



#catchthecarbon

Disclaimer: This is an unofficial translation. In case of any discrepancies with the original Finnish call for applications text, the original one overrides this translation.

Catch the carbon – research and innovation programme 2021–2024

Call for applications

BACKGROUND

Achieving the target of a carbon neutral Finland by 2035 requires significant measures fast to reduce emissions in energy production and transport, as well as emission reductions in the land use sector and strengthening carbon sinks and reservoirs. As stated in the [Programme](#) of Prime Minister Sanna Marin's Government, during this Government's term in office the use of land will be even more closely linked to the planning and implementation of national climate and energy policy. The Government Programme contains a good number of climate measures concerning agriculture, forestry and land use change. Here, land use is defined in accordance with the national greenhouse gas inventory system in which the land use categories based on the use of land, land use change and the forestry sector are as follows: forest land, arable land, grass areas, wetlands, built-on land and other land.

The Ministry of Agriculture and Forestry has launched an [extensive package of climate measures](#) that aims at reducing greenhouse gas emissions in agriculture, forestry and other land use sectors as well as to maintain and strengthen carbon sinks and reservoirs. The net impact set as the target to 2035 for the additional measures is 3 Mt CO₂ equivalent. This package of climate measures will support the climate plan for the land use sector, which will be devised in 2021 in accordance with the Climate Change Act.

The climate measures are implemented across different administrative sectors and in cooperation with private sector operators. The climate measures also contribute to the targets set in other Government strategies, programmes and projects. The current steering systems and incentives are used to promote climate measures in the land use sector.

Climate measures implemented in the land use sector contribute to the achievement of climate targets set nationally, in the EU climate framework and in international contexts (e.g. [the 2030 EU climate framework](#), [the European Green Deal](#) and [the research and innovation programme](#) supporting it, [the EU Bioeconomy Strategy](#), and the priorities and projections for climatically sustainable land use of the [revitalisation](#) and [just transition](#) following COVID-19). Cost-efficient and effective implementation requires a strong knowledge base and foresight, which is why the production and efficient utilisation of scientific knowledge are in a key position to reach the emission reduction goal.

The research and innovation programme (RI programme), Catch the carbon, has been designed in extensive cooperation with the stakeholders. Different national and international strategies and research programmes for land use have also influenced the programme's targets.

[The National Climate Change Adaptation Plan](#) and [the National Forest Strategy](#) have also been used for the Catch the carbon RI programme. In addition to this, the objectives of [the low-carbon roadmaps](#) and [the National Roadmap for Research, Development and Innovation](#) were applied. The research projects included

in the RI programme are expected to use the processes and results of current or finished national and international programmes, projects and networks (e.g. [European Commission's Mission area: Soil health and food](#) and the national Strategic Research Council's programmes [Adaptation and Resilience for Sustainable Growth](#), [Towards a Sustainable, Healthy and Climate-Neutral Food System](#) and [a Climate-Neutral and Resource-Scarce Finland](#), as well as the many reports on climate change and carbon neutrality by [the Prime Minister's Office](#) and the Ministry of Agriculture and Forestry's [Climate-friendly Food Programme](#)).

GOALS

The goal of the Catch the carbon RI programme is to produce research-based information that foresees changes in the operating environment as well as solution proposals which:

1. Reduce the carbon and other greenhouse gas emissions from land use
2. Strengthen carbon sinks and reservoirs
3. Strengthen the sustainable use of renewable natural resources and holistic sustainability.

The RI programme provides short- and long-term solutions for steering climatically sustainable land use. The programme requires extensive and innovative interdisciplinary cooperation across different sectors. Targeted research data and experiments, pilot projects and other innovative action are needed to boost the mitigation and adaptation measures related to climate change.

The impact of land use must be assessed extensively and evenly. The RI programme includes preliminary assessments of biodiversity, fairness, adaptation, national economy, profitability and societal impacts. For example, the economic impact should be assessed from the perspective of national, public, business and household economics. At the same time, the programme promotes the research of land use and sustainable use of renewable natural resources and strengthens the skill pool of research application, as well as creates conditions for innovative operations.

The projects funded by the programme are expected to use current international and national research more actively and to produce solution proposals that can be applied in different decision-making processes. The projects are expected to be actively engaging, interactive and communicative.

As a part of the research projects, the programme promotes innovative operations¹. Innovations refer to new or significantly improved processes, technical solutions or new services. For example, the living lab operation unites research and innovative operations, it is open and user-oriented and takes place in a practical operating environment. The results are public and the data open.

Project proposals must clearly and traceably present the chain of impact that transforms the results of the research and innovation project into concrete changes in practices or structures and therefore, their influence on reaching the 2035 carbon-neutrality objective.

¹ This call for RI applications does not fund development projects, in which information gained from research results and/or practical experience is used for assessment, material processing, use of data systems, information steering, education, monitoring, processes or methods, insofar as it does not clearly create research-based and new information. The above-mentioned projects can apply for funding for development projects of the package of measures concerning land use.

THEMES

The RI programme contains four main themes that are active throughout the entire programme term. The first call for applications is the main one, and its volume of Ministry funding is approximately EUR 9 million. The aim is to open the additional call for applications at the end of 2021. The themes can be specified in the additional call if needed.

The themes are cross-cutting: from large systemic change (change is in the air) towards targeted regional and local changes and solutions (nudging in land use) and further by providing innovative solutions from land use processes (wisdom from soil). Cross-cutting foresight and new research on policy instruments and incentives are also required. This means that project consortiums are asked to focus on one of the main themes, but they may find solutions for several themes. The stakeholder collaboration created examples of research and innovation topics, and they can be used when planning the main research topic or its work packages.

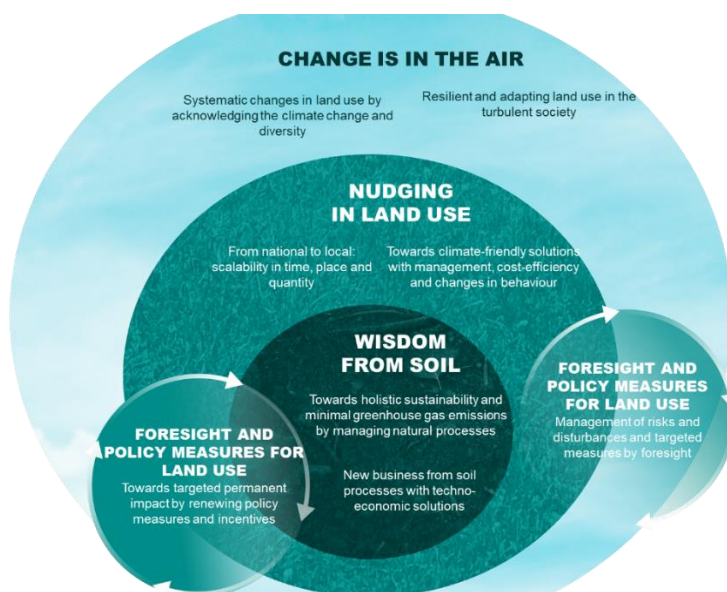


Figure 1. Main themes support each other and produce solutions that can be applied in different operating environments. A single project does not need to reach all the targets.

Theme 1 “Change is in the air”

Goal: Systematic changes in land use by acknowledging the climate change and diversity

Goal: Resilient and adapting land use in the turbulent society

The Change is in the air theme responds to the need for research data, and it seeks applicable, long-term solutions for system-level changes. The solutions must be systematic and respond to the challenge of the climate change, assertion of diversity (biodiversity, national economy, regional diversity and well-being) and the need for just actions. The projects must indicate how the actions have been assessed to be sustainable holistically, including cost-efficiency, environmental consciousness and acceptability.

Wicked problems and societal turbulence are increasing and the pressure to find solutions in land use that have a long-term influence is mounting. How to gain national forward-looking sensitivity to integrate the targets and measures of different levels and sectors so that we can reach the 2035 carbon-neutrality objective? How can the measures in the land use sector be linked to the security of supply (including food security), particularly from a systemic point of view, and take into account the resilient, economic, social, environmental and cultural aspects? What are climatically sustainable land use measures and solutions from the perspective of mitigation, adaptation, fairness and vulnerability?

Climatically sustainable land use solutions are not limited to a single sector, nor to national measures only. Solutions can be implemented in a specific sector and locally, but research seeks information on any possible changes and change paths, their impact and required actions.

Examining on the system level would help observe the connection between agriculture, forestry and land use change more accurately. Similarly, system-level research is needed on the opportunities a carbon-neutral bio or circular economy provides, such as the integration of forestry, forest use, industrial use of wood biomass and energy consumption.

We need research data on the diversity impact of climate change mitigation when linked with adaptation and fairness goals. In addition to this, we need applicable research data on the integration, cross-impact, reflex impact and any trade-offs and policy coherence of the actions to be implemented.

What kind of solution proposals come from research and innovation?

With research, we seek more information on what kind of changes, including impact on emissions, happen on the system level when land use changes due to climate measures and adaptation to the climate change.

For example, the following research and innovation topics and related solution possibilities have come up in the stakeholder groups.

- *Solution-focused alternative paths for climate change adaptation in the land use sector*
- *Towards climatically sustainable forestry and forest cultivation (including regeneration, improvement, diversity observation and protection, profitability)*
- *Responding to climate policy needs with something other than the CAP (the common agriculture policy)? For example, new solutions for directing additional measures or funding to ensure emission reduction outside the CAP.*
- *Changes in the livestock industry and the new forms of use for land released from the livestock industry help reach the emission reduction targets*
- *Organic production's role in mitigating and adapting to climate change*
- *The impact climate measures have on diversity, the strain on the water system as well production structure and cost-efficiency*
- *Adapting water conservation measures to the changing climate*
- *Assessing the benefits: climate (other greenhouse gas emissions in addition to CO₂) promotion of natural diversity, recycling nutrients and improving the water system*
- *Farming methods under different circumstances, their level of greenhouse gas emission and costs*
- *Climatically sustainable new farming systems (e.g. mixed farming, agroforestry)*
- *Conditions for providing future ecosystem services (e.g. need for new agreement systems) with which to ensure that carbon sequestration, water management and diversity are integrated.*
- *Future land use planning system that promotes carbon neutrality and takes water management into consideration*
- *Improving the conditions for using durable products and side streams made from wood, such as substitution benefits and the impact wood's cascade usage has on climate sustainability and natural diversity*
- *Disruptive technology and radical new ways of producing protein as enablers of carbon-neutrality objectives*
- *Research on life cycle analysis when assessing substitution questions and improving the carbon footprint calculation of the life cycles of value chains by connecting the changes in soil carbon reservoirs with LCA calculation*
- *Land use management and mitigation to be sustainable holistically and consistent (governance, policy consistency)*

Theme 2 “Nudging in land use”

Goal: From national to local: Scalability in time, place and quantity

Goal: Towards climate-friendly solutions with management, cost-efficiency and changes in behaviour

“Nudging goes LULUCF²/AFOLU³” refer to nudging measures that help expand the range of solutions. Nudging seeks new, insightful research on the sensitivity and stiffness of change. It is essential to identify the will and ability to change as well as research the measures. The structures, systems and also incentives should be identified at least partially, but it is not enough to change. As operators are not alike, we need different ways to create opportunities in order to promote the desired changes. We need to identify different measures, assess their feasibility and test them together – we are looking for the moments, places and keys to understanding.

Nudging often starts from identifying obstacles to change. On one hand, the aim is to encourage different operators to change their behaviour and make new choices, which will help reach the carbon-neutrality objectives and be more cost-efficient. Different technological solutions and financial incentives can also promote change and bring freedom of choice. Nudging has been studied extensively in many branches of science, and the aim is to create solution proposals to direct land use to a more climatically sustainable direction by applying the existing research data.

Research on nudging is expected to yield solution proposals, which have been studied with care and their scalability, timeliness, allocation, significance and quantity have been verified. At the same time, we seek an innovative touch to promote regional and local change. Solutions can be tested and piloted as a part of the project.

Strong, new interdisciplinary and cross-sectoral cooperation will be needed for the innovative and applicable solution proposals, for example the integration of behavioural sciences, law, economics and the study of management with agricultural, forestry and other land use (such as wetlands) research and expertise.

Projects must produce data for specific local, regional and national requirements. For example, how, and on what preconditions, can regional or municipal operators around Finland nudge towards reaching the carbon-neutrality objectives, and what kind of long-term influence can these actions have? What are the regional and local impacts of the integration of a forest’s different forms of use on climate sustainability? What kind of change is needed and what prevents or promotes change?

As innovative nudging solutions are developed, their possible impacts should be thoroughly assessed. The assessment should be targeted to the significance of different measures (cost, environment, acceptability), their timeliness (speed, verifiability and traceability of change) as well as scalability and application. In addition to these, the possible obstacles for implementation should be assessed, as well as find solutions to counter these obstacles. When seeking precision and cost-efficiency for land use climate measures, you should also specify which influence you seek; for example, the largest influence on area, costs or attitude, as well as the justification for the impact focus.

Land use will not be climatically sustainable without climate-friendly farmers, forest owners, forest professionals, advisors, breeders, consumers etc. How to foster moments of understanding and how to apply the measures in practice? Which operators have been motivated and encouraged to take action, what benefits do they see in their operations and what compromises are they ready to make to gain them? What are the obstacles and promoting factors when implementing climatically sustainable measures? Are the

² Land use, land use change, and forestry

³ Agriculture, Forestry and Other Land Use

measures scientifically found climatically sustainable and cost-efficient when taking different soil types and water system diversity and biodiversity into account, and if so, how are their impacts measured? What kind of leadership is needed? For example, could partnership agriculture improve consumers' understanding and function as testing sites?

What kind of solutions come from research and innovation?

We need research data on how land and forest owners view innovative and targeted measures to reach the carbon-neutrality objectives as well as how they are prepared to implement them. The solution proposals must be targeted and take local, regional and national special features into account.

For example, the following research and innovation topics and related solution possibilities have come up in the stakeholder groups

- *Cooperation model for paludiculture and peatland forest management*
- *Strategic and operative skills of leadership for the measures in land use*
- *The applicability of agroforestry as a climate measure in Finland, including impact that piloting the use of multiform fields has from the farm to a system level*
- *Developing new methods for forest management to promote holistic sustainability*
- *Piloting solutions that reduce greenhouse gas emissions in reallocation of pieces of land*
- *The conditions and expectations for the part of regeneration of swamps and forests as well as improving wood production, and the reflex impact that forests create on other ecosystem services*
- *Piloting partnership agriculture as a climate and diversity measure*
- *The regional and local impacts of the integration of a forest's different forms of use on climate sustainability*
- *Transition research on which price level for greenhouse gasses (€ per tCO_{2e}) or by creating other preparations and conditions could Finnish land and forest owners be encouraged to participate in reaching the carbon-neutrality objectives.*

Theme 3 “Wisdom from soil”

Goal: Towards holistic sustainability and minimal greenhouse gas emissions by managing natural processes

Goal: New business from soil processes with techno-economic solutions

We need more research data to switch to climatically sustainable land use measures in the face of climate change. The aim is to receive applicable research data on soil's different natural processes in keeping carbon reservoirs, mitigation of other greenhouse gasses (e.g. nitrous oxide and methane) and to promote sequestration in agriculture, forestry and other land use. Linking this research data strongly with the research on incentive systems and testing new techno-economic solutions by taking the market into account is vital to promote the carbon-neutrality objectives. One of the goals is to improve the methods that support climate sustainability through research as well as to verify the change in greenhouse gas emissions in different alternatives to farming and forestry chains.

For example, we need more information on the soil mechanisms and how different measures can be implemented in crop rotation or the carbon sequestration in peat and mineral soil. The assessment of the applicability of a proposed measure requires extensive and targeted evaluation of soil, water system and other environmental impacts in connection with economic and political measures and the assessment of acceptability as part of the research. The aim is to gain researched data on soil's carbon, nutrient and water

cycles, which factors affect them, as well as to find ways with which to minimise harmful climate, biodiversity, economic and social impacts.

In addition to the previously mentioned strategies and initiatives, the theme highlights the European Commission's [Farm to Fork](#) strategy and the international [4/1000](#) initiative to increase cost-efficient carbon sequestration and depot in agriculture. Forestry and other land use need more research on carbon sequestration and depots, such as how different tree species affect the soil, how fertilisation affects the soil and waters, and the usability of sustainable recycled fertilisers in forestry.

We need more research on the precise measures targeted for organic or mineral soil as well as the assessment of their influence. Additionally, researched solution-based data is needed on the influence that cover forestry has on the forest regeneration, growth, soil and carbon cycle. We also need precise data on assessing how the qualities and measures response of different sites (field plot, forest compartment) influence emissions reduction, as well as their meaning on it.

At best, the tests and innovative ideas can create solution proposals that may generate new sustainable business ideas to promote climate-friendly land use.

What kind of solutions come from research and innovation?

We need more research data on the soil's processes to reach the climate targets. We also need new tests of innovative technological and economic solution proposals.

For example, the following research and innovation topics and related solution possibilities have come up in the stakeholder groups

- *Increasing paludiculture and promoting the creation of a market for paludiculture products*
- *The significance of organic matter in mineral soil as a carbon sink and reservoir in different environments*
- *Closed nutrient cycles in agriculture (overall observation of plant and animal production) as climate measures*
- *New processing methods (genome editing) to produce new species that fit the changing circumstances and repel diseases (adaptation)*
- *The carbon reservoir impact of construction, for example, when constructing forest or arable land*
- *Verifiable and reliable carbon handprint and how it or another concept can help reach the carbon-neutrality objectives and verify long-term impacts?*
- *Features of the soil microbiota and soil alteration*
- *Precise measures: plant nutrients according to growth and management of N2O emissions*
- *Moving a carbon reservoir from one field to another and its impact as a climate measure*
- *The climate impacts of reconstruction of swamps*
- *Climate-friendly crop rotation – binds carbon and nitrogen*
- *The features of arable land and soil's carbon reservoir*
- *Means to neutralise land degradation*
- *Alternative substrates in seedling production and new solutions*
- *Regional observation of drainage in water management as part of climate measures*
- *The impact of forest land features and forms of forest use on forest carbon reservoirs*
- *Soil modelling of ditched peatlands as part of climate measures*
- *Improving the cost-efficiency of subsidies by acknowledging the soil type when targeting soil management activities*

Cross-cutting theme “Foresight and policy measures for land use”

Goal “Management of risks and disturbances and targeted measures by foresight”

Goal: “Towards targeted permanent impact by renewing policy measures and incentives”

The operators of the nature resource sector may have a key role in reaching the carbon-neutrality objective. A central competence for the short and long term is being able to foresee different disturbances, uncertainties, risks and damage. The need ranges from an individual forest or landowner’s or land user’s knowhow to local, regional and national level of foresight competence. Forward-looking damage assessment is also needed internationally. In addition to economic foresight, the foresighting must contain an environmental and social sustainability point of view. Forest damage in other countries has an impact on us as well, and it should therefore be better included in the foresight concerning changes in the operating environment. The EU Biodiversity Strategy also emphasises forest resilience in the changing climate.

Comprehensive research should cover the national and regional economic, social and ecological impacts of damage or disturbances concerning renewable natural resources and their use. We also need to observe the impacts on climate change mitigation, such as how forest damage affects the forest sink. The aim is to use research to create new and evolved methods and models from foresight and monitoring. Finland will have new causes of damage, and we need an up-to-date and reliable understanding of its overall occurrence and quantity.

Due to the climate change, majority of damage risks will take a turn for worse in the upcoming decades, and the trend of change is fast. The Earth’s rising average temperature has a stronger influence in the north, which will increase winter temperatures in particular. Climate risks related to forest and agriculture either directly or indirectly include impact of the extremes of weather (storms, snow and wind damage), forest fires, animal and plant damage and the increasing insect and fungus damage. Adaptation, resilience and sensitivity are already on the research agenda, but we need more research on how to integrate them and their concrete solutions and tests.

Solutions concerning forest use come mostly from private forest and landowners. It is important to remember such political instruments and incentives with which to encourage landowners to act so that the climate impact of agriculture and forestry is taken into account. On the level of forestry, possible steering measures include carbon sink incentives for forest owners, subsidies for wood in construction and taxes that steer the cascading usage of wood. Research can provide new information about the economic and environmental impact of the steering measures, as well as their influence on income distribution. In addition to cost-efficiency, the sectoral restrictions, international climate policy framework and political profitability and involvement should be considered in the observation. The operations of land and forest owners is also influenced by other steering and changes in the operating environment, such as the increase of forestry risks due to climate change. Integrating steering methods and comprehensive evaluation of the impacts are in a central role.

What kind of solutions come from research and innovation?

Research data is needed particularly on what kind of uncertainties and possibilities relate to land use change, and what kind of incentives we need to reach the targets for climatically sustainable land use and use of natural resources.

For example, the following research and innovation topics and related solution possibilities have come up in the stakeholder groups.

- *Study of the future of alternative land use forms, weak signals and radical scenarios*
- *Use of soil data relative to different resource potential (including new value creation, agreement systems, payment systems) and their integration with the carbon-neutrality objectives*
- *Business models for the future carbon-neutral circular bioeconomy and their influence chains*
- *Interdisciplinary, comprehensive foresight assessment of the future destruction risks in agriculture and forestry*
- *The impact that the risks, increasing due to the climate change, have on resilience and climate sustainability*
- *Climatically sustainable and foresight research data on forest decay, carbon leakage and the climate impact of soil areas (including landscaping).*
- *Strategic and operative risk assessment of the uncertainties related to natural resources and their sustainable use*
- *The impact of planned climate measures, incentives and recommendations on diversity and water system strain in the forestry and agriculture context*
- *Linking land use research and wildlife research to prevent destruction from the holistic sustainability point of view*
- *The integrated and cumulative impact of damage and disturbances both nationally and on a regional level, as well as studied alternative measures by acknowledging the long-term impacts*
- *The long-term impact of forest and plant decay on carbon sinks and reservoirs as well as biodiversity*
- *Policy instruments, incentives and markets as promoters of the carbon reservoirs of forests and soil as well as healthy soil*
- *Economic incentives for carbon sequestration and depot for land and forest owners and other operators*

APPLYING FOR FUNDING AND EVALUATION

Schedule

- The call for applications closes on 21 December 2020 at 4:15 pm.
- The applications will be evaluated in January of 2021.
- Decisions concerning funding will be made in February of 2021.
- The projects can start on 1 March 2021 at the earliest.

Submitting an application and eligible applicants

How and when should I apply?

Submit the application in the Ministry of Agriculture and Forestry's [online application system](#) (select the search tag *Hiilestä kiinni – tutkimus ja innovaatio-ohjelma*) by 4:15 pm on 21 December 2020.

Add the following PDF files to your application:

- Project plan: maximum of 10 pages, instructions for the plan in appendix 1
- CV and list of publications as a single document: a) CVs of the main applicant and leaders of work packages in accordance with [the template by the Finnish National Board on Research Integrity](#), maximum of three pages per person, and b) the main applicant's and leaders' of work packages list of publications or other outputs relevant to the project, maximum of ten items per person
- If you are applying to fund economic operation in accordance with the general De Minimis Regulation, include an account on the De Minimis aid the company has received in tax years 2019–2020

Each document can be a maximum of 5 MB.

Only the main applicant submits the application in case of a consortium of several organisations. You can write the application in Finnish, Swedish or English. The application does not need to be signed, but the applicant should be able to prove the place of performance's commitment if required. The application can be edited until it is submitted.

Who can apply?

Finnish organisations are eligible. The main applicant and leaders of work packages must be qualified on the level of a docent (professor, adjunct professor or doctor who has the required qualification for docentship). As an exception to this, the leader of a possible innovation, co-development or interaction work package is not required to have a doctorate.

The Ministry recommends that funding is applied for in groups of two or more organisations, as the programme goals require interdisciplinary and cooperation between different stakeholders. In consortium projects, funding is granted to the main applicant who manages funds with the other organisations and is also responsible for reporting the progress of the project to the Ministry. The organisations under Ministry funding must be Finnish organisations. Companies can participate as a part of a consortium. The Ministry does not fund an individual company's product, service or business development. Instead, the results must be available for the use of different groups extensively and openly.

An individual can participate in only one application as the main applicant or leader of a work package.

Size and duration of projects and the eligible costs

How much funding can be granted and for how long?

The current round of application has approximately EUR 9 million funding to grant. The Ministry's aim is to give just over one million per project. The projects last some three years. Ministry funding can start 1 March 2021 at earliest, and end by 31 December 2023. The project can continue with self or other funding.

Companies (for economic operation) can apply for the De Minimis aid under EU's rules on state aid (Commission Regulation 1407/2013). The total maximum amount of De Minimis aid is EUR 200,000 per one company during the current and previous two tax years, apart from a few industries that are exceptions. The amount is a combination of the De Minimis aid granted by each authority. The application must include a review of the company's De Minimis aid received in 2019–2020. Before deciding on the funding, the company must also submit a report of the De Minimis aid it has received during the current and previous two tax years (i.e. 2019–2021) to the Ministry. You can find more information on the De Minimis aid at [the Ministry of Economic Affairs and Employment's website \(in Finnish\)](#).

How to make a cost estimate and funding plan for the project?

Funding is applied for in accordance with the organisation's full cost model, if it has one. As a rule, funding covers no more than 70% of the eligible overall costs of the research organisation or of operation other than economic. The funding for companies may cover no more than 50% of the eligible overall costs, however, no more than EUR 200,000 in three years as stated by the De Minimis Regulation. If the organisation does not have a full cost model, funding shall be granted in accordance with the additional costs model.

The annual cost estimate of the project by cost types, and the annual funding plan is presented in the online application form. The project plan should also express the use of resources per work package as well as a summary of organisation-specific cost estimates and funding plans. Ministry recommends the project to have other funding in addition to the Ministry and self funding, such as business funding. Other external funding does not reduce the amount of Ministry funding.

Eligible costs include salary costs for the researchers (including project leader) and other personnel, other direct costs (travel, supplies and materials, external services, fees etc.) and indirect costs. Device and equipment purchases are usually not eligible costs. However, they may be approved under special justified circumstances. In such cases, only the project-related share of costs is covered, which will be calculated according to the device's depreciation period and share of usage. The Ministry of Agriculture and Forestry does not fund the establishment and acquisition of research infrastructure.

The [General terms and instructions for research and development activities funded by the Ministry of Agriculture and Forestry](#) are applied for the funding application and usage.

How does the funding support the early career researchers?

The Ministry recommends that the funded projects should employ early career researchers, to ensure that the field will have enough research resources in the future. The goal is that each project employs at least one early career researcher for 1–3 years. Here, early career researchers are defined as doctoral candidates or postdoctoral researchers who have received their doctorate a maximum of 2–3 years before the application period ends.

Open science, responsibilities and rights, publicity

How does the programme promote the responsible research and open science?

Applicants must commit to the principle of responsible conduct of research. The projects must consider ethical questions (such as permission to conduct research, data protection) and promote open science. The Ministry requires that the research publications are open access. The Ministry urges the projects to promote the reuse of data and to make their data available in accordance with the principles of open science and research. The projects must also promote open cooperation between different stakeholders.

How are responsibilities and rights shared in consortium projects?

If a consortium applies for funding, its parties share the economic, technical and scientific risks of the project as well as its results. The parties must agree upon the project terms before starting the project. In particular, the sharing of costs, risks and results, distribution of results, and the use and distribution of intellectual property rights should be agreed. Any intellectual property rights that may come forth from the project, as well as related access rights, are divided by the parties to the consortium in a manner that corresponds to the amount of work, contribution and benefits. Alternatively, the research organisations can receive a compensation equivalent to the market price for any immaterial rights that their operation creates and which are ceded to the participating companies, as well as for any intellectual property rights for which the participating companies receive access rights.

What is application publicity and data protection?

The application and its appendices are public, apart from a project plan that is mainly confidential. For this reason, do not include any confidential information in the CV, for example. The publicity is based on the Act on the Openness of Government Activities (621/1999). The Ministry of Agriculture and Forestry observes the data protection legislation. You can find the privacy policy of the Ministry of Agriculture and Forestry's online application system's personal data register [here \(in Finnish\)](#).

Evaluation, decision-making and use of the funding

How do the evaluation and decision-making take place?

A national panel of peers reviews the applications and gives a numeric and written evaluation of the applications as well as ranks them in order of preference. The panel consists of persons with a doctorate who have extensive expertise of the research and/or innovation operation on the programme's field. The Ministry of Agriculture and Forestry's land use sector's project group processes the panel's suggestion, and the Ministry decides which projects shall receive funding based on the peer review. The evaluation criteria are listed in appendix 2.

What to consider in the use of a grant?

The use, monitoring and invoicing of granted funding follows the [General terms and instructions for research and development activities funded by the Ministry of Agriculture and Forestry](#). The terms and instructions define the duties of the responsible project leader and principles of open science and intellectual property rights, for example. The Ministry appoints a steering group or a similar body for the projects when making the decision on funding.

You can find further instructions on the how the project's implementation is monitored and reporting in the [Guidelines for reporting on research and development activities by the Ministry of Agriculture and Forestry](#).

Additional information:

Programme contents: Johanna Kohl, Research Programme Manager, tel. +358 29 516 2211, johanna.kohl(at)mmm.fi

Application process: Eeva Karjalainen, Senior Specialist, tel. +358 29 516 2137, eeva.karjalainen(at)mmm.fi

The Ministry's R&D operation: Elina Nikkola, Ministerial Adviser, tel. +358 29 516 2333, elina.nikkola(at)mmm.fi

Climate solutions in the land use sector: ilmastoratkaisut(at)mmm.fi

Technical support of the online application system: MI Tietorakenteet Oy, info(at)mitietorakenteet.fi, tel. +358 40 7458 106 (Maj-Lis Aaltonen).

APPENDIX 1. PROJECT PLAN

No more than 10 pages, body text font 11 ppt Times New Roman or equivalent, marginals a minimum of 2 cm

Project title and implementing parties

1. Relevance and objectives of the project

1.1 Project relevance and connection to the programme

- Summarise why the project is essential for the climate solutions in the land use sector in accordance with the Government Programme. How does the project create solutions to reach the 2035 carbon-neutrality objective? How does the project fit in the R&I programme themes?

1.2 Objectives of the project

- What is the main objective of the project? What are the project's specific objectives?

2. Project implementation

2.1 Work plan of the project

- Work packages. What are the central research tasks? How is the possible innovation part (e.g. living labs, pilots and tests) implemented? How have you arranged other interaction and/or co-development with central actors? What is the project's schedule (including main milestones and deliverables)?
- Organising the project. How have you arranged the project's management, decision-making, monitoring and other administration?
- Risks. Which are the critical points for the project's success and the alternative implementation?

2.2 methods and materials

- Which are the main methods and materials? Why have you chosen them?
- How are you going to process and store the data? What did you agree regarding intellectual property rights?
- Are you going to use research infrastructure in the project? If yes, how?

3. The implementing parties of the project and division of tasks

- Who are the implementing persons? What are each of their tasks in the project? What is their expertise and how does their competence match their tasks in the project?
- How does this project support early career researchers' career and their competence?

4. Innovativeness and novelty

- Summarise the project's innovativeness and novelty. What kind of scientific and/or practical novelty or innovations does the project create? Do the approach or methods have novelty value? Explain.
- Summarise how the cooperation of different actors promotes the project's innovativeness: a) How and why does the project include interdisciplinary cooperation? b) How does the cooperation of different actors help reach the project's and carbon-neutrality objectives?

5. Ethical questions and open science

- Are there any ethical questions concerning the research and innovation, and how have you taken them into consideration?
- How does the project promote the principle of open science? How will you ensure the open access of publications and promote the open access and further use of the data?

6. Project results and impact

- What are the expected results and solutions? How can they be applied in decision-making and in practical operating environments?
- What is the project's/results' foreseen or expected impact, especially in the land use sector and use of renewable natural resources? How does the project promote the mitigation of the climate change and adaptation to it? What other impact does the project aim to achieve, for example, in resilience, reducing environmental damage (e.g. strain on water systems and degradation of biodiversity), economy, employment or acceptability?
- How have you examined the project's impact from the point of view of holistic sustainability (ecological, social, cultural and economic)? Are there any trade-offs in the examination, how have they been verified and what kinds of solutions does your project propose?
- Which impact chains help reach the 2035 carbon-neutrality objective?
- How is impact achieved during the project and after it (summarise and expand what has already been written in section 2)?

7. Cost estimate and funding plan

- Present a summary of the cost estimate and funding plan for each organisation. Show how the costs are shared between each work package. If needed, explain the costs.

Literature

APPENDIX 2. EVALUATION CRITERIA

Relevance to the programme (value 1–5)

- How does the project provide solutions for implementing the Government Programme and land use sector's climate solutions?
- How does the project help reach the 2035 carbon-neutrality objective?
- How does the project realise the R&I programme objectives?

Scientific quality, novelty and innovativeness (value 1–5)

- What is the project's scientific quality and significance? How solid are its concept and terms?
- How innovative are the results and solutions created in the project? Are any possible breakthroughs foreseen?
- How does interdisciplinary and cooperation of different stakeholders improve the project's quality?
- How does the project show that equivalent information/solutions do not already exist?

The plan's feasibility (value 1–5)

- Are the objectives clear and will the working plan achieve them?
- Are the selected methods, materials and approaches convincing and efficient? Are the plan and cost estimate realistic? Will the project achieve results cost efficiently? How does the project's other external funding support its implementation?
- How is the project prepared for potential risks?
- How do research infrastructures support the project implementation (if relevant)?
- Is the project managed appropriately?

Ethical questions and open science (no numeric value)

- Are there any ethical questions and have they been accounted for? How has the project plan considered and ensured the openness of the implementation, data and results? Does the plan support the reuse of the data?

Applicants' and cooperation partners' competence (value 1–5)

- Do the applicants possess the required skills and competence to implement the planned research and innovation, management and interaction? Do their skills complement each other? Do all participants have a clear role and the required resources to complete their tasks?
- How does this project support the careers of early career researchers?

Impact and applicability (value 1–5)

- How applicable are the project results and solutions in decision-making and practical operating environments?
- How significant is the project's potential impact on the mitigation of the climate change and adapting to it? What other impact does the project have, for example, in reducing environmental damage (e.g. strain on water systems and degradation of biodiversity), the economy, employment, regional development, acceptability, resilience or policy consistency?
- How clearly and traceably are the project's impact chains presented that help reach the 2035 carbon-neutrality objective?
- How efficient and applicable the planned measures are to achieve impact?
- Have the central stakeholders been involved in the project preparation and implementation, and how applicable are the modes of cooperation?

Value descriptions:

5 = excellent: the application fulfils all the criterion requirements, any deficiencies are small

4 = very good: the application fulfils the criterion requirements very well, there are only a few deficiencies

3 = good: the application fulfils the criterion requirements well, there are some deficiencies

2 = satisfactory: the application fulfils some of the criterion requirements, there are significant deficiencies

1 = weak: the application does not fulfil many of the criterion requirements or the application has major deficiencies