

An aerial photograph of a rural landscape. In the foreground, there is a dense forest of green coniferous trees. Behind the forest, a large field is planted with young, small evergreen trees in a grid pattern. Further back, there are large, flat agricultural fields, some of which are brown, suggesting they have been harvested. Several tall, white wind turbines are scattered across the landscape, with a few prominent ones in the mid-ground and others visible on the horizon. The sky is overcast and grey.

Changes to agricultural land use in the Nordic countries

And future prospects for collaboration



Nordic Council
of Ministers

Contents

Foreword	3
Executive summary	4
Background	5
Chapter 1 Agricultural land use in the Nordic countries	7
Chapter 2 Mechanisms to handle land use disputes	16
Chapter 3 The planning systems and current policies affecting agricultural land use	21
Chapter 4 Potential for Nordic cooperation on agricultural land use	30
Bibliography	33

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Foreword

During this decade, the global food system has experienced several shocks, including the COVID-19 pandemic, climate change, the Russian invasion of Ukraine, and inflation.^[1] These recent shocks have elevated food security on the political agenda globally, including in the Nordic countries.

Areas where food is produced are a scarce resource and the amount of agricultural land is decreasing globally. At the same time, repurposing agricultural land is at times necessary to meet society's other goals and needs. For example, the development of green industry and energy is increasing pressure on land use. This raises questions about the importance of agricultural and arable land and how it should be managed.

The Nordic countries have a long tradition of cooperating to find solutions to common challenges. Meeting the challenges of land use and managing multiple needs of society while still maintaining national food security can be helped by increasing exchanges among the Nordic countries on how land use can be managed.

A discussion on land use and the reduction of agricultural land recently emerged among the Nordic countries. This report is a result of the discussion, aiming to promote further dialogue and recommendations for future cooperation.

1. International Food Policy Research Institute (IFPRI), *Global Food Policy Report 2023: Rethinking Food Crisis Responses* (Washington, DC: IFPRI, 2023), DOI: <https://doi.org/10.2499/9780896294417>

Executive summary

The area of land used for agriculture have been reduced in all Nordic countries since 1960. Recently, this trend has slowed but it has not stopped. However, new land use demands are emerging in all Nordic countries. There is a high demand for green energy infrastructure, including solar and wind parks. International commitments on nature conservation, biodiversity and to lower land use-related emissions have increased.

All Nordic countries share similar planning systems that put the main responsibility with the local authorities. But the countries differ in what type of national steering mechanisms they have to influence or regulate local planning. This offers the possibility of learning among countries on how different policy instruments can handle new land use demands. In some areas, a common knowledge base would facilitate cooperation among the Nordic countries within crisis management. This includes development of soil maps of potential arable land and pastures and common definitions of soil quality.

From discussions with senior officials and researchers in the Nordic countries, the following prospective topics have been identified for Nordic collaboration around agricultural land use:

- National policy development, focusing on the following problem areas:
 - How can demands for green energy infrastructure, including solar and wind parks, be handled on a national level to ensure that different goals of land use can be met?
 - How can national policy and processes be improved to ensure holistic and sustainable policies for land use and avoid non-essential development on agricultural land?
 - What role does agricultural and arable land play in crises: how can it be managed in preparation for and used during crises?
- Solutions for urban development and densification
- Development and alignment of soil and landscape data
- Models and methods for stakeholder engagement, mediation and prioritisation during goal conflicts.

Background

During this decade, the global food system has experienced several shocks, including the COVID-19 pandemic, climate change, the Russian invasion of Ukraine, and inflation.^[2] These recent shocks have elevated food security on the political agenda globally, including in the Nordic countries.

Areas where food is produced are a scarce resource and the amount of agricultural land is decreasing globally. At the same time, repurposing agricultural land is at times necessary to meet society's other goals and needs. For example, the development of green industry and energy is increasing pressure on land use. This raises questions about the importance of agricultural and arable land and how it should be managed.

The Nordic countries have a long tradition of cooperating to find solutions to common challenges. Meeting the challenges of land use and managing multiple needs of society while still maintaining national food security can be helped by increasing exchanges among the Nordic countries on how land use can be managed.

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Methods

This report has been written iteratively, meaning that data has been collected, interviews conducted, and comments requested until reaching a satisfying result. This process has tried to answer the following questions:

- How has agricultural land use changed in each country?
- What planning systems exist in the Nordic countries, and what differences and similarities exist among them?
- How are disputes concerning land use handled in the Nordic countries?
- What current policies are in place to protect or prioritise agricultural land use in the Nordic countries?
- What are the current political processes and prioritisations around agricultural land in the different countries?

2. International Food Policy Research Institute (IFPRI), *Global Food Policy Report 2023: Rethinking Food Crisis Responses* (Washington, DC: IFPRI, 2023), DOI: <https://doi.org/10.2499/9780896294417>

Data on agricultural land and land use change has been gathered from the national statistical databases in each Nordic country. Where comparable data on agricultural land has been needed, this has been collected from the Food and Agriculture Organization (FAO). Further information has been gathered by scoping academic articles, reports and official websites. Several expert interviews with state officials and researchers in the Nordic countries have also been conducted.

Structure of the report

[Chapter 1](#) overviews the state of agricultural land use in the Nordic countries.

[Chapter 2](#) presents mechanisms to handle land use disputes in each Nordic country, mainly focusing on how national interests and local interests are negotiated.

[Chapter 3](#) presents the main principles and regulations for planning in the Nordic countries and assesses measurements regarding agricultural land use. [Chapter 4](#) recommends areas for future Nordic cooperation and dialogue.

Chapter 1

Agricultural land use in the Nordic countries

This section overviews the state of agricultural land and reasons for its reduction in the Nordic countries. In cases where data is available, main reasons for changes to non-agricultural land uses are presented. However, the focus is mainly on which land use types are considered to compete with agricultural use and which land use are prioritised politically.

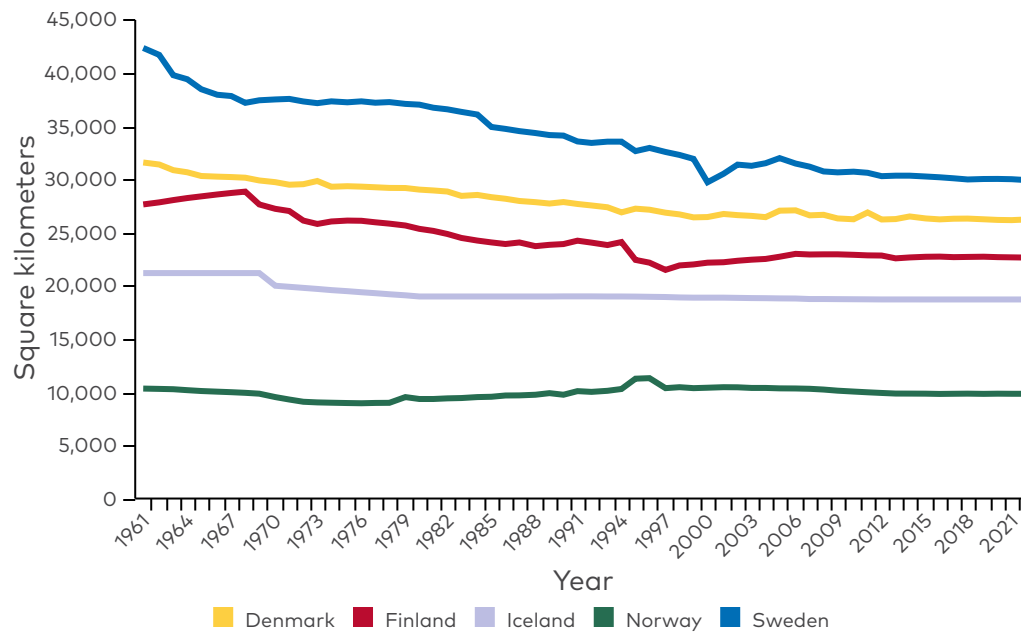


Figure 1: Agricultural Land Use in Denmark, Finland, Iceland, Norway and Sweden
Source: FAOSTAT, Food and Agriculture Organization, [www.fao.org/faostat].

Table 1: Agricultural Land Use in Denmark, Finland, Iceland, Norway and Sweden

Agricultural land (km ²) Year/ Country	Denmark	Finland	Iceland	Norway	Sweden	Total (Nordic region)
1962	31,410	27,851	21,200	10,310	41,720	132,491
1972	29,560	26,137	19,810	9,100	37,340	121,947
1982	28,870	24,877	19,000	9,420	36,600	118,767
1992	27,560	24,065	19,010	10,030	33,440	114,105
2002	26,650	22,360	18,870	10,460	31,399	109,739
2012	26,240	22,851	18,722	9,928	30,315	108,056
2022	26,240	22,660	18,720	9,850	29,950	107,420

Agricultural land in the Nordic Region has declined by 25,071 km² (approximately 19%) over the past six decades. In the most recent couple of decades the rate of decline has slowed, but not completely stopped. Between 2002 and 2022, agricultural land in the Nordic region decreased by 2,319 km² (approximately 2%). The potential for maintaining active agricultural land varies between the countries, primarily due to differences in geographic conditions. For the same reason, the balance between cropland and pasture also differs across the Nordic countries.

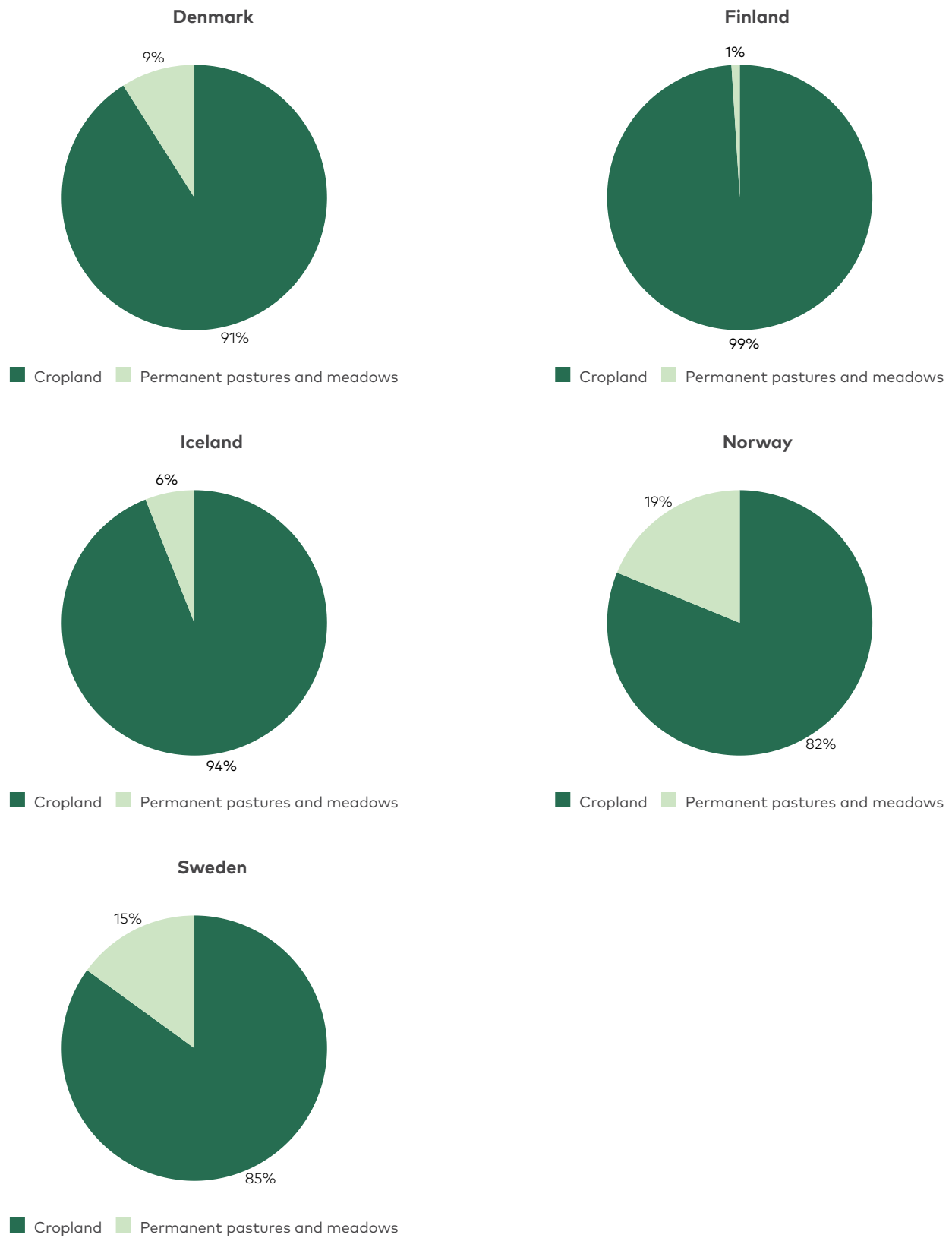


Figure 2: Distribution of agricultural land type 2022

Data source: FAOSTAT, Food and Agriculture Organization, [<http://www.fao.org/faostat/>].

Denmark

Denmark has a flat landscape and fertile soils optimal for agricultural production. This has made Denmark one of the most intensively cultivated countries in Europe, with approximately 60% of its land used for agriculture.

Much like other countries, agricultural land area has declined in Denmark, as other uses compete over the same land. The reduction of agricultural land has however slowed in the last 10–15 years. According to Statistics Denmark, areas for buildings, roads, railroads and other traffic-related facilities increased by 272 km² between 2011 and 2021.^[3] However, there is geographical variation in where areas for buildings and infrastructure have increased. Another land use that increased during this period is natural areas such as heaths, dunes, bogs and meadows. The area of agricultural land decreased by 2.7% during the same period.

There is a growing focus on nature and environmental considerations that must be balanced with Denmark's large agricultural areas. At the same time, the green transition requires sustainable energy sources and biological resources. Increasing demand for bio resources, including afforestation competes for land. Competition for land use related to energy production is expected to further increase. Denmark has a number of politically determined targets concerning land use. Among them is an ambition to restore the natural hydrology of 100,000 hectares of peatland and surrounding areas before 2030 to reduce greenhouse gas emissions, expansion of renewable energy on land including wind turbines and solar panels, afforestation, carbon capture, and production of advanced fuels (power-to-X). The Danish government is also planning a proposal to plant 2500 km² of forests.^[4] In 2017, the private Danish Board of Technology estimated that 140% of the total Danish land area would be needed in 2050 to fulfil adopted policies related to agriculture, nature, climate, infrastructure, etc. at the time.^[5] More recently, the private think tank Concito has estimated that meeting Danish political ambitions will require changing land use on 9 to 43% of the Danish land area.^[6]

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3. Statistics Denmark, *Landbrug 2022 – foreløbige tal* [Agriculture 2022 – Preliminary Figures], February 22, 2023, <https://www.dst.dk/Site/Dst/Udgivelser/nyt/GetPdf.aspx?cid=49422>.
 4. Denmark, Government of, *Regeringsgrundlag: Ansvar for Danmark* [Government Platform: Responsibility for Denmark], December 14, 2022, <https://www.stm.dk/statsministeriet/publikationer/regeringsgrundlag-2022/>.
 5. Finn Arler, Michael Søgaard Jørgensen, and Esben Munk Sørensen, *Prioritering af Danmarks Areal i Fremtiden: Afsluttende Rapport fra Projektet* (København: Fonden Teknologirådet, 2017), <https://teknologiradet.dk/app/uploads/2017/04/Areal-afslutningsrapport.pdf>.
 6. CONCITO, *Danmarks Arealer – Danmarks Fremtid* (København: CONCITO, 2023), <https://concito.dk/files/media/document/Danmarks%20Arealer%20-%20Danmarks%20Fremtid.pdf>.

Faroe Islands

No official data is available on agricultural land in the Faroe Islands, but the Faroese Islands Agricultural Agency estimates that it covers approximately 5–6% of the total land area, which is around 1,400 km². In addition, a large portion of the remaining open land is used for food production in the form of livestock grazing, primarily sheep.

Over the past 50 years, Faroese society has undergone significant modernization, during which much of the former agricultural land has been repurposed for various types of development. Both the historic and more recent settlements are, in most cases, located on the highest quality agricultural land. As a result, the continuing development of communities has often led to the irreversible conversion of cultivated or grazing areas near the original settlements.

The Faroe Islands have experienced population growth of over 20% since the turn of the millennium, as well as substantial economic growth in the same period, where GDP has almost tripled (increased by over 250%) during the same period. This has contributed to the extensive reallocation of agricultural land, particularly for housing and related infrastructure.

In recent years, new development interests – such as wind and solar energy parks, fish farming facilities, and tourism infrastructure – have become increasingly visible and are now central issues in land use debates in Faroe Islands.

Finland

Finland is the most forested country in Europe, with 75% of its land covered by forests. Agriculture makes up a smaller proportion of the country's bioeconomy. Agricultural land amounted to 22,680 km² in 2021, which represents around 7.5% of the country.^[7] While forestry has received a lot of the political and public focus, advocacy for preserving agricultural land has recently increased in Finland. This advocacy has mainly revolved around food production and food security.

Agricultural land has decreased in Finland, hitting a low point in 1997. The total amount of agricultural land in Finland has been consistent since then. The agricultural sector has battled a continued trend towards fewer farmers and larger agricultural units. This change has been especially prominent in the last decade. According to statistics provided by the Natural Resources Institute Finland (LUKE),

7. Food and Agriculture Organization (FAO), *FAOSTAT*, "Land Use", [<http://www.fao.org/faostat/>].

there were almost 59,500 farmers in Finland in 2010, but by 2022 the number had fallen to just under 43,600.^[8] This has also led to agricultural units becoming inactive.

In 2021, the national inventory on greenhouse gases showed that land use, land-use change, and forestry (LULUCF) became a net emission source in Finland for the first time.^[9] Land use policy is therefore often focused on LULUCF which comes with directives from the EU to increase biodiversity and wetland restoration.

Farmers' big worry has been the conversion of agricultural land into green energy infrastructure – especially wind turbines (foresters have similar concerns) and the accompanying high-voltage electrical lines that are usually above ground. More recently solar farms have put additional pressure on areas currently used for food production. The issue of compensation for land area that is used for green energy infrastructure has also been raised.

Greenland

Greenland is the world's largest island, with a total area of 2.2 million km². Most of the land consists of untouched tundra and mountainous landscapes, characterized by cool temperatures and short growing seasons. Agricultural activity in Greenland primarily revolves around sheep farming. Cultivation of vegetables, potatoes and winter feed for livestock takes place only in southern Greenland, where the subarctic climate makes such agriculture possible for domestic use.^[10]

According to data from the Nordic Statistics Database, agricultural land in Greenland consists solely of permanent pastures, totalling 12 km² in 2023. In 2001, the area of permanent pastures was estimated to 8 km², representing a 50% increase over the past 12 years. In practice, sheep graze over large areas due to the absence of private land ownership in Greenland, which allows for common land use rights.

As in other Nordic countries, the number of sheep farms has decreased in recent decades, while the size of individual farms has increased.

So far, there have been no significant disputes concerning agricultural land in Greenland. However, growing interest in raw materials is expected to lead to potential disputes between resource extraction and other land uses, including grazing areas.

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8. Natural Resources Institute Finland (Luke), *Structure of Agricultural and Horticultural Enterprises*, "Number of Agricultural and Horticultural Enterprises by ELY Centre", [<https://www.luke.fi/en/statistics>]
 9. Statistics Finland, *Greenhouse Gas Emissions in Finland*, "Classifications Used: Emission Category, Greenhouse Gas", [<https://stat.fi/en/statistics/khki>].
 10. Grønlands Statistik, *Grønland i tal 2024* (6th ed.; Nuuk: Grønlands Statistik, 2024), [<https://stat.gl/publ/en/GF/2024/pdf/Greenland%20in%20Figures%202024.pdf>]

Iceland

The agricultural landscape in Iceland is dominated by pastures, due to its tradition of sheep herding and an unfavourable climate for farming. The cropland is mostly used for production of hay, but there is also a share of barley and potatoes. There is interest in developing the agricultural sector in Iceland, but arable land competes with other interests, much like the other Nordic countries.

The amount of cropland has been relatively stable over the last few years. Between 1990–2020 cropland declined by 26 km² according to Statistics Iceland. Areas for settlements, such as housing, transport infrastructure and facilities, increased by 134 km² over the same period. Other land use types that have increased over the last three decades are forests and grasslands, while areas classified as arid land and wetlands have decreased.^[11]

There is a growing concern around issues related to land use and agricultural resources, similar to the other Nordic countries. One example is a growing interest in forest plantations for carbon sequestration. In Iceland, land is relatively cheap, which makes it feasible for private and foreign interests to become increasingly influential on Icelandic land use. Tourist industry growth resulting in increased land pressure has sparked some conflict over land use. Since LULUCF is the largest component in Iceland's greenhouse gas emissions, discussions on land use often revolve around grassland, wetland restoration and forest recovery. Widespread soil erosion has resulted from both anthropogenic and natural causes over centuries, particularly wind and water erosion. The need for land restoration is therefore pressing. While it is a common perception in Iceland that land is abundant, degraded soils restrict potential land use. The conversation on how climate change will affect agricultural land and the country's food production is in its initial phase and was considered in the country's first food policy in 2020. This is also a key element in planning climate change adaptation for agriculture.

Norway

The share of agricultural land in Norway is small compared to other Nordic countries, mostly due to its landscapes of deep valleys, high mountains and climatic limitations. The amount of agricultural land in Norway has been relatively stable since the end of World War II, due to establishment of new agricultural land to offset losses to other purposes. Political efforts have been made in the last few years to preserve agricultural land and is believed to have slowed the decline.

Data on land reallocated from agriculture to other purposes is collected by Statistics Norway. Since 2015, the main reason for development of agricultural land

11. Statistics Iceland, "Land Use Change for Iceland 1990–2020," news release, November 18, 2022, <https://statice.is/publications/news-archive/environment/land-use-change-for-iceland-1990-2020/>.

is the establishment of transport facilities and technical infrastructure. In 2022 the establishment of transport facilities and technical infrastructure consumed about 1.1791 km² (1179.1 decares) of agricultural land, while housing occupied about 0.6521 km² (652.1 decares) of agricultural land.^[12] Another common fate of agricultural land is the establishment of forests. In addition to data covered by Statistics Norway, NIBIO produces a map (AR5) that shows land resources with an emphasis on the production base for agriculture and forestry. However, it has become known that the agricultural area in Norway is smaller than what appears in these statistics. For example, in northern Norway there is a current issue of abandoned agricultural units still being categorized as agricultural land in national statistics. Work to make the statistics more accurate is ongoing.

In Norway, the green energy transition has accelerated the debate on optimal land use. This includes discussion of land for green energy, recreation, biodiversity and LULUCF. Construction of cabins has increased in Norway, which has also increased conflicts, for example with reindeer husbandry. Landowners' increased interest in establishing solar parks has also spurred a debate on the current lack of legislation protecting agricultural land. Preparedness for crises is a common argument for conservation of agricultural land, and the use and management of inactive agricultural land as contingency areas is under discussion. Additionally, soil conservation in Norway now receives more emphasis as a precaution for sustainability and its importance in terms of biodiversity.

Sweden

About two thirds of Sweden is forested. Around 7% of the land area is agricultural, but this is concentrated in the southern parts of the country.

Between 2016–2020 about 10% of lost agricultural land was a consequence of development. The rest is primarily land that is no longer cultivated and is slowly converted. Such regenerated forests can become arable land again without too much effort if needed in the future, which cannot be done with developed land. Buildings account for the majority of development on agricultural land in Sweden followed by roads and railways. The proportion of agricultural land developed with buildings has increased during 2016–2020 compared to previous periods. Housing, detached houses in particular, make up the majority of developed agricultural land.^[13] There are however large geographical variations. In the last couple of decades, most development of agricultural land has occurred in southern and western Sweden. In recent years, a larger part of the development has taken place around the urban areas than previously.

12. Statistisk sentralbyrå (SSB), *Omdisponering, etter dyrka eller dyrkbar jord, formål og lovanvendelse (K) 2015 - 2024*, <https://www.ssb.no/statbank/table/11776/>.
13. V. Ljungström and Å. Svensson, *Exploatering av jordbruksmark 2016–2020* (RA21: 8; Jordbruksverket, 2021), https://www2.jordbruksverket.se/download/18.3fe46a3117be21208098aeae/1631785978822/ra21_8.pdf.

Debate has increased on development of and decrease in agricultural land in the last 10–15 years. There have been more cases of conflict, where municipalities' plans to develop agricultural land have been taken to court. The appeals against municipal plans have been made by individuals and cannot be made by the state. Increased offers from solar companies to farmers have also caused a debate in Sweden. There are market incentives for agricultural landowners to establish solar parks instead of producing food. Legislation and administrative infrastructure to deal with this change by the state is lacking. The importance of protecting agricultural land has been raised by officials at the Swedish Board of Agriculture and the Swedish Contingencies Agency from a preparedness perspective.

Åland Islands

Åland Islands is made up of an archipelago of 6,757 islands. Most of the landscape consist of cliffs, heathlands and forests. According to data from the Nordic Statistics Database, agricultural land accounted for 12.7% (198 km²) of the total land area in 2023. Of this, 136 km² was cultivated land in the same year. With a total surface of 1,581 km², cultivated land represents approximately 8.5% of Åland's land area.

Cultivated land has marginally decreased over the past three decades. In 1995, there were 142.8 km² of cultivated land, compared to 136 km² in 2023 – a reduction of approximately 5%. However, during the same period, land used for permanent pastures and meadows increased by nearly the same proportion, growing from 50 km² in 1995 to 63 km² in 2023.^[14]

There are no published statistics identifying the main reasons behind shifts from agricultural use to other purpose. However, officials have observed a trend in which smaller agricultural units are decreasing in Åland and the surrounding archipelago, often leading to the associated cultivated land reverting to a natural, uncultivated state. They also see a slight trend toward the establishment of larger agricultural units, which sometimes involves developing new cultivated land.

Competing interests that could influence agricultural land use include the protection of biotopes, ancient monuments and other cultural remains that aren't protected by law, but where discussions sometimes arise regarding their potential value and whether they should be preserved. In general, the use of agricultural land has not sparked significant debate in Åland. Land use issues related to wind and solar power, as well as environmental concerns like fishing quotas, are more commonly debated and is of interest to discuss on a Nordic level for Åland.

14. Ålands statistik- och utredningsbyrå (ÅSUB), *Användning av åkerarealen 1995–2024*, <https://www.asub.ax/sv/statistik/statistikdatabasen>

Chapter 2

Mechanisms to handle land use disputes

In all eight Nordic countries the main responsibility for planning lies with local authorities. This chapter mainly focuses on how differentiating interests between the national state and local authorities concerning land use are handled in the Nordic countries and what policies and legal tools are applied. Generally, in the Nordic countries private interests in land use conversion in a specific area are managed by local authorities.

Denmark

In Denmark, municipalities have the main responsibility for spatial planning, including urban development. The municipal council can decide to expand zones for leisure and urban purposes at the cost of agricultural land and dedicate new areas to technical installations and infrastructure. The allocation of such areas must cohere with national law (urban growth regulation) and is subject to a strategic environmental assessment.

The Planning Act establishes the principle that urban development should occur from within and expand outward. This means that areas for urban growth should be directly adjacent to existing urban areas. The rules for urban growth further imply that municipalities may not designate more new areas for future urban expansion than they are expected to need in the coming 12 years. However, municipalities have the option to reallocate areas to different land uses.

The national government has the authority to intervene in certain cases of local planning regarding national interests and exercise national planning powers. According to the Planning Act the Minister for Rural Areas has an obligation to object to municipal plans conflicting with national interests. Furthermore, any minister may object to a proposed local plan on the basis of special considerations (concerning the exercise of authority or national interests) that the minister in question handles. If the national government raises an objection, the municipal council cannot adopt the proposed plan.

Objections between the national government and the municipality are often resolved through dialogues adapting the proposed plans to the relevant national interests or special matters. Municipal and local plans can also be disputed legally through the Danish Planning Board of Appeal. The board is in charge of, among

others, complaints under the Planning Act and the Environmental Impact Assessment Act. The board's mandate to make decisions in cases where disputes have arisen means that it plays an important role in the interpretation and practical definition of the Planning Act and other acts. Decisions from the board are final unless the board's decision is brought before the courts. However, it is possible to bring the board's decisions before the courts.

Faroe Islands

Physical planning in Faroe Islands is primarily regulated by the 'Lagtingsloven' on Urban Planning and Building Regulation from 1954.^[15] In addition, the redistribution of agricultural land for other purposes is, in certain cases, also governed by the 'Lagtingsloven om Naturfredning' from 1970,^[16] the 'Lagtingsloven om Miljøbeskyttelse' from 1988^[17] and other specific legislation.

The 'Lagtingsloven om landsjorden'^[18] regulates publicly owned land. Approximately half of all agricultural land in the Faroe Islands is publicly owned. This law states that when land is being sold for purposes other than agricultural use, the Faroe Islands Agricultural Agency ('Búnaðarstovan') must prioritize the sale of low-quality agricultural land over high-quality land. However, when land redistribution aligns with existing planning legislation, this prioritization is often difficult to enforce. Proposals that have been approved by the minister ('Landstyremanden') are legally binding.

Interventions in the outback (the areas outside the old settlements) are legislated by both the 'Lagtingsloven' on Urban Planning and Building Regulation and the legislation on nature conservation. In some cases, additional permits are required under environmental law and other special regulations.

Finland

Land use planning in Finland is guided by the Land Use and Building Act. Spatial planning is mainly governed by the municipalities who develop local master plans and detailed local plans. The municipalities must consider both regional plans and national land use guidelines when developing local plans. The Ministry of the Environment promotes and monitors the implementation of national interests in planning decisions. Municipal planning is supervised by the Centres for Economic Development, Transport and the Environment. These are national government

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15. Løgtingið, *Løgtingslóg nr. 13 frá 21. mai 1954 um býarskipanir og byggisamtyktir*, <https://logir.fo/Logtingslog/13-fra-21-05-1954-um-byarskipanir-og-byggisamtyktir-sum-seinast-broytt-vid-logtingslog-nr-81>.
 16. Løgtingið, *Løgtingslóg nr. 48 frá 09. juli 1970 um nátturufríðing*, <https://logir.fo/Logtingslog/48-fra-09-07-1970-um-natturufriding-sum-seinast-broytt-vid-logtingslog-nr-110-fra-29>.
 17. Løgtingið, *Løgtingslóg nr. 134 frá 29. oktober 1988 um umhvørvisvernd*, <https://logir.fo/Logtingslog/134-fra-29-10-1988-um-umhvorisvernd-sum-seinast-broytt-vid-logtingslog-nr-128-fra-22>.
 18. Løgtingið, *Løgtingslóg nr. 45 frá 15. mai 2007 um landsjørð*, <https://logir.fo/Logtingslog/45-fra-15-05-2007-um-landsjord-sum-seinast-broytt-vid-logtingslog-nr-102-fra-25>.

authorities present in each region, providing advice and monitoring municipal spatial planning. Municipal planning can be challenged by regional authorities where municipal plans conflict with national interests. Disputes can be taken to court where mediation is insufficient. Such court cases have mainly resulted from disputes connected to the environment and biodiversity. In disputes concerning land use types other than agriculture, the State Forest Enterprise (Metsähallitus) has been appointed to mediate among stakeholders, for example between mining and forestry.^[19]

Greenland

All land in Greenland is common property, meaning that private land ownership is not permitted. The municipal council serves as the land use authority within its respective municipality and is responsible for granting permission for land use within that area. Land for agricultural purposes are allocated to agricultural units or sheep breeding stations. The Cooperative Sheep Farmers' Associations ('Savaatillit Peqatigiiffiit Suleqatigiissut') plays a key role in agricultural matters in Greenland. Disputes among breeders are typically handled within this organisation. Authority over raw materials lies with the government, and a complaints system exists for land use related to resource extraction. However, no disputes have been formally addressed through this system to date. There is currently uncertainty regarding how future land use conflicts—particularly those involving raw materials—should be resolved, as such disputes are expected to emerge. Ongoing discussions focus on whether these matters should be handled within the existing planning and land use legislation, or if a new system should be established.

Iceland

Iceland implemented a new spatial planning system in 1998 with the adoption of the Icelandic Planning and Building Act, renamed in 2010 simply as the Planning Act. This reform transferred responsibility for spatial planning from the national authorities to the municipalities. Each municipality develops a spatial plan for its jurisdiction. Land use changes must adhere to the spatial plan and municipalities are responsible for land use change decisions and approving and issuing permits for development projects. A National Planning Strategy is also based on the Planning Act. The Minister must submit a proposal for a parliamentary resolution regarding a 12-year national planning strategy within two years of parliamentary elections. The current national policy was adopted in 2015 and gives general direction on national and public interests for municipalities to consider in planning. Each municipal plan is reviewed by the National Planning Agency (NPA) if there is a

19. Metsähallitus, "Planning is Teamwork," <https://www.metsa.fi/en/lands-and-waters/planning-of-state-owned-areas/planning-is-teamwork/>.

discrepancy between the municipal plan and the National Planning Strategy. The review is then considered by the municipality. There is however no obligation for the municipality to follow NPA instructions if it argues for and adopts a different approach. It can be difficult for municipalities to withstand the pressure from investors interested in development projects. This is partly due to the limited capacity of sparsely populated municipalities, which often cover large areas.

Norway

The conversion of agricultural land to other uses is regulated by the Land Act and the Planning and Building Act. A private landowner must apply for municipal approval to change agricultural land to another use. As a starting point, conversion of agricultural land is forbidden by the Land Act. Municipal evaluations consider approved municipal plans according to the planning and building act.^[20] They also evaluate whether new land use will environmentally or operationally impact surrounding agriculture, effects on the cultural landscape and potential societal benefits a conversion would bring. Besides initiatives from individual landowners, municipalities set the directions for land use in their municipal plan. Therefore, most processes to handle conflicting land use conversion goals and decisions are based on the municipal land use planning processes, following the procedures in the Planning and Building Act. Planning conflicts between local authorities and national interests are mediated by the regional authority, the county governor (Statsforvalteren). If no agreement is reached after mediation, the matter can be solved by the system of objection. An objection can be made by a concerned state or regional body, concerned municipality or the Sámi Parliament of Norway (Sameetinget). In such cases, authority is transferred to the Ministry of Local Government and Regional Development which makes the final and legally binding planning decision instead of the municipality.^[21]

Sweden

The Swedish Planning and Building Act provides instructions on the hierarchy of the planning system in Sweden, establishing municipal responsibility for planning and developing local plans. The national instruments for steering local planning are the Planning and Building Act and the Environmental Code. Regional authorities and county administrative boards are in charge of monitoring the consideration of national interests in municipal planning. This is for example carried out through consultation with the municipalities in developing municipal plans. Legislation

20. Landbruksdirektoratet, "Omdisponering," 2025, <https://www.landbruksdirektoratet.no/nb/eiendom/omdisponering>.
21. Kommunal- og distriktsdepartementet, "Avgjørelser i innsigelsessaker," https://www.regjeringen.no/no/tema/plan-bygg-og-eiendom/plan_bygningsloven/planlegging/innsigelsessaker/id2008038/.

concerning agricultural land is found in the Environmental Code, which states that agricultural and forest land use are of national importance and should only be changed to meet considerable public interest. County administrative boards can make remarks concerning national interests formulated in the Environmental Code and must also provide documentation and advice to the municipalities in matters of public interests according to the Planning and Building Act.^[22] When disputes occur, individuals can appeal a decision from the municipality and the case can be tried at the Land and Environment Court of Appeal which makes a definitive decision. Cases brought to this court mainly concern individual building permits and do not dispute entire municipal plans. In recent years more cases concerning agricultural land conversion have been brought to court.

Åland

Decisions regarding land use in Åland are regulated by their Planning and Building Act and are specifically outlined in the general plan and detailed plans ('general-plan' and 'detaljplaner') developed by the municipalities. Any proposed changes to land use must be included in these planning documents before they can be implemented.

The role of the government in Åland ('Landskapsregeringen') regarding physical planning is to be a supervisory authority. The government provides feedback on the general plans when a new one is being developed. While it has the right to appeal ('besvärsmätt') it does not have decision-making power regarding physical planning. The government can only intervene in cases where the general plan violates planning and building regulations or environmental protection laws. In such instances, disputes are handled by the administrative court ('förvaltningsdomstolen').

22. Länsstyrelsen Gävleborg, *Underlag för översiktsplanering: En sammanställning av statliga och mellankommunala intressen av betydelse för kommunernas planering*, report, version 2022-04-05, https://www.lansstyrelsen.se/download/18.3d03f2b3180029a416926063/1650526048538/Sammanst%C3%A4llning_av_statliga_och_mellankommunala_intressen_av_betydelse_f%C3%B6r_kommunernas_planering_Version_2022-04-05.pdf.

Chapter 3

The planning systems and current policies affecting agricultural land use

This chapter presents the main planning principles and regulations that influence and steer land use in the Nordic countries. These are the tools that could be used or are currently used to preserve agricultural land. It is also specified whether there are policies or measurements for protecting or prioritising agricultural land use.

Denmark

- The Danish Planning Act
- National planning directive
- National interests

The Danish Planning Act establishes the hierarchy of the planning system, outlines the mandatory and optional content of planning, and sets out the procedures for municipal-level spatial planning as well as for state interventions and national planning. The Planning Act aims to ensure coherent spatial planning that unites societal interests in land use and allows for growth and development while protecting nature and the environment and respecting human living conditions. According to the Planning Act, each municipality must develop a municipal plan for the spatial development of the municipal area. The municipal plan sets out a 12-year framework for land use and has to be updated every fourth year. Besides the municipal plan, the municipalities must develop local plans detailing the development of smaller areas within a municipality.

The Minister for Rural Areas may, to take care of regional and national planning interests, enact a national planning directive with rules for municipal planning. The minister may decide that the national planning directive overrides the content and procedures of a municipal plan. Through national planning directives the minister may plan for infrastructure, technical installations and development zones, coordinate planning in larger areas, and substitute municipal plans or set out rules for municipal planning in other ways. The Finger Plan is an example of a national planning directive. It defines the framework for municipal planning in the 34 municipalities within the Copenhagen metropolitan area. Furthermore, the Minister

for Rural Areas may order municipal councils to provide a plan with a specific content or take over the powers of municipal councils in matters that affect the statutory tasks of other authorities or matters of greater importance.

The state monitors a number of national interests, currently including growth and business development, nature and environmental protection, afforestation, cultural heritage and landscape conservation, and protection of national and regional facilities. These national interests can change over time. Every year a report regarding the use of the intervention powers for national interests is published.

At the moment there is no approved strategy or policy on how Denmark prioritises existing agricultural land. However, the Danish government acknowledges different concerns regarding land use and has therefore established a formalised, tripartite collaboration with the food and agricultural sector as well as municipal, labour and environmental representatives. The purpose of the collaboration is to address the challenges and formulate recommendations for a national agricultural strategy. The national strategy was finalised in 2024. Besides this initiative, the Danish government has received advice and recommendations from the National Bioeconomy Panel, the Danish Biodiversity Council and the Danish Council on Climate Change on bioeconomy-related subjects including scenarios for future land use and biomass.

Faroe Islands

- The Faroese Parliament Law

Physical planning in the Faroe Islands is primarily regulated by the Faroese Parliament Law ('Lagtingsloven') on Urban Planning and Building Regulation from 1954.^[23] Responsibility for physical planning lies mainly with the municipal authorities. The planning legislation includes a public consultation period of at least three weeks, followed by a six-week objection period. The law permits both the expropriation of private property and the right to request redemption of private property under certain circumstances. There is no overarching national plan or guidelines for physical planning in the Faroe Islands, and the quality of planning work is therefore slightly different in the 29 municipalities.

Proposals for zoning plans must be submitted to the urban planning committee ('Býarskipanarnevnd landisinn'), appointed by the government ('Landstýret'), after the consultation process has been completed. If all the formal requirements have been met, the committee prepares a recommendation to the minister responsible for local government affairs, who holds the final authority to approve or reject the proposal.

23. Løgtingið, *Løgtingslóg nr. 13 frá 21. mai 1954 um býarskipanir og byggisamtyktir*, <https://logir.fo/Logtingslog/13-fra-21-05-1954-um-byarskipanir-og-byggisamtyktir-sum-seinast-broytt-vid-logtingslog-nr-81>.

In recent years, there have been growing discussions in the Faroe Islands about the need to give more attention to agricultural land use. These include proposals for new legislation on land use and the establishment of a legal mandate for a national planning process in the Faroe Islands. There have also been discussions about strengthening the national urban planning committee by establishing a professional secretariat. This would support municipalities in their planning work and provide a stronger basis for the minister's final decisions on planning matters.

In 2024, a proposal for a new agricultural policy was presented by the minister ('Landstyremanden'), which includes a focus area aimed at increasing domestic production of vegetables. This may encourage the protection of high-quality soils for agricultural use. Political discussions are also ongoing regarding the need to revise the pricing mechanisms for reallocated agricultural land. Meanwhile, the Ministry of Local Government Affairs ('Ministeriet for kommunalforvaltningsansliggender') is working on a renewal of the current urban planning legislation.

Finland

- The Finnish Land Use and Building Act
- National land use guidelines.

The planning system in Finland is outlined by the Land Use and Building Act. The main planning instrument is the plans developed regionally and locally: regional, master (municipal) and detailed plans. The regional plan is legally binding and sets the frame for land use on a local level. As the result of a change in the Land Use and Building Act in 2016, the regional plan no longer needs to be approved by the Ministry of Environment.

Finland's national land use guidelines are also part of the planning system as specified in the Land Use and Building Act. These guidelines ensure that national interests and international commitments are taken into account in regional and municipal plans and national administration activities. The Ministry of Environment is the responsible unit for drafting and monitoring of national interests in planning. The current national land use guidelines were adopted in 2017 and came into force in 2018, covering directions in the following areas:

- Well-functioning communities and sustainable mobility
- Efficient transport system
- Safe and healthy living environment
- Vibrant natural and cultural environments and natural resources
- Energy supply capable of renewal.

The Centres for Economic Development are the national presence in regional authorities appointed to monitor and steer local planning, ensuring that local plans fulfil national interests. To monitor local detailed plans and get an overall picture of local land use changes and planning, the state's environmental administration has developed the Information System for Monitoring Land Use Planning. Responsibility for development of future land use steering mechanisms lies with the Ministry of the Environment. Due to the recent pressures on land use from solar parks, guidelines are currently being developed for situating solar panels. These guidelines will apply to all lands, not only agricultural land.

Greenland

- The Government's Proclamation of the Inatsisartut Act on Planning and Land Use
- Greenland's strategy for self-sufficiency 2025–2030

Physical planning in Greenland is regulated by The Government's Proclamation of the Inatsisartut Act on Planning and Land Use,^[24] most recently updated in 2024. The stated purpose of the law is to ensure that land is used based on a holistic societal assessment, so that physical planning promotes economic, socially and environmentally sustainable development that considers the protection of the environment.

The government in Greenland is responsible for coordinating municipal planning by providing a knowledge base for overarching physical planning. This was most recently outlined in their statement on national planning in 2023.^[25] The government also provides a national digital platform for managing applications for land use permits ('arealtildeling').

The municipal councils act as the land use authorities. Each municipality is responsible for developing a municipal plan ('kommuneplan') that sets out strategic priorities for physical planning. They also develop amendments to the municipal plan and detailed local plans ('kommuneplantillæg' and 'lokalplaner') that determines detailed land use regulations and development guidelines for the specific sub-areas within the municipality. Permission for the use of land ('arealtildeling') is granted by the municipal council. Individuals, companies, and associations must submit an application to receive such permission.

24. Naalakkersuisut, *Selvstyrets lovbekendtgørelse nr. 4 af 25. januar 2024 om planlægning og arealanvendelse*, https://nalunaarutit.gl/groenlandsk-lovgivning/2024/selvstyrets-lovbekendtgørelse-nr-4-af-25_01_2024?sc_lang=da.

25. Naalakkersuisut, *Nunat amakkerlugu pilersaarusiorneg – digitale version*, May 3, 2023, <https://naalakkersuisut.gl/-/media/publikationer/finans/2023/nunatamakkerlugu-pilersaarusiorneg-digitale-version-2023-05-03.pdf>.

An exception applies to land allocation for areas and technical installations serving defence purposes, which need to be carried out by the relevant national authority after negotiation with the Government of Greenland. Similarly, land allocation for raw material facilities are also exempted from the Act on Planning and Land Use and is instead managed on a national level. This means that, in practice, approval can be given for land use for the extraction of raw materials without consulting the municipality.

There is no specific prioritisation of land for agricultural purposes in the Act on Planning and Land Use or in the statement on national planning. However, municipalities can safeguard agricultural interests, including securing particularly valuable agricultural areas, by including them in the detailed local plan provisions ('detaljerede lokalplanbestemmelser'). An additional policy that may influence the prioritisation of agriculture in land use is the recently developed strategy for self-sufficiency for 2025–2030. This strategy highlights that areas with suitable soils, primarily in the southern part of Greenland, have cultivation potential that is currently underutilised.

Iceland

- The Icelandic Planning Act
- National planning strategy
- Guidelines for the classification of agricultural land.

The planning system in Iceland is regulated by the Planning Act which has stated since 1998 that all land is subject to spatial planning and has been updated in 2010. The municipalities have the primary responsibility for planning and their main planning instrument is the municipal plan which covers the entire municipal jurisdiction. Municipalities also write specific plans covering development intentions in smaller areas of the municipality, in accordance with the municipal plan. It is also possible for two or more municipalities to jointly develop regional plans. This is however voluntary and is done without regional administration.

Nationally, the main steering instrument is the National Planning Strategy that guides land uses that need to be considered by local authorities when drafting municipal plans. The National Planning Agency, part of the Ministry of Infrastructure, is responsible for implementing the strategy, reviewing and approving the municipality plans and monitoring and advising municipalities in planning processes. Regional municipal and local plans are legally binding.

There has been limited overview of the extent and location of the most suitable agricultural lands, making it difficult to apply measures to preserve them. A change in the Icelandic Land Act has allowed the government to get a better overview of

agricultural land by drafting new guidelines for agricultural land classification.^[26] The guidelines set criteria for local authorities to use when classifying agricultural land while developing municipality plans. The guidelines were drafted by the Ministry of Industries and Innovation (now the Ministry of Food, Agriculture and Fisheries) in cooperation with the National Planning Agency and the Agricultural University of Iceland. The guidelines' original function was primarily to be used as a voluntary tool. A 2021 change in the Land Act makes application of the guidelines obligatory.

Iceland has adopted targets for wetland restoration and carbon neutrality for the farming sector and has implemented regional policies for wetland restoration. While agricultural land is considered a valuable resource, there is no specific target for protecting it.

Norway

- The Norwegian Planning and Building Act
- The Land Act
- National expectations on regional and municipal planning
- National Soil Conservation Strategy
- National goal to limit conversion of agricultural land

Spatial planning and land use in Norway is regulated by the Land Act and the Planning and Building Act. The Land Act prohibits conversion of agricultural land as a starting point. Following the Planning and Building Act, the evaluation is made by the municipalities who carry the main responsibility for planning. The local-level planning is directed by a municipal strategy, a municipal plan and detailed plans. On a regional level, planning is directed by a regional strategy and a regional plan. The regional and local instruments must however consider national steering documents, national expectations regarding regional and municipal planning, central government planning guidelines, and central government planning provisions. The national government can also develop a detailed plan when needed, for example when planning a larger development project is of national interest.

Every four years, the government proposes new national expectations for regional and municipal planning. These guidelines are the current government's primary tool to direct and promote sustainable development in prioritised areas throughout the country. Both regional administrations and municipalities must follow the national expectations in planning strategies and plans. The expectations must also be used

26. Atvinnuvega- og nýsköpunarráðuneytið, *Landbúnaðarlandsleiðbeiningar*, March 2021, <https://www.stjornarradid.is/library/01--Frettatengt---myndir-og-skrar/ANR/Landbunadur/Landb%C3%BAna%C3%B0arlandslei%C3%B0beiningar.pdf>.

as a basis for government authorities' participation in planning processes. There are new national expectations as of 2023 that will apply until 2027.

Norway also has a national Soil Conservation Strategy, particularly aimed at protecting agricultural land. The Soil Conservation Strategy emphasises protecting not just land under current agricultural use, but all potentially arable land. Besides soil's function for food production, other benefits of soil conservation such as biodiversity, ecosystem services and carbon storage are highlighted. The strategy was first adopted in 2015 following a report developed by an appointed commission. The strategy has since then been updated in 2019, 2021, and 2023.^[27]

The first time the Norwegian parliament adopted a goal to limit the conversion of agricultural land (including cropland, meadows and permanent pastures, but not open country pastures ('utmarksbeite')) was in 2004. This goal was updated in 2015 following adoption of the first version of the Soil Conservation Strategy, specifying that the annual reallocation of cultivated land should be below 4 km² (4000 decares), to be reached gradually by 2020. The 2021 update of the Soil Conservation Strategy lowered the target to an annual maximum conversion of 3 km² (3000 decares), which was further tightened in 2023 to a maximum of 2 km² (2000 decares) annual conversion of agricultural land to be reached by 2030.

Sweden

- The Swedish Planning and Building Act
- The Environmental Code
- National interests
- Environmental objectives

The planning system in Sweden is guided by the Swedish Planning and Building Act, stating that spatial planning responsibility lies with the municipalities. Agricultural land is included in the Environmental Code and legislated as being of high national importance. According to the Environmental Code, agricultural land can be used for development, but only where it is necessary to meet considerable public interest that can't be achieved with other land. The formulation however leaves room for interpretation and different considerations. The Environmental Code also allows building permits and development plans approved by municipalities to be disputed.

The Environmental Code protects all agricultural land, declaring it to be of national importance. The assessment of agricultural land has been delegated to the municipalities. This protection should not be confused with the function of national

27. Landbruks- og matdepartementet, *Prop. 121 S (2022–2023) – Endringer i statsbudsjettet 2023 under Landbruks- og matdepartementet (Jordbruksoppjøret 2023)*, report, May 26, 2023, https://www.regjeringen.no/contentassets/5702218c68064c3d91694dabdb22edee/prop_121_s_20222023_lmd_kor02_vedl_09.pdf.

interests, also specified in the Environmental Code. The function of national interests allows the national government to influence and monitor nationwide interests in local planning. A national interest is a smaller area of land or water that national authorities considered to be of national importance for a range of different societal interests, for example transport, cultural environment or defence. Twelve different national authorities are responsible for the system of national interests. The Swedish Board of Agriculture is, however, not one of them. Municipalities need to account for how national interests are considered in their municipal plan. County administrations monitor national considerations in local planning.

The Swedish parliament adopted 16 environmental objectives in 1999 to guide Sweden's environmental politics and describe what constitutes a good and desired environment. One of these objectives, "a varied agricultural landscape," aims to preserve long-term production capacity of agricultural areas and their natural and cultural values. Each objective is followed up by selected indicators. One of the indicators used to assess work on this environmental objective is the amount of agricultural land, which is presented in a report every fourth year. The Swedish Board of Agriculture is responsible for monitoring this objective.^[28]

National-level considerations are currently being made about how national policy can be developed to ensure sustainable use of land and water resources. Over the last ten years, several national investigations regarding the Environmental Code have been made. A preliminary study on national physical planning was completed in the fall of 2023, suggesting alternative ways to design national physical planning and which questions and interests it should cover.

Åland

- The Planning and Building Act

Physical planning in Åland is regulated by the Planning and Building Act^[29] from 2008. Responsibility for physical planning lies primarily with the municipalities, which are tasked with developing the general plan and detailed plans ('generalplan' and 'detaljplaner'). As mentioned in chapter 2, the Åland government provides comment on the general plans during their development and holds the right to appeal ('besvär rätt') but does not have the authority to overturn decisions made by the municipality. However, the government may make decisions on land use for certain key social functions or purposes deemed to be of significant public importance. These include land use changes for communications infrastructure

28. Swedish Environmental Protection Agency, "Swedish Environmental Objectives," <https://www.naturvardsverket.se/en/om-miljoarbetet/swedish-environmental-objectives/>.
29. Ålands landskapsregering, *Plan- och bygglag (2008:102) för landskapet Åland*, <https://www.regeringen.ax/alandsk-lagstiftning/alex/2008102>.

(such as traffic networks, ports and airports), energy production and energy transmission, and waste management.

There are several laws that need to be taken into consideration when developing and implementing the general plan. These primarily include legislation on environmental protection, nature conservation, and cultural heritage. Examples include the Landscape Act (1998:82) on nature conservation,^[30] Landscape Act (2008:124) on environmental protection^[31] and the Landscape Act (1965:9) on ancient monuments.^[32] There is currently no provision in legislation or policy that establishes priorities for land use or that specifically addresses the protection of agricultural land.

30. Ålands landskapsregering, *Landskapslag (1998:82) om naturvård*, <https://www.regeringen.ax/alandsk-lagstiftning/alex/199882>.

31. Ålands landskapsregering, *Landskapslag (2008:124) om miljöskydd*, <https://www.regeringen.ax/alandsk-lagstiftning/alex/2008124>.

32. Ålands landskapsregering, *Landskapslag (1965:9) om fornminnen*, <https://www.regeringen.ax/alandsk-lagstiftning/alex/19659>.

Chapter 4

Potential for Nordic cooperation on agricultural land use

All Nordic countries have experienced increasing discourses on land use. Looking at the statistics on agricultural land within each country in the Nordic region, it is evident that the decrease in agricultural land is slowing but not stopping. However, there are increasing demands on land use in all Nordic countries. There is a high demand for development of green energy infrastructure, including solar and wind parks. Simultaneously, there are demands from commitments made in international agreements on nature conservation, biodiversity and to lower land-use-related emissions. There is a need for measures to balance different land use interests.

From discussions with senior officials and researchers in the Nordic countries, the following topics have been identified as prospective fields for Nordic collaboration regarding agricultural land use.

National policy development

The decision-making power to develop or convert agricultural land lies with municipalities in the Nordic countries. In general, they lack financial incentives to avoid development of agricultural land.^[33] This leads to a risk that more agricultural land is developed than is desired from a national perspective. The similarity between the spatial planning systems in the Nordic countries, where the main responsibility lies with local authorities, offers common challenges, but also common ground for cross-border cooperation. There are, however, some significant differences between the Nordic countries, especially regarding national governments' abilities to influence and steer local planning by means of the formal planning system.^[34] The differences can be seen both in concrete policy and legislation, and also in variation of procedures and processes for dialogue between national and local authorities to reach a balance between national and local interests. There is also variation amongst the Nordic countries in how agricultural land is considered or prioritised strategically. Since land use pressures have risen, all

33. Mark Brady and Niklas Malmström, *Att bygga på åkermark – ett hot mot framtida livsmedelsförsörjning?*, AgriFood Fokus, 2023:9 (2023).

34. Johan Lidmo, Dung Huynh, and Malin Stjernberg, *Nationellt inflytande i den fysiska planeringen: Nordisk utblick till Finland, Norge och Danmark*, final report produced on behalf of Boverket, September 30, 2020, <https://www.boverket.se/contentassets/e337eb6de57c4a50b3a99db04db8b77d/nationellt-inflytande-i-den-fysiska-planeringen>.

Nordic countries are currently developing new policies and instruments to handle new demands. In these processes, state officials are requesting examples and knowledge sharing from other Nordic countries. Joint discussions on policy innovation could be focused on the following areas:

- How can demands for green energy infrastructure, including solar and wind parks, be handled on a national level to ensure that different goals of land use can be met?
- How can national policy and processes be improved to ensure holistic and sustainable policies for land use and avoid non-essential development on agricultural land?
- What role does agricultural and arable land play in crises: how can it be managed in preparation for and used during crises?

Solutions for urban development and densification

The Nordic countries differ in which land uses competing with agriculture they perceive as more pressing. These differences are often based on differences in land and soil conditions. However, the development of agricultural land for infrastructure and housing is a conversion that is nearly irrevocable. Much loss of agricultural land occurs as urban areas expand and larger cities in the Nordic countries are situated on or near agricultural land. New housing and infrastructure will be required regardless. It is therefore important to explore new ways of building these while getting the best use out of the available land. This is particularly relevant in expansion of smaller towns and metropolitan areas, where the tradition is to build low and wide. Solutions to avoid metropolitan expansion seizing more agricultural land exist both within and outside the Nordic countries. There is a will to jointly explore urban planning and densification solutions. Incorporation of several relatively new concepts into national and local planning needs to be explored. The concept of land degradation neutrality (LDN) is established in the international community and has since 2016 been a target for Sustainable Development Goal 15: Life on land. To achieve LDN means no net loss of land-based capital from a set baseline or reference point.^[35] Additionally, the two concepts 'arealnøytralitet,' to avoid loss of natural resources, and 'planvask,' a method where older plans in a municipality are systematically and strategically reviewed and updated, have gained increased recognition in Norway. The potential benefits and application of these concepts could be further explored at the Nordic level.

35. A. L. Cowie et al., "Land in Balance: The Scientific Conceptual Framework for Land Degradation Neutrality," *Environmental Science & Policy* 79 (2018): 25–35, <https://doi.org/10.1016/j.envsci.2017.10.011>.

Development and alignment of soil data

National soil maps in the Nordic countries are either limited or outdated. For example, Norway is currently updating its AR5 map that shows land resources with an emphasis on the production base for agriculture and forestry. Iceland recently published new guidelines for the classification of agricultural land. Additionally, the Nordic EU-member countries will be obligated to collect data due to the EU Directive on Soil Monitoring. Knowledge on soil potentials relies on correct soil-rating data, which could be a tool for simplifying land use change decisions. The need for examining soils and updating soil ratings applies not only to current agricultural land, but to any potential arable land and pastures, as there are uncertainties about how much land falls in this category. Knowledge exchange on experiences and methods for soil rating and classification could improve understanding of potential food production and soil values in the Nordic countries.

A similar classification of arable land and better quantification of arable land in the Nordic region can create a better knowledge base for cooperation among the Nordic countries during crises. It would improve the understanding of which areas have potential for food production and could be activated during a crisis. The alignment of data, including definitions, would therefore be a prerequisite for cross-border collaboration on preparedness.

Models and methods for stakeholder engagement, mediation and prioritisation during goal conflicts

Land for food production, development of green energy infrastructure, afforestation and protection of natural values and biodiversity are examples of goals whose importance has increased in the Nordic countries, both as a consequence of domestic debates and international commitments. This added pressure on land is bringing forward questions on how to make land use change decisions. As this challenge is experienced by all Nordic countries, there is reason to jointly discuss and explore solutions for prioritising different purposes within the green transition. The mentioned priorities, amongst them food security, are often committed to and defined at a national level. The Nordic countries share a common challenge that requires investigation into how these goals can be taken into account locally. New transitions can also provoke disputes when stakeholders experience a development project as unfair, for example when it conflicts with reindeer husbandry. This includes the matter of compensation and inclusion in decision processes. This is relevant in rural areas, but also within smaller municipalities where little land is available. This common challenge, which is expected to increase, could be addressed by jointly exploring new and existing tools for stakeholder mediation in land use discussions.

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