The Ministry of Agriculture and Forestry

RDI AGENDA 2030

SUMMARY

The Ministry of Agriculture and Forestry's research and development activities aim to produce knowledge, competence and innovation proactively in order to support decision-making, improve the competitiveness of businesses and economic activities, promote the vitality of rural areas and ensure sustainable use and development of renewable natural resources.

A general RDI policy has been drawn up on the basis of the Ministry of Agriculture and Forestry's strategy, according to which the main RDI themes that support the achievement of the Ministry's social impact targets are:

1. A responsible, renewable and competitive food production system
2. A renewable and sustainable natural resource economy that increases wellbeing and replaces the use of non-renewable raw materials and energy sources
3. Diverse business activities, successful rural areas, multilocality and strong networks that strengthen society
4. Reliable, widely available spatial, real estate and apartment data enabling new business activities and secure ownership

The RDI policy provides a framework for this first RDI Agenda of the Ministry of Agriculture and Forestry, which aims to:

- Refine the broad thematic areas presented in the RDI policy and summarise the key RDI requirements within the Ministry's scope of responsibility until 2030
- Complement the definition of the RDI requirements in the context of the Ministry's policy programmes
- Help the Ministry to form a position on the priorities of domestic and international RDI funding programmes together with other ministries and stakeholders
- Contribute to guiding the allocation of the Ministry's RDI resources

The RDI Agenda will be implemented within the available funding and other resources and, on a case-by-case basis, using the most appropriate national and international funding sources.

The preparation of the RDI Agenda has benefitted from the expertise of the departments and units of the Ministry of Agriculture and Forestry. The draft versions have been discussed at the meetings of the Ministry's key staff. A wide range of stakeholders was also involved in the process through the Viima idea management platform and workshops.

THE RDI AGENDA'S KEY THEMES:

1. Added value from natural resources and sustainable primary production
2. Solutions to achieve carbon neutrality and safeguard biodiversity
3. Flourishing communities and individuals as drivers of sustainability
4. Entrepreneurship and regional economy as drivers of competitiveness and wellbeing

In addition to the above themes

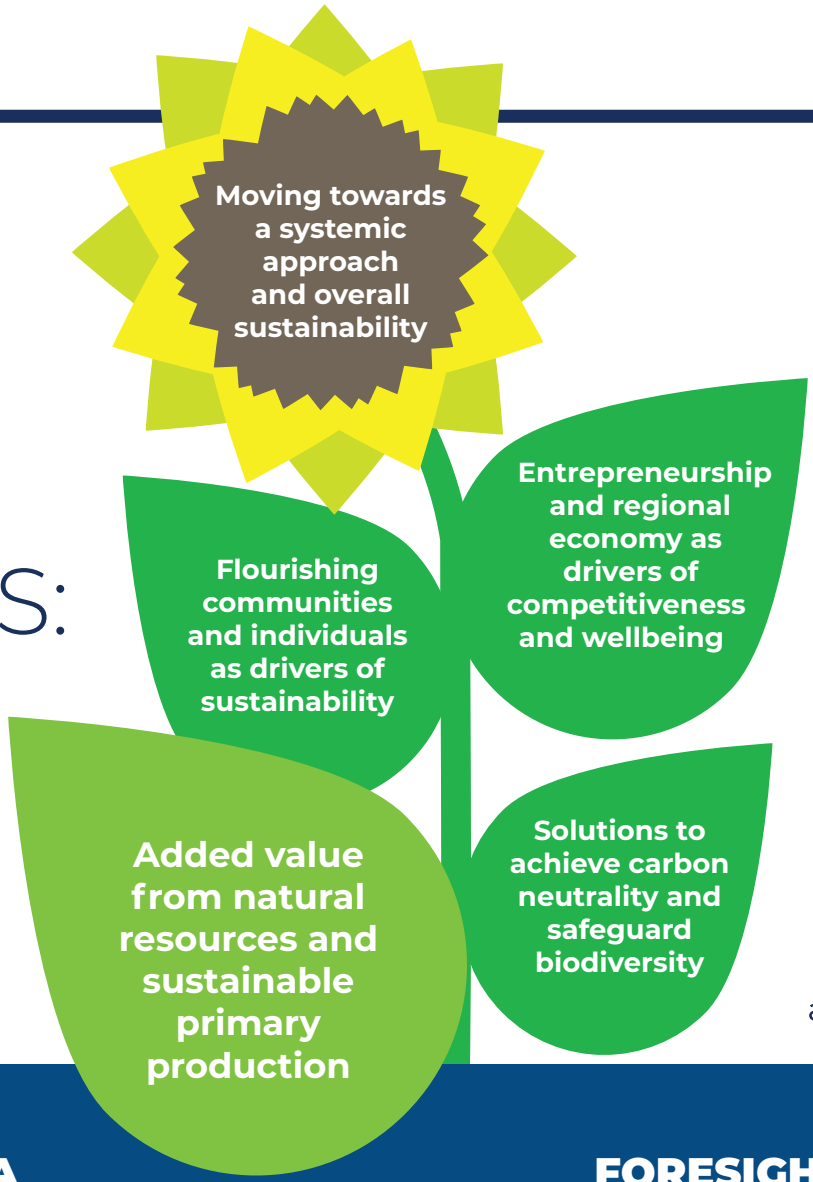
THREE CROSS-SECTIONAL FACILITATORS HAVE BEEN OUTLINED:

1. Moving towards a systemic approach and overall sustainability
2. Foresight and decision-making as prerequisites for wellbeing
3. Information, data and technology as initiators of innovation

The perspectives and approaches related to the facilitators are common to all four themes.

In the RDI Agenda structure, the themes are divided into focus areas and further into more strictly defined RDI priorities, which serve as examples. The preparation work has considered the scope in terms of both the most detailed small programme and an extensive project. The RDI Agenda and its implementation will be reviewed annually, and additions and changes will be made to it if necessary, for example when required by any updates to the Ministry of Agriculture and Forestry's strategy.

THE RDI AGENDA'S KEY THEMES:



Ministry of Agriculture and Forestry of Finland

INFORMATION, DATA AND TECHNOLOGY AS INITIATORS OF INNOVATION

FORESIGHT AND DECISION-MAKING AS PREREQUISITES FOR WELLBEING

CONTENTS

FACILITATOR 1.

MOVING TOWARDS A SYSTEMIC APPROACH AND OVERALL SUSTAINABILITY

All activities need to aim towards overall sustainability. The emphasis on and interactions between the various components of sustainability (environmental, economic, social and cultural sustainability) are important. To create a shared vision, it is necessary to determine how sustainability is measured and whether the definitions of sustainability are the same in Finland as the rest of the world, how issues are communicated to consumers what is the connection to the acceptability of different policies. There is also a need to consider what a just transition would be regionally and for different social groups, along with how overall security is balanced against sustainability.

The overall sustainability of the food system and the use of natural resources are often linked to security of supply as well as resilience and adaptability. Climate action, circular economy, resource efficiency, ethics and the promotion of biodiversity affect all activities.

A systemic approach requires wide-ranging RDI activities and management of the often conflicting effects of different objectives. This requires a foresighted approach and the ability to examine different phenomena in a broader context. There is a need for comprehensive, multidisciplinary and interdisciplinary research on the integration of sustainability issues and policies.

The nexus approach implies active consideration for the connections among the various sectors and natural resources. Research can generate data and solutions for integrating food, forest, water and energy objectives or various land use models at different scales. A systematic approach to research and consideration for nexus connections can be supported by tools such as facilitative planning processes and impact assessments for example.

FACILITATOR 2.

FORESIGHT AND DECISION-MAKING AS PREREQUISITES FOR WELLBEING

Foresight refers to a systematic process for identifying probable future challenges and pre-assessing impacts. It provides an overview of the operating environment as well as any changes it may undergo and their possible short- and long-term effects. Foresight activities are integrated in the Ministry's strategy and can be used to identify risks at both the strategic and operational levels to improve risk management and preparedness, find different paths to create and maintain a shared overview of a situation and prepare for changes in the operating environment. Foresight can steer research and assessment efforts in a direction that provides tools to support preparedness and risk management as well as the drafting of statutes, resource management and general operations management.

All four research themes in the RDI Agenda include foresight activities and requirements for future decision-making processes. Particular attention is paid to the coherence and coordination of policies and the effectiveness of policy measures and instruments in contexts such as overall sustainability, business development, international cooperation and the health and wellbeing of citizens. The aim is to support anticipatory and forward-looking policies with RDI activities, considering also future work and foresight activities carried out by the Government[1]. This requires that special expertise in foresight activities and future research be applied and utilised in RDI activities as widely as possible.

[1] https://vnk.fi/en/foresight

FACILITATOR 3.

INFORMATION, DATA AND TECHNOLOGY AS INITIATORS OF INNOVATION

All research themes share the perspectives of utilisation of information resources, research infrastructures, digitalisation and new and emerging technologies. The study of information and technology covers new applications and opportunities as well as risk management, cybersecurity and the protection of citizens' personal data.

Companies, research organisations, ministries and regional governments have worked together to identify the most promising growth opportunities (Kasvuportfolio 2.0; 'Growth Portfolio 2.0'[2]). For Finland relate to energy transition, information networks, utilisation of new technologies, health technology and new forms of data economy operations. Finland has a high level of competence or other unique competitive advantages in each of these areas. Growth potential must also be exploited in the food and natural resources sectors.

Solutions based on artificial intelligence and data economy will change the food production systems and natural resource economics of the future. Critical basic infrastructure and reference systems will also be considered to enable accurate positioning and to serve all sectors of society, including those outside the scope of the Ministry of Agriculture and Forestry. Key aspects to consider include the usability and compatibility of data as well as data and materials policies based on openness.

[2]https://tem.fi/kasvuportfolio

THEME 1:
Added value from natural resources and sustainable primary production

THEME 1:

ADDED VALUE FROM NATURAL RESOURCES AND SUSTAINABLE PRIMARY PRODUCTION

THE THEME HAS FOUR FOCUSES:

1. Towards better management of land use and water resources
2. Sustainable and proactive management and use of natural resources / Responsible and foresighted care and use of natural resources
3. Sustainable and fair food production promoting the One Health concept
4. New, resource-efficient products and production methods/ Resource-wise development of new products and production methods

THEME 1:
Added value from natural resources and sustainable primary production

FOCUS 1.
Towards better management of land use and water resources

Healthy and clean soil is vital for the sectors and economic activities that are within the scope of the Ministry of Agriculture and Forestry. Healthy soil helps to maintain biodiverse terrestrial ecosystems and mitigate the effects of extreme weather events such as floods and droughts. Many human activities affect soil health, such as tillage and other cultivation solutions as well as the spread of pollutants. These processes interfere with the ability of soil to provide a wide range of ecosystem functions, which in turn has significant economic, environmental and social impacts.

Water plays a key role in people's wellbeing, including in all forms of primary production, industrial processes and many essential functions in society, such as health care. Clean drinking water, solutions for saving and recycling water and better sanitation are key to building a sustainable society.

Short winters and heavy rainfall in winter intensify the risk of flooding and the leaching of nutrients and solids into water bodies. The Baltic Sea is especially at risk of eutrophication. Many extreme weather phenomena pose challenges to water management: gale-force winds, thunderstorms and floods can hamper electricity supply, droughts can reduce both the availability and quality of water, while heavy rainfall can increase the leaching of nutrients into natural water sources.

Potential RDI priorities:

- Catchment areas in water economy and water management measures
- Multipurpose and multi-objective land use
- Soil biodiversity and soil carbon
- Maintaining the condition of arable land and developing soil structure to improve the profitability and sustainability of food production
- Results-based incentives for soil carbon sequestration in the agricultural and forestry sectors
- Optimising the sustainable reuse and carbon balance of peat mining areas

THEME 1:
Added value from natural resources and sustainable primary production

FOCUS 2.
Sustainable and proactive management and use of natural resources

Renewable natural resources refer to farmland, forests, livestock, fish, game and water. Ensuring the vitality of natural resources, the functionality of ecosystem services, the maintenance of biodiversity and improving the status of habitats are essential elements in responsible management and utilisation.

RDI activities provide conditions for the creation of new products and services based on renewable natural resources, for increasing the degree of processing and for replacing fossil raw materials with renewable alternatives. The underlying major societal goals are climate change mitigation and adaptation as well as production and consumption cycles that are as closed as possible. In addition to tangible goods, nature offers intangible values and wellbeing services that will play an increasingly important role in the future.

Potential RDI priorities:

- Multiple forest use and related products, services and business models
- Sustainable, profitable and innovative timber construction
- Safeguarding biodiversity in logging and forest management activities; nature conservation methods in commercial forests
- Digitalisation and gamification of forest-related data
- Integration of recreational fishing and hunting with the use of other natural resources
- Commercial fishing and increasing the use of fish: utilisation of side streams, aquaculture and the use of open sea areas
- Functionality and development of multipurpose wetlands
- Forest decline, forest health and vitality
- Sustainable, profitable reindeer husbandry and natural livelihoods
- Development of the monitoring system for wild game and other natural resources for purposes of sustainable use and population management.

THEME 1:
Added value from natural resources and sustainable primary production

FOCUS 3.
Sustainable and fair food production that promotes the One Health concept

The food production system is strongly linked to a number of national and international strategies and policies, such as the EU's Green Deal and the Farm to Fork strategy that are an integral part of shared agricultural policies. The food production system, in line with the Farm to Fork strategy, is also central to achieving the UN's Sustainable Development Goals. Key challenges include global population growth and, consequently, increased food demand, accelerating climate change, depletion of natural resources and biodiversity loss. Globally, the food production system produces about a quarter of greenhouse gas emissions, accounts for about half of the world's habitable land and is responsible for 70 per cent of its freshwater consumption. The need for food is increasing while too much produce is wasted. Many people are overweight or obese while others are malnourished.

Finland has many strengths in terms of food production, such as safe and transparent primary production and relatively short supply chains. Animal health and welfare along with plant health are already at a good level, clean water is widely available and we have gained considerable expertise in nutrition. It also has relatively well-functioning mass catering systems (e.g. nurseries and schools). Threats to food production include risks posed by climate change and biodiversity loss as well as various diseases that spread as a result. A major challenge is to improve the profitability of primary production in a sustainable way. How can the agricultural sector be profitable while adapting to future policy and market changes while also meeting its goals for climate change mitigation, water protection and increasing biodiversity? A sustainable food production system must also meet requirements for nourishment and health, such as providing safe, nutritious and sustainable food, reducing food waste and guaranteeing animal welfare.

Potential RDI priorities:

- Overall sustainability of livestock production and the strengths of domestic production as a competitive advantage
- One Health: links between human and animal health, risk anticipation and preparedness
- Traceability and safety of food, cost-effective monitoring
- Solutions and opportunities to strengthen the competitiveness of plant production in Finland
- New sources of protein for the production of feed supplements and the development of consumer products
- Regenerative agriculture, agroecology, wetland farming and nature-based solutions
- Sustainability of the food production system, reduction of food waste and increased appreciation for food
- Organic and local food production as part of a sustainable food production system

THEME 1:
Added value from natural resources and sustainable primary production

FOCUS 4.
New, resource-efficient products and production methods

Digitalisation is a major force for change and can be useful for finding new solutions for the sustainable use of natural resources and enhanced wellbeing. New technologies and processing methods as well as advances in gene technology and biotechnology will create new, more sustainable solutions in the natural resources sector. Solutions that are socially and environmentally sustainable will also be key factors in future competitiveness. Sustainable solutions can relate to areas such as clean water and air, energy issues, new forms of data economy, circular economy and resource efficiency. They result in the improved traceability and openness of the food chain, personalised diets, new kinds of food production technologies and ingredients, diverse and innovative forms of tourism, mobility and work culture reforms. All of these may also create export opportunities for new products and service concepts.

In the sector of Ministry of Agriculture and Forestry, new growth opportunities may be created through reforms in forest management and the forest industry, healthy food and the food chain, circular economy (e.g. cellulose-based materials, use of agricultural side streams) and full-circle management of natural resources, clean water and air, renewable energy sources and new business models and forms of data economy and technology facilitation (e.g. artificial intelligence, photonics).

Potential RDI priorities:

- Accelerating innovation and developing products with high added value using the Living Labs and Lighthouse concepts
- Utilisation of biotechnology in plant and animal breeding, energy solutions and the development of products with added value
- Next-generation technologies and closed cycles in greenhouse and vertical farming
- Use of algae and aquaculture in the production of bio-based raw materials and water purification
- Smart, safe, climate-friendly and environmentally friendly packaging
- Improving resource efficiency
- Further processing of natural products into products with high added value
- New food, packaging, agricultural and gene technologies and biotechnologies

THEME 2.

SOLUTIONS TO ACHIEVE CARBON NEUTRALITY AND SAFEGUARD BIODIVERSITY

THE THEME HAS THREE FOCUSES:

1. Effective solutions for adapting to and mitigating climate change
2. Effective and efficient means of preserving biodiversity
3. Enhancing the resilience and adaptability of ecosystems

THEME 2
Solutions to achieve carbon neutrality and safeguard biodiversity

FOCUS 1.
Effective solutions for adapting to and mitigating climate change

Climate change is the key global change factor and affects practically everything, everywhere. Extreme weather events caused by climate change result in storm damage and more frequent flooding, droughts and heatwaves. The effects of climate change are particularly pronounced at high northern latitudes. Changes to habitats and species distribution are already becoming obvious. Water circulation and conditions for forestry and agricultural activities are changing, sometimes in ways that are difficult to predict.

In addition to climate change mitigation, it is necessary for us to adapt to and prepare for changes in the weather and the climate along with the impacts this will have. Adaptation is hampered by several uncertainties, such as the exact speed of change and the fact that not all impact mechanisms are currently fully understood. New pathogens and alien species will arrive in Finland, which may have a significant impact on agriculture and forestry. Damage caused by endemic pests and pathogens may also increase. Information is furthermore needed on the impact of climate change on global developments in economics, security and technology.

Measures to mitigate, adapt to and prepare for climate change must be implemented in a fair and effective manner. There is a need for renewable alternatives to fossil fuels that are environmentally, economically and socially sustainable. Changes in the land use and forest sectors and pressure on the Arctic Policy create greater need for information. RDI activities are expected to provide circular economy solutions that support carbon neutrality while accounting for the inherent risks of circular economy.

Potential RDI priorities:

- Adaptation of livelihoods based on natural resources to extreme weather phenomena.
- Climate change mitigation, carbon sequestration and carbon stocks
- Identifying and controlling carbon leakage, means of affecting and compensating carbon emissions
- Instruments and nudging mechanisms to promote mitigation and adaptation
- Anticipating, monitoring and assessing the impacts of climate policy instruments: economic, environmental and social impacts

THEME 2
Solutions to achieve carbon neutrality and safeguard biodiversity

FOCUS 2.
Effective and efficient means of preserving biodiversity

In addition to climate change, the loss of natural habitats and biodiversity is a major global change factor facing the food production system and natural resource economy. Research is needed on the impact of the use of natural resources on biodiversity and ecosystem services. The aim of the RDI activities is to identify and develop cost-effective and innovative ways of reconciling the use and protection of natural resources as well as the associated economic incentives for and the links and synergies between market-led and public policy instruments. All aspects of biodiversity are covered: habitats, species and genetic diversity. To verify the effectiveness of practical actions, methods of measuring and monitoring biodiversity need to be developed.

Potential RDI priorities:

- Cost-effective ways to protect biodiversity and safeguard ecosystem services
- A combination of public policy instruments and market-based mechanisms to protect biodiversity
- Measurements and indicators of biodiversity
- The impact of biodiversity on human health
- Improvement and impacts of biodiversity of forest and agricultural soils
- Conservation and sustainable use of genetic resources
- Safeguarding ecosystem services and nature-based solutions

THEME 2
Solutions to achieve carbon neutrality and safeguard biodiversity

FOCUS 3.
Enhancing the resilience and adaptability of ecosystems

Production and management methods in the food and natural resources sectors have a significant impact on the adaptability and resilience of ecosystems. Research aims to produce data that can be used, for example to identify forest management methods that support the health and resilience of forests. Research will provide basic knowledge and new methods and technologies for plant breeding and the utilisation of genetic resources in agriculture and forestry.

It is expected that there will be greater variation in environmental conditions, such as extreme weather events becoming more frequent. There may be drought in one year, followed by excessive precipitation or flooding the next. Storms that cause significant damage will not necessarily be linked to a certain time of year. In the agriculture and forestry sectors, challenges related to water economy and management are emphasised. Adapting to varying conditions will require greater measures to be implemented in catchment areas. Soil management and soil carbon are also linked to resilience issues.

The resilience and adaptability of ecosystems will have significant economic impacts. Research-based estimates of the costs and benefits to society of maintaining and improving resilience are required. It is also necessary to factor security of supply into cost calculations.

Potential RDI priorities:

- Means of maintaining and improving the resilience and adaptability of ecosystems in the food and natural resources sectors
- Costs, benefits and alternative costs of maintaining and improving the resilience and adaptability of ecosystems
- Significance of the resilience and adaptability of ecosystems for Finland's security of supply

THEME 3.

FLOURISHING COMMUNITIES AND INDIVIDUALS AS DRIVERS OF SUSTAINABILITY

THE THEME HAS THREE FOCUSES:

1. Better policy preparation through understanding human values and attitudes
2. Wellbeing, health and quality of life
3. Nudging people towards sustainable lifestyles

THEME 3
Flourishing communities and individuals as drivers of sustainability

FOCUS 1.
Better policy preparation through understanding human values and attitudes

Policies can only be successfully implemented if they build on an understanding of people's values and attitudes. When people feel that they can do something with visible impact, they become more engaged and have more appreciation for what they are working towards.

We need more information on what a just transition will look like for different groups of people in our society. We also need to investigate the extent to which various operators are prepared to take sustainability measures in their own sectors and what they expect of others. Changes in consumer attitudes will drive the change towards sustainable and ethical production. After all, it is consumers who will ultimately decide the types of production that are acceptable. However, to make these choices, consumers need transparent and verifiable information on how sustainable or ethical different production methods are in reality. Research should consider different socio-economic groups and generational differences. Consumer groups are splintering into smaller and smaller segments, which has a significant impact on overall production and marketing chains. Tracking trends in the attitudes, values and expectations of consumers, business stakeholders (primary production, industries, retail, catering) and wider society can help boost sustainability.

The sustainable bioeconomy offers many tools for responding to society's challenges. However, any use of natural resources comes with both positive and negative impacts. That is why decisions must be based on reliable scientific information that justifies the sustainable use of natural resources.

Potential RDI priorities:

- Acceptability of policy measures and the attitudes and expectations of citizens towards guidance aimed at overall sustainability
- Motivation of farmers as well as land and forest owners to act as drivers for necessary sustainability changes
- Fair sharing of responsibilities between different operators in society when transitioning to more sustainable food production and natural resource usage
- Values and attitudes towards food, production methods and technologies now and in the future
- Continuous monitoring and foresight of changes in values and attitudes regarding the use of natural resources

THEME 3
Flourishing communities and individuals as drivers of sustainability

FOCUS 2.
Wellbeing, health and quality of life

The sectors under Ministry´s responsibility, such as food, nature and other experiences, are important sources of wellbeing. The natural environment has a major impact on our health and wellbeing, and there is a large body of information available concerning the recreational use of nature. However, more research is needed into the wellbeing, social, cultural and regional impacts of activities such as hunting and fishing. RDI activities support the provision of a wide range of digital services for people who want to explore nature (e.g. a journey planner that suggests a route through natural surroundings or smart weather forecasting). More detailed information is needed on the economic and social impacts of the recreational use of nature on rural communities and how this use affects the interaction between rural and urban areas. This focus also includes the wellbeing of people working in primary production, which again is linked to animal welfare.

More than half of new infectious diseases in humans originate in animals. Interference with nature and biodiversity loss are increasing exposure of livestock and people to zoonoses. There is also strong evidence to suggest that biodiversity has a wider impact on human health and wellbeing than previously thought.

Research of the health benefits of food and overall wellbeing should adopt a holistic approach. We expect our food to be safe, healthy and environmentally friendly, and all these aspects must be included in the overall sustainability of food production. The promotion of domestic food production must be in line with the objective of supporting sustainable diets. In the future, plant-based and novel proteins will become increasingly important, and the full social implications of this trend are yet to be discovered. Promoting good nutrition through a range of instruments requires population-level monitoring data on nutrition. More specific information is needed, particularly on children, young people and the elderly. Moreover, people's overall wellbeing has an impact on national economies, and this connection should be studied further. For example, higher levels of fish consumption could have an effect on public health care and the costs of social welfare. Another interesting avenue for promoting healthy diets and nutrition is the use of digital applications.

Food safety requirements cover the entire food system. Some additional challenges concerning safety come with international trade and global markets. One of the strengths of Finnish food production is clean water, a resource that is not guaranteed globally. New risks may also result from circular economy, which seeks to make use of the side-streams of production processes. The inclusion of biostimulants (substances that stimulate the uptake and use of nutrients by plants) in EU regulation is an example of a trend that raises the need for new research. Climate change is another contributor to increasing health risks in food production. A key priority for the Ministry is monitoring the prevalence of animal diseases and maintaining the strong position in which Finland currently finds itself (including animal welfare). Human and animal health are strongly linked under the One Health concept, and there is increasing demand for research in this area. Antimicrobial resistance and zoonoses are examples of complex problems to which RDI activities can provide sorely needed solutions.

Potential RDI priorities:

- The health, social and economic impacts of the recreational use of nature and the potential to boost the positive effects of outdoor recreation
- Healthy, safe and sustainable diets as a basis for holistic wellbeing, practices that enhance wellbeing and health and related technological solutions
- Nutrition trends at the population level and across population groups; identification of future trends
- The health and wellbeing of farmers and other entrepreneurs in primary production
- Practices and digital applications for promoting health and wellbeing
- Other entrepreneurs in the food and natural resources sectors and their opportunities for development, coping, networking, RDI cooperation, etc; prospects for livelihoods and a new knowledge economy

FOCUS 3.
Nudging people towards sustainable lifestyles

It is important to understand how to influence people's behaviour to gently 'nudge' them towards more sustainable lifestyles, such as choosing sustainably produced and nutrient-rich foods. It should be made as easy as possible for people to take such decisions. It may not be possible to reach a consensus between the different operators in the food production system (producers, consumers, retailers) and to establish a reliable scientific basis by which to measure the sustainability of different alternatives. Factors affecting consumer willingness to pay more for carbon-neutral or ethically produced products should be studied. Direct interaction between producers and consumers may increase willingness. Consumers may be willing to pay more to know exactly where their food comes from. The environment in which food choices are made should be open to change so that healthy and sustainable alternatives which consider also e.g. biodiversity and animal welfare, can be promoted.

It is important to encourage agricultural producers and forest owners to act in a way that increases the sequestration of carbon into the soil. Finland is a highly forested country with a significant number of forest owners who do not actively manage these areas. Thus, to ensure that Finland can achieve its climate goals, it is important to engage also this group of forest owners. Local communities and peer support may play a significant role in initiating this change.

Product certification and quality systems have been developed, and nutrition labelling is being introduced at European level. To facilitate sustainable choices, consumers should be informed about the sustainability of products and food from various perspectives (including biodiversity, carbon and water footprint as well as health and nutrition).

New and innovative ways of raising consumer awareness are needed to encourage sustainable and healthy consumer choices. The role of public procurement is interesting to consider. For instance, by paying greater emphasis on the environmental and social factors as well as on local economy and nutrition values in their procurement and other decisions, municipalities and wellbeing services can promote sustainability.

Potential RDI priorities:

- Facilitating healthy and sustainable choices by consumers
- The changing needs and expectations of consumers, diversity and fragmentation within consumer groups and creation of operating environments that support sustainability
- Supporting sustainability through public procurement
- Monitoring and verifying sustainability across multiple perspectives and scales
- Operating environments of agricultural producers and forest owners to promote sustainability

THEME 4
Entrepreneurship and regional economy as drivers of competitive advantage and wellbeing

THEME 4.

ENTREPRENEURSHIP AND REGIONAL ECONOMY AS DRIVERS OF COMPETITIVE ADVANTAGE AND WELLBEING

THE THEME HAS THREE FOCUSES:

1. Success through developing business operations and competitiveness
2. Sustainable economic solutions for rural areas and smart adaptation
3. Novel market and financing environments

THEME 4
Entrepreneurship and regional economy as drivers of competitive advantage and wellbeing

FOCUS 1.
Success through developing business operations and competitiveness

The growth and strengthening of the food and natural resources sectors require new value chains and business models based on more versatile commercialisation of tangible and intangible natural resources. Businesses in rural areas and in the bioeconomy sector still have significant room to improve their competencies to become more competitive and profitable. Areas of development include finance, management and marketing. RDI activities can support improvements in business competencies and finding solutions to challenges for logistics, labour availability, financing and support services.

Potential RDI priorities:

- Cost-effective methods of improving business competencies in rural areas
- Developing business concepts and strategies in the food and natural resources sectors, especially in primary production
- The strengths and weaknesses of the Finnish food and natural resources sectors in the global market; the potential for increased exports, stronger marketing and service concepts and technology skills
- Operators in the Finnish food system from primary production to retail and their status and roles; increasing profitability throughout the production chain, competitiveness of the Finnish food production system and foresight for structural changes
- Competitiveness of sectors, structural changes and production structures, new production methods and smart agriculture

THEME 4
Entrepreneurship and regional economy as drivers of competitive advantage and wellbeing

FOCUS 2.
Sustainable economic solutions for rural areas and smart adaptation

Targets for rural development have become increasingly complex. Further efforts are needed to safeguard biodiversity and ecosystem services while improving access to local services and making use of local business opportunities. At a local level, diverse communities can be a great asset when they find common interest and opportunities for partnerships. In coming years, the third and fourth sectors can have greater significance by taking advantage of the local potential of rural areas. New guidance is needed to encourage participation by local communities, organisations and citizens in the development of their local areas. This requires that the methods for assessing the effectiveness of rural policies also be developed. Interesting new perspectives can be accessed through models based on multilocality, new forms of cooperation, networks and interactions between different operators in a value chain.

Many of the local characteristics of Finland's regions have untapped business and innovation potential and could contribute to improving the competitiveness and profitability of rural businesses. New technologies and digitalisation offer novel solutions for the development of products and services that use renewable natural resources and for increasing the degree of processing. Sustainable regional growth (or 'smart shrinking') will be important for the future bioeconomy, for example in terms of the access to and processing of biomass and other bio-resources. Blue bio-economy and hunting and fishing also offer potential opportunities to expand and diversify rural businesses.

THEME 4
Entrepreneurship and regional economy as drivers of competitive advantage and wellbeing

From the perspective of smart adaptation, developing methods of measuring wellbeing is very important. There is a need for alternatives to the currently used indicators of continued economic and population growth. The issues facing sparsely populated rural areas include shrinking rural communities and a lack of school networks and opportunities for accessing education outside regional centres. Digital services can provide some solutions but should be planned with the needs of rural communities in mind. Transitioning to a multilocal work and business model requires extensive and well-maintained infrastructure in rural areas. Research activities should include place-based analyses that help to optimise the planning of infrastructure projects and investments.

Potential RDI priorities:

- Rural areas as part of society and the economy; interaction between rural and urban areas
- The economic impact, benefits and challenges of a multilocal model to society
- Networks around fishing and hunting as facilitators of wellbeing and business in rural areas
- The ‘Blue Care’ and ‘Green Care’ concepts and their combination as a basis for new businesses
- Challenges arising from changing demographics in rural areas and solutions to these
- Opportunities offered by smart services and digitalisation promoting the vitality of rural areas
- Different forms of participation in vast and sparsely populated rural areas including voices from rural communities in local and regional decision-making and in developing local environments
- The significance and opportunities of partnerships in developing rural areas and bottlenecks these create

THEME 4
Entrepreneurship and regional economy as drivers of competitive advantage and wellbeing

FOCUS 3.
Novel market and financing environment

Businesses operate in a constantly changing environment, and this has a considerable impact in the natural resources sector. Combinations of public funding and private investment capital can be used to finance businesses' start-up and growth phases. Businesses must increasingly consider environmental and social sustainability, which puts more emphasis on corporate responsibility. The concept of ecosystem services will become better defined, and these services will create a platform for new types of businesses that can redirect cash flows in the market.

Responsible financing is attracting growing global interest, and Finland could take the lead in this. However, there are still many open questions regarding sustainable financing. The relevant instruments are currently under development, and legislation is being drawn up at EU and global levels. Awareness of the options for and availability of EU funding is also not very widespread. At the same time, new solutions for sustainable financing and natural resource economy are still taking shape. For example, there are still no established principles for determining the taxonomy of green investments.

New interesting financing models based on private investment capital may emerge in the food and natural resources sectors as well as the environmental sector. Some of those could be results-based so that outside funding is only received when there are actual results to show. Since this is a new approach its performance and effectiveness would be an interesting topic for research using model-based analysis.

THEME 4
Entrepreneurship and regional economy as drivers of competitive advantage and wellbeing

The commercialisation of and cash flows into ecosystem services are frequently discussed, but concrete examples are still rare. However, the economic system is adapting to the emerging sustainability-oriented society, and new models of revenue generation (e.g. carbon markets) are likely to spring up in the natural resources sector. An emphasis on localness could give businesses a competitive advantage. However, proactive research and planning are needed to tap into this potential. The future economic environment may also include risks, especially if development is driven mainly by large businesses. The aim is to ensure a just transition that also allows local micro and small businesses to thrive. The development of business models based on overall sustainability requires risk financing for piloting and experimentation at regional and national levels. Moreover, creating new ways of operating requires the development of competencies and other human capital. This could be achieved when experts from different sectors meet and network. RDI plays an important role in kick-starting entirely new business models.

Potential RDI priorities:

- New financing models for the food and natural resources sectors, and the use of private investment capital
- New models of revenue generation through ecosystem services and cash flows in the market
- Development of the renewable natural resources-based economy in the global market and the direction and long-term stability of this trend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