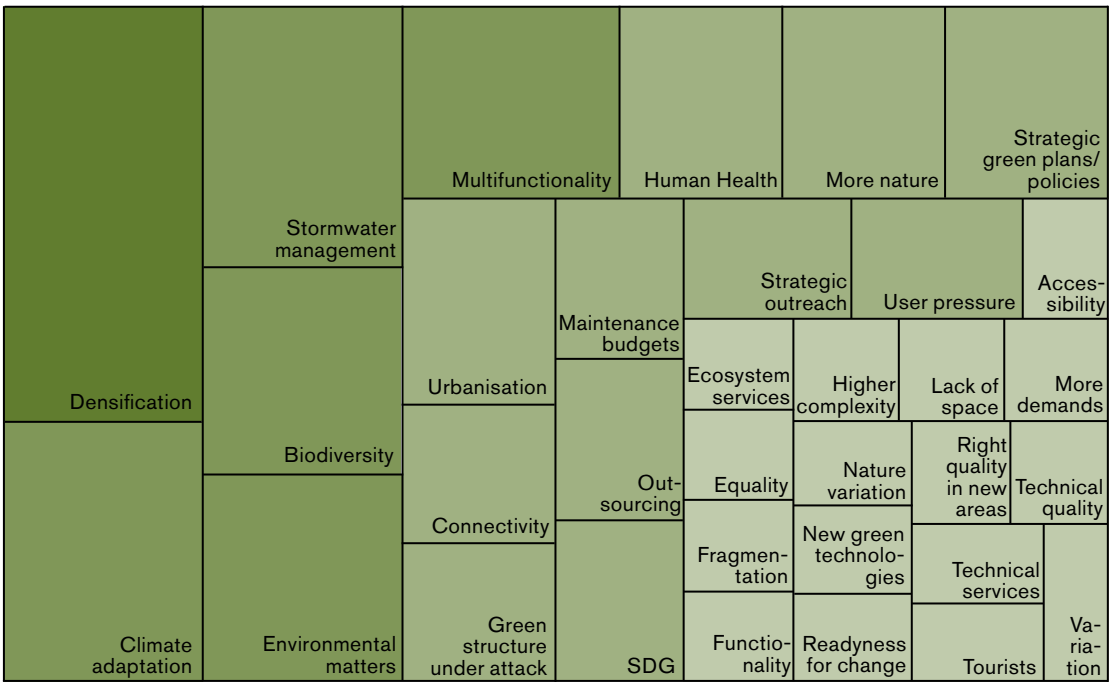

Figure 4. The diagram shows the "Words" / "Expressions" used by the green space managers to explain the dominating discourses currently percieved. The larger the box, the more times the specific discourse was mentioned.

Figure 6). There is generally more insecurity in the future regarding the upkeep of the qualities, with two managers foreseeing a decrease in quality, and two not finding it possible to project on the issue. However, almost half of the managers are optimistic towards the future, and foresee an increase in quality in the coming 3-5 years (see Figure 6).

The use of green spaces combined with user satisfaction are important factors in relation to management of UGS. Increased individualization, and an increased human demand for engagement and involvement are well described in the literature, (e.g. Buijs et al., 2016; Jansson et al., 2020), which is here being confirmed by practice.

"The use by the users is quality."

"The users are more concerned about quality than ever before."

Focusing on usability, variation, multi-functionality etc. as a quality indicator is one method to capture different needs between users specifically and citizens in general (Fors, 2018). Some managers explain that the users are also good at giving feedback about the quality, and that this often supports management. One manager argues that they have become better at understanding the use and reasons behind, making them better at improving the quality.

"Content-wise I think (the quality) has improved because we have become better to understand (the users). We see parks that are not being used, and this could be explained by many different things such as safety or access (roads separating the green areas from the people) or no content. And we are working continuously on that."

In general, there is a concern about losing quality due to the increased densification, which leads

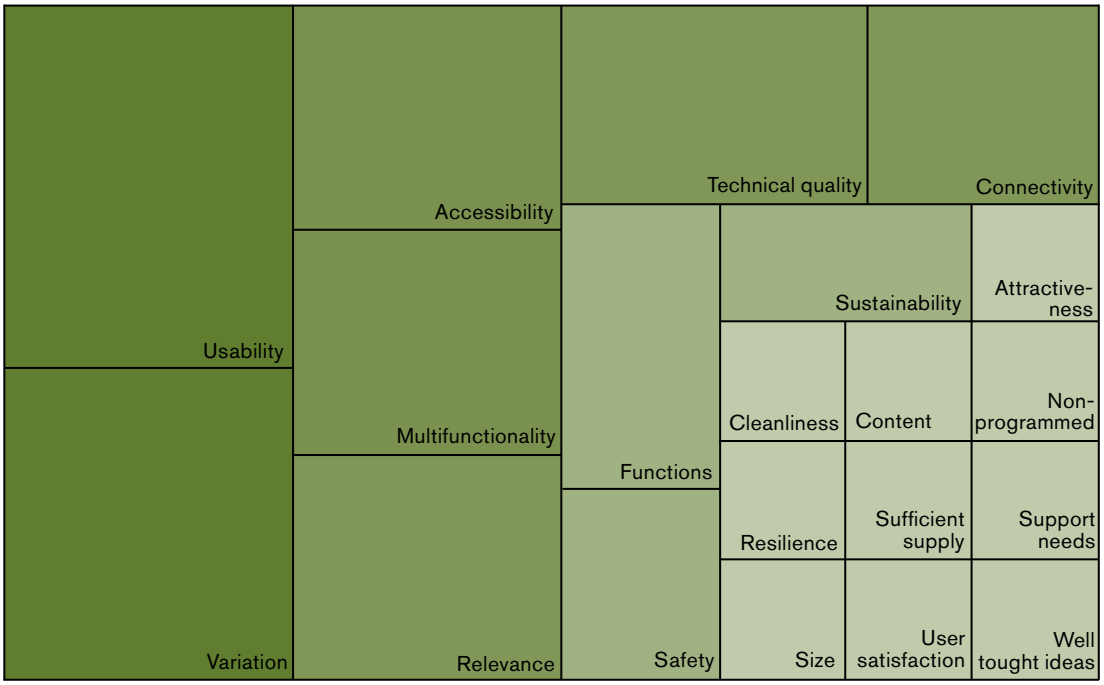

Figure 5. The diagram shows the "Words" / "Expressions" used to explain quality in relation to urban green spaces. The larger the box, the more times the term was mentioned.

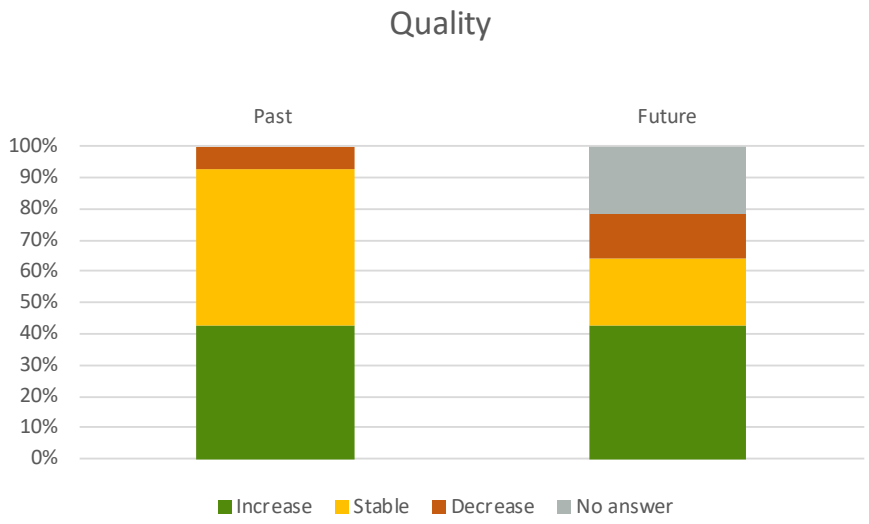

Figure 6. The figure shows the distribution of answers in relation to perceived quality during the last 3-5 years (Past), and in relation to the coming 3-5 years (Future).

to more focus on certain areas than others. There is also a fear that densification may lead to lower quality in the future by increasing the user pressure on existing green spaces. Densification is mentioned as a force for re-prioritization of resources and qualities of urban green spaces within the cities. This is done by having different kinds of quality-focus for different areas in the cities, as a way to cope with changing user pressure and pressed maintenance budgets.

"I think the quality might be reduced due to densification."

"I think we are trying to keep the quality high in built, urban areas, but we are going to lower the quality standards in the single house areas outside the more dense urban setting."

Many managers mention a transformation to more naturalistic and wild expressions in the outskirts of the cities as a result of re-prioritising resources, higher user demands and densification in central urban areas.

"One thing being looked at is to make the city more 'wild' or more sustainable – even though this is economically driven, it is something we want to work with, in any case."

However, this change in 'quality' differs between areas where the more central areas, with a high user pressure, goes in the opposite direction. Here, managers experience a shift in the materiality used in the more central urban green spaces with a tendency of more hard surfaces and reduced vegetation as a way to cope with the increasing user pressure.

"Quality has changed in terms of use of materials – a result of increased use, and the climate focus."

This transformation and re-prioritisation of resources leading to new types of quality in terms of materials and vegetation are complex. Interestingly, terms like biodiversity, ecology, and aesthetics were not mentioned in relation to defining 'quality'. One reason might be that

these values are already frequently used within the municipalities, being political organisations. Still, it may also indicate that use, user preferences and technical quality are the prevailing terms describing quality as defined by Nordic green space managers today.

Perception of size and amount of urban green spaces

It seems evident that more UGSs are being developed and that the total number of green spaces is increasing. However, the question of size has become central, as many new areas are relatively small, providing functions and use by only limited and specific user groups. In addition, despite an increase of the number of UGS, there is a general concern about how many people can be expected to be supported by a green space, as densification is increasing the number of users per UGS.

The available green spaces are in general perceived as being sufficient to meet the needs and challenges faced by the managers. Twelve out of 14 managers have experienced a net increase in numbers of green spaces during the last 3-5 years (the two Icelandic managers experience a stable amount). Likewise, 12 out of 14 believe that this trend with an increasing amount of green spaces is likely to continue during the coming 3-5 years. Two out of the 14 managers did not answer the question of future changes (see Figure 7).

Ten out of 14 managers have experienced an increase in the total size of UGS during the past 3-5 years. One manager reported no change while two managers have experienced a decrease in the total amount of UGS. One manager was unable to answer this question. Ten out of the 14 managers believe the net size will increase the coming 3-5 years, two see a stabilization, and two did not answer this question (see Figure 8).

The general expected increase in number, as well as total size of UGS, is explained by the fact that new developments usually create new green spaces as well. These green spaces may be many, but are often also small, and thus lack the quality and potential multi-functionality seen in larger green spaces (Jansson, 2014; Vaz Monteiro et al., 2016).

"I think it will increase mostly because we are building new areas and these will require some green spaces as well. Usually, it comes with the houses, roads, schools …"

"In the newly built areas we see the size as a huge problem. Usually, we get a lot of smaller areas which we see as a problem. We can´t survive on only smaller areas."

Statistics Sweden (SCB, 2019) conclude that the majority of urban green spaces (80 %) in Sweden are relatively small while the larger areas only cover 3 % in number, but 26 % in size, creating different points of departure for creating multi-functionality and withstand user pressure. In addition, the densification process may be faster than the addition of sufficient amounts of new green spaces, resulting in more users per area. Thus, both the number and size of UGS need to be understood in relation to the potential use (pressure) to evaluate their ability to maintain quality and meet contemporary needs. Thus, the more people using an area, the higher the risk for conflicts between different usages, the managers argue.

"The available space is sufficient. (But) when talking about densification, (politicians) say like 'we don´t take any more green areas', but the amount of people using the areas will increase which means that the amount of green areas per person is reduced. But this perspective is almost forgotten in the discussions."

"It leads to the question: When is a park full? How many people can have access to a single park as their closest?"

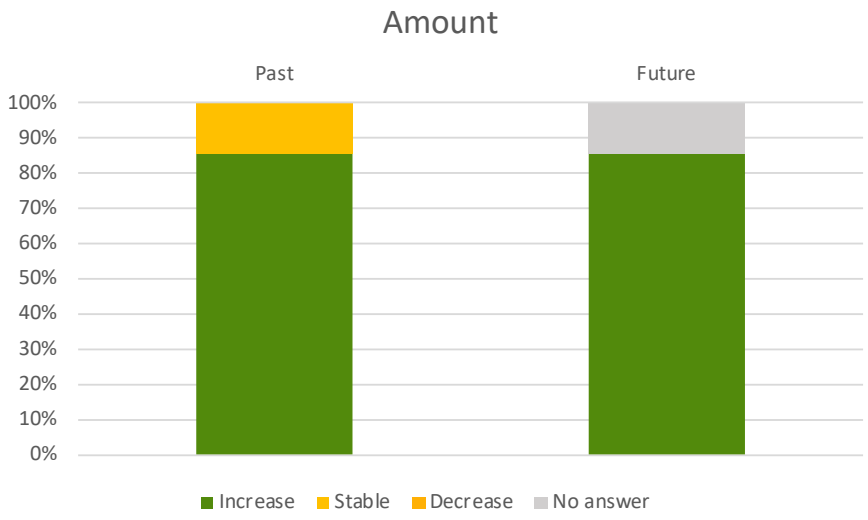

Figure 7. The past and future perceived change in number of urban green spaces.

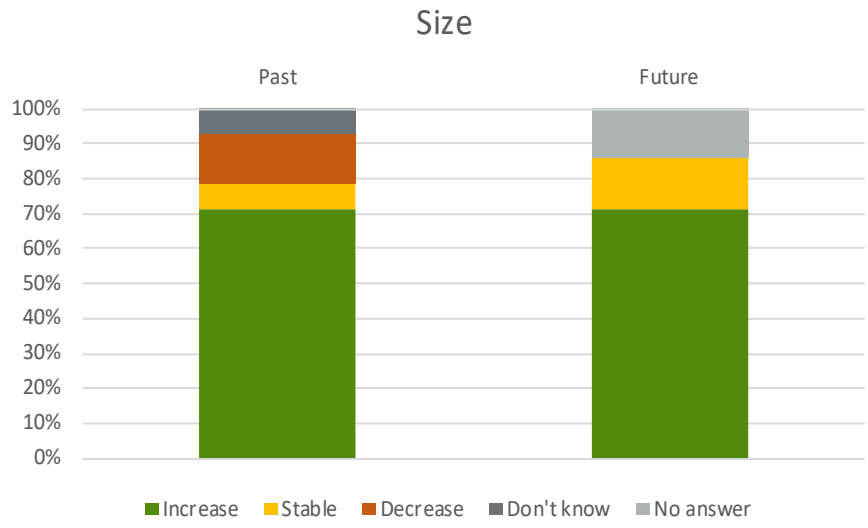

Figure 8. The past and future perceived change in the total size of urban green spaces.

Perception of budgets

Overall, the managers are experiencing new developments, but funding does not always follow long term management, nor short term maintenance. This is perceived as a major problem and may lead to an unfortunate shift of resources from existing green spaces to the newly built and prominent inner-city areas, leading to inequality issues. Another side of this is a change of expression in the existing green spaces from intensely maintained to more nature like, following, e.g. a trend like biodiversity.

The budgets are in general perceived as satisfactory, with some concerns regarding the increase of new developments, and sufficient allocations of maintenance budgets for these. Two of the managers specifically mention the difference

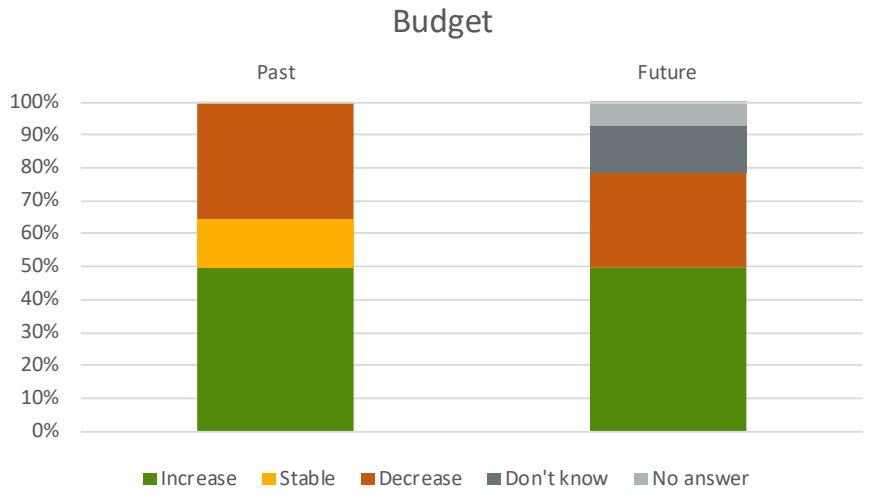

Figure 9. The past and future perceived change in the total size of urban green spaces.

between investment and maintenance budgets, with the latter being strained while the investment budgets are good.

Six out of 14 managers have experienced strained budgets during the last 3-5 years. The other six managers have experienced a stable, or even increased budget. For the future budgets, there is more uncertainty, but with about 50 % expecting an increase in the budget also in the coming 3-5 years (see Figure 9).

The UGS economy is reflecting an overall municipal economy being under pressure due to significant demographic changes (EU, 2017). In e.g. the UK and the US, maintenance budgets are being severely reduced, (Neal, 2014; 2016; Randrup & Jansson, 2020). A similar, but less significant trend has been observed in recent studies in both Sweden and Norway (Randrup et al., 2017; Fongar et al., 2019), where green space managers have perceived budgets to be fine, – compared to the UK. However, green space managers in both Norway and Sweden have indicated an increase of green spaces as well as an increase in users, and see this as a future challenge. The majority of managers in this study experienced an increase in budgets, and half of them expected budgets to increase in the near future too.

"Based on the circumstances that are given we are quite satisfied. I mean, you can´t be stupid, of course, we want to have a lot of money but we are doing good."

"At the moment we have enough budget to maintain the areas and to do some minor changes and also finance to invest in new areas."

In all the included cities, new developments have been ongoing for a while, and the managers are expecting this to continue during the next 3-5 years. Such developments generate new green spaces as well, but as a trend, while the new developments are funded, the related long term maintenance budgets do not follow the expected increased maintenance. This trend covers examples from no maintenance funding at all, to insufficient funding.

"We get an adjustment in the maintenance budget for additional areas, but this is usually accompanied by a kick-off requirement of equivalent savings. One could say that it is a bit counterproductive."

"The green areas are increasing by 2,2 % every year but our resources and money have not changed for five years. But we have more to maintain. Also, we have more complicated areas like stormwater systems that are very different and need qualitative knowledge which means we need to buy it from somewhere else. That is more expensive. We are coming to a point where we need to say that we can´t do everything you want us to do. Not with the money we have now."

It was frequently mentioned that creativity and strategic means were needed to highlight the needs for maintenance funding, but also to seek funding from new areas such as the social or the cultural departments. This also means taking resources from districts that might not have high political focus, using it for maintenance in the newly built green spaces, with the risk of creating inequality concerning the distribution of green spaces.

"It comes to a question about the equal society, the equal city. Not much is built in the outer parts of the city, but we have to take (maintenance) money from those, to use in parts with new developments. And it's rarely the groups with few resources that the new developments are aimed at. So it misallocates the resources in a way."

Maintenance budgets are in some cases now at a place where it hinders further park developments. It is not possible to spread existing maintenance funding any thinner between the parks.

"Now the situation has become so bad that we have claimed ourselves unable to develop new green spaces if we do not get increased budgets for maintenance. So, now other departments are beginning to lift this issue as well as e.g. the planning department claim that we cannot build new city district without parks."

The reduction in maintenance budgets is actually sometimes seen as a new type of quality as a new urban, and wilder nature is prevailing. While there is a lot to gain from this, it could become a challenge in relation to smaller green spaces and higher user pressures.

"Reductions in maintenance budgets will require that green spaces are maintained more effectively, meaning parks will look different in the future. This might not be a bad thing, even a good one seen from an ecosystem service perspective. It's in the places where it clashes with multi-functionality and high user pressures that challenges arise."

Plans and strategies

Even though all Nordic countries have national legislation and policies to support urban green spaces, the primary regulations and decisions related to UGS are carried out at the municipal level. There is a need for assessing and documenting hard values, and there is a specific wish to develop common methods and means for assessing such values.

All Nordic countries have legislation to support the provision of green spaces (Lidmo et al. 2020), who conclude that even though national policies often exist, primary regulations and decisions related to UGS are carried out at the municipal level, in all the Nordic countries. This is in accordance with previous findings, in e.g. Scandinavia and the UK (Randrup & Persson, 2009; Dempsey & Smith, 2014). In this study, the managers mentioned the traditional and common plans like the overall municipal plan and detailed development plans as two planning instruments always being related to UGS management. As a supplement to the overall municipal plan, most managers also mentioned sectorial plans and overall strategies linked to the green sector (linking the tactical and the policy levels, mentioned in the introduction). In addition, specific plans related to green space management and maintenance are in place in most cities. Depending on the manager, a number of plans

related to typologies (green spaces, trees, forest or nature), activities or user groups (recreation, sports, playgrounds), or ecology (sustainability, biodiversity, climate) was mentioned. For a total overview of plans mentioned, see Table 2.

There is a general frustration that green space values are often considered "soft" in comparison with, e.g., health benefits. Therefore, several managers express a wish to have more "scientific" or hard data on, i.e. the smallest advisable size of a park or a minimum percentage of open space, to strengthen the argument for urban green space provisioning. See Table 3.

While the overall policy documents, the municipal plan and the detailed development plan are mandatory and cover multiple aspects of municipal planning, the many strategies mentioned are voluntary for each of the municipalities to make. Therefore, a large variation in which strategies are highlighted is seen. It was mentioned that a way to receive more funding (a larger budget) is to create strategies that eventually are politically accepted.

"A politically accepted strategy is a substantial strategic tool for the management organization."

Most managers expressed a wish for increased Nordic cooperation in relation to UGS management. However, the importance of securing direct relevance on a local practical level was often emphasized, indicating that participation in research and development projects is of interest, but often restrained due to limited resources and lack of overall political prioritisation. However, in general it was advised that support systems on all three management levels were developed on a Nordic level, including documentation of green space values and creation of frameworks for local development of green space policies, standards for inventorying green space typologies or elements (trees, kindergartens, etc.), and/ or development of maintenance standards.

"Every city is inventing the same types of guideline values. We put lots of energy on doing the same thing. It would be great if there came out numbers ….., being more generic. A lot is common for the Nordic cities. Now, these values need to be adjusted to be accepted on a politically level in each city - leading to modifications and compromises. (We need) a document that is not based on local political decisions…."

Spatial plans	Strategies/Programs/Agendas
Plan documents • City Master Plan • Detail Plans • Plan Strategy (DK)	Management approaches • Park plans / policies • Maintenance - operational
Sectorial plans • Green Structure Plan • Climate adaptation / Blue – Green • City / City Center	Typologies • Green Spaces / Green Areas • Urban Trees / Inventories / Planting • Meadows & Forests • Nature conservation
Overall strategies • Plan for DK's largest green city • Greenest city in Norway	Activities / user groups • Recreation • Active meeting places • Dog Parks • Sport facilities • Playgrounds
	Ecology • Sustainability • Ecosystem Services • Biodiversity • SDG's • Climate (Blue – Green)

Table 2. List of plans and strategies related to urban green space management, mentioned by the managers.

Support – Policies and ”how to”	Amount
Hard values on green spaces	5
Legal support for green spaces	5
Best Practise	2
Land use Guidelines	2
Nordic Park Policy Framework	2
Strategy for access for all	2
Climate questions - how to deal with it!	1
Regulations on social and recreational values	1
Strategy for maintenance	1

Support - Activities	Amount
Nordic network exchange	5
Green year of the EU	1
More Nordic activity in Iceland - to lift political awereness	1
On-line exchange / learning	1

Table 3. List of wishes for new policies or guidelines to be developed for better green space management.

Conclusion

This study identified four interdependent themes, or trends affecting the larger Nordic cities' UGS management;

1: Densification, smaller areas and increased use

Densification of urban areas is seen as a challenge as it potentially leads to smaller green spaces, while also increasing user pressure on available spaces. The increase of people using the spaces, together with a need for other vital contemporary focus areas and functions (such as storm water management and biodiversity), is creating a demand for multifunctional spaces. However, the lack of space for different usages is forcing cities to increasingly program the UGS, limiting the possibility for more self-organised activities and thus putting the multi-functionality at risk. (e.g. a multisport arena instead of a lawn which also could be used for leisure/picnic).

Densification is also seen as the main driving force for increasing both the amount and net size of UGS within the cities, mainly from new developments. Often these new green spaces are perceived to be too small to support all the needs that are required from a green space. Thus, the impact densification has on UGS management needs to be considered from both a large scale perspective (e.g. connectivity and networks) as well as how green spaces are affected (e.g. size and content) to ensure the qualities are sustained in relation to user pressure.

Other discourses than densification are focusing on the creation of a holistic view of urban green spaces (e.g. connectivity, strategic green, biodiversity), which indicate a transition away from a local perspective on individual parks, to the need of a more strategic, and biodiversity driven approach in UGS management.

2: User perspectives are powerful and manifold

Users are seen as the most important stakeholders in UGS management. The users are getting increasingly more aware of the values of urban green spaces, and therefore require more from their surrounding environment. Spaces being used by citizens is seen as an important indicator for green space quality and the feedback from users help to understand and guide management needs. An important issue raised is representation in relation to actual use and feedback in relation to preferences.

The increasing pressure from densification, together with user's different needs and various political discourses (e.g. biodiversity, climate, health), is creating a trend for multi-functionality of the urban green spaces. However, increased multi-functionality is also challenging in terms of securing access, and overall managerial responsibility (including funding), e.g. when an area is both a schoolyard and a storm water facility. As the user pressure is the highest in the more central areas with a shift towards more hard surfaces and less vegetation, the more decentralized UGS is also experiencing a new appearance. In the urban periphery, an opposite trend is emerging based on a wish to increase biodiversity, while also saving funding for maintenance. This dual trend, results in an increased amount of 'urban nature', less programming, and thus increased multi-functionality especially in the more peripheral green spaces.

3: Areas are increasing, but budgets are not following

The available urban green spaces are increasing due to new developments. There are, however, several issues related to this. One cause for concern is the need to understand available size

from different perspectives. The increase in net size is a valuable addition in the cities but it is not sufficient to support all the various needs and demands expressed by the users. Therefore, it is also vital to understand the size and distribution of the individual spaces in order to judge the UGS ability to sustain the right qualities. Despite an increase in the net size of UGS, the size of new green spaces is perceived to be too small to sustain all the different needs deriving from the increasing amount of users, and users general understanding of their right to the UGS. The increased pressure on too small areas, especially in inner-city areas, is creating a new appearance with use of a materiality able to withstand the increased wear and tear, often leading to more hard surfaces and less vegetation.

There is reason to be concerned about future funding for especially UGS maintenance. The challenge seems to be that lack of sufficient maintenance funding requires managers to prioritise between different UGS. Some managers argue that this leads to a question of equality where money from the maintenance budget is allocated from existing areas (usually economically weaker areas) to the newly developed areas (usually economically stronger areas).

4: Facts, indicators and politically adapted UGS strategies are needed

Even though all Nordic countries have national legislation and policies to support urban green spaces, the primary regulations and decisions related to UGS are carried out at the municipal level. Several managers mention the need for assessing hard values, e.g. types of minimum requirements or quotas, especially when explaining the values of UGS for politicians and arguing for the values of UGS with other municipal sectors. In line with this, there is a specific wish to develop common methods and means for assessing such values on a national or Nordic level.

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Appendix: Interview guide

Perception of role and organisation

- Can you describe your position / 'location' within the organisation?
- Which pros or cons do you see with this type of organisation?

Perception of prevailing discourses

- Which discourses are prevailing today - concerning urban green spaces?

Perception of Quality

- What is 'quality' in relation to urban green spaces?
- Do the urban green spaces in XX have those qualities today?
- How do you think that the quality of the urban green spaces has changed the last 3-5 years and how do you think that the quality will change the coming 3-5 years?
- Which qualities do you think will be most affected by such changes?

Perception of size and amount of urban green spaces

- Do you think that today's range of urban green spaces (in terms of number and size) meets the needs and challenges the city is facing?
- Have you experienced an increase or decrease regarding the amount of (number of) urban green spaces the last 3-5 years?
- How do you think the amount of (number of) urban green spaces will change the coming 3-5 years?
- Have you experienced an increase or decrease regarding the size of urban green spaces the last 3-5 years?
- How do you think the size of urban green spaces will change the coming 3-5 years?

Perception of size and amount of urban green spaces

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- How do you think the amount of (number of) urban green spaces will change the coming 3-5 years?
- Have you experienced an increase or decrease regarding the size of urban green spaces the last 3-5 years?
- How do you think the size of urban green spaces will change the coming 3-5 years?

Perception of budgets

- Do you consider the budget set for urban green space management to be sufficient to meet the needs and challenges the city is facing?

- Have you experienced a change in the budget the last 3-5 years, and how do you think that the budget will change the coming 3-5 years?

Plans and strategies

- Which strategies/plans do you use to manage urban green spaces?
- Do you work with other policies/ guidelines/ support (e.g. the green space factor) to ensure the creation and/or preservation of greenery during exploitation?
- If you were to have a Nordic policy or support from the EU, which could facilitate your work and contribute to greener cities, what could it be in concrete terms?

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