Knowledge and Innovation Agenda for Agriculture, Water and Food 2024-2027

Guide

Contents

The Netherlands is innovating with a mission

The Netherlands is facing an enormous task that needs to be resolved over the next 25 years. Together with the rest of the world, our aim is to realise ambitions in the areas of health, safety, and social and economic prosperity, all within the limits of what is sustainable for our planet and future generations. This task also offers some major opportunities for the Dutch economy.

We are working together on building a climate-proof, water-robust, sustainable, healthy, and safe Netherlands.

Although this is a staggering task, it is at the same time an inspiring challenge that offers great opportunities, both domestic and international. In this respect, new knowledge and innovative technologies, products, concepts, and revenue models are crucial.

A single task, multiple new areas of knowledge and solutions

Guided by this overarching objective, the Dutch government is encouraging the advancement of knowledge and innovation, and their implementation across businesses, knowledge institutions, and public-private initiatives. It is promoting and providing financial support for innovative projects which are appropriate in the context of interconnected themes such as energy, circularity, healthcare, agriculture, water, food, and safety.

Three of these themes are particularly focussed on the 'blue-green' domain: Agriculture, water, and food. The key objectives in this domain are a vital rural area and resilient natural values in a climate-proof Netherlands, in which water and soil policies lead the way, the agricultural and food system is ecologically and economically sustainable and healthy, and the deltas and large bodies of water are safe.

Top sectors in the Netherlands, along with ministries and other government authorities, companies, knowledge institutions, and social organisations, have jointly drawn up an agenda for the next four years that describes which new knowledge and innovations are particularly desirable in the blue-green domain: the Knowledge and Innovation Agenda for Agriculture, Water and Food (KIA-AWF).

The KIA-AWF 2024-2027 will play an important role in stimulating, initiating, and supporting research and innovation over the next few years. In comparison to the first edition released in 2020, it includes new emphases and focal points.

Who can use the knowledge and innovation agenda, and how?

The agenda contains information for established businesses, start-ups, knowledge institutions, and regional and national policy makers about the areas in which the Netherlands aims to develop in the next few years. It is an invitation for contributions through collaborative projects and initiatives, stimulated by the financial support that the national government intends to provide in these areas.

Missions for blue-green knowledge and innovation

There are great challenges and opportunities facing the Netherlands, both across society in general and in specific blue-green sectors such as agriculture and horticulture, fisheries, food production, food trading, shipping, and nature and water management, which straddle the interface between the economy and natural systems.

Major opportunities await for new knowledge and innovation in all blue-green sectors. To achieve the goal, it is important that companies, governments and knowledge organisations work and invest from a shared perspective in the coming years.

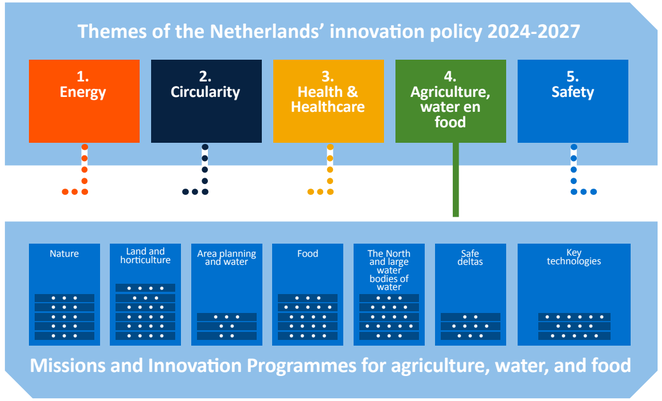
Ministries, the business community, knowledge institutions and social organisations in the blue-green domain are therefore jointly formulating goals for dozens of challenging knowledge and innovation programmes in the Knowledge and Innovation Agenda for Agriculture, Water and Food. committing themselves to broadly defined missions areas:

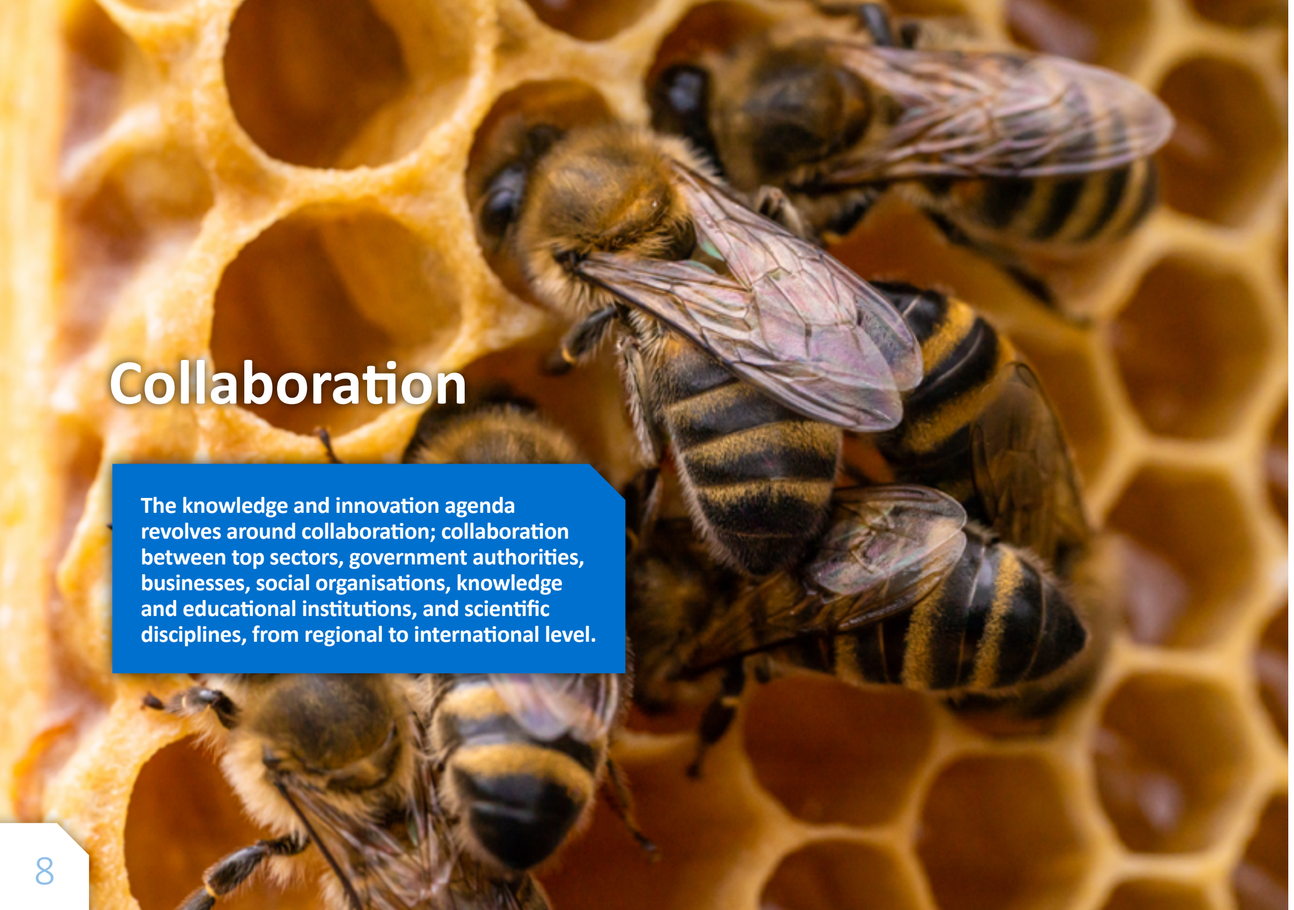
1. Nature
2. Agriculture and horticulture
3. Area planning and water
4. Food
5. The North Sea and large bodies of water
6. Safe deltas

They are also identifying key technologies that deployed in multiple blue-green sectors.

Blue-green knowledge and innovation also boost themes and missions, including the overarching goal that the Netherlands will not be responsible further climate change by 2050.

For example, using rural areas in new ways offers opportunities in the energy transition, while reinforcing agriculture and horticulture with an emphasis on biomaterials boosts the circular economy. This shows how seemingly separate themes, mission areas and programmes are nevertheless closely linked.





Collaboration

The knowledge and innovation agenda revolves around collaboration; collaboration between top sectors, government authorities, businesses, social organisations, knowledge and educational institutions, and scientific disciplines, from regional to international level.

The agenda helps by encouraging cooperation in every area, and by supporting private investments with public resources. As such, it also provides extra earning opportunities for various economic sectors and the Netherlands as a whole.

Collaboration goals and criteria

One important aspect of the agenda is that new knowledge is properly shared in every programme and every project, so collaboration with the education sector and business community . By providing initial and post-initial education, educational institutions and companies ensure that innovations are actually applied in practice by properly trained professionals.

Our goal is to change complex systems, so a whole range of perspectives must be examined. The process requires interaction between scientific disciplines, and between these disciplines and businesspeople, citizens, and government authorities. This leads to the right questions being asked, and new knowledge reflecting what is needed in practice. All these parties are developing new knowledge together, and utilising the innovative power of society as a whole.

International cooperation with partners from both within and outside the EU is also crucial. The Netherlands leads the world with its cutting-edge green-blue expertise. Collaboration promotes seamless integration of Dutch expertise and innovation into European networks and knowledge emerging from other sources, and ensures that the Netherlands has a positive impact on sustainability initiatives throughout the world.

Financial instruments

The Dutch government can use the knowledge and innovation agenda to promote cooperation at different stages of knowledge and innovation development

- By providing initial and post-initial education, educational institutions and companies ensure that innovations are actually applied in practice by properly trained professionals. Netherlands Organization for Scientific Research (**NWO-KIC**).
- Various forms of support are available for developing and experimenting with innovations planned for market introduction in around five years, including public-private partnership projects (**PPS**), **Fieldlabs** and the **MIT** a programme for cross-regional support for innovation in SMEs.
- Demonstration and implementation projects are even closer to being put into practice. In **Tailor-made Knowledge Projects**, for example, developed knowledge is converted into opportunities for businesses, while the Agricultural Business Advice and Education (**SABE**) subsidy module supports agricultural businesses looking for advice on innovation that promotes sustainability.
- The **Seed money projects,** for example, are specifically aimed at international profiling and linking. These help businesses form international partnerships.

More explanation and references to these and other instruments can be found on the website of the Knowledge and Innovation Agenda for Agriculture, Water and Food at kia-landbouwwatervoedsel.nl.

Mission 1: Nature

By 2050, biodiversity and the resilience of nature in the Netherlands will have been strengthened sustainably and demonstrably, thanks to active interventions by both society and the economy.

Worldwide, humans are placing an excessive burden on our planet and its natural values. Our societies are overloading Earth's capacity and resilience. Nature is the basis for prosperity and well-being, but it has been suffering a continued period of decline.

Society and economy are also overloading the natural system in the Netherlands: the air, water, soil and biodiversity are suffering increasing damage or becoming irreversibly depleted.

1. Nature

- **1A** Strengthen biodiversity and nature
- **1B** Strengthen and value ecosystem services
- **1C** Effective and sustainable use of nature-based solutions
- **1D** Transition to a nature-inclusive society
- **1E** Technology and data-driven nature policy and nature management

Channelling knowledge and innovation designed for this mission will help society treat nature as a foundation for the economy and an integral part of it, and at the same time create new opportunities, instead of merely seeing it limited to nature reserves.

For example, we are looking for methods to measure and alleviate the impact on water, soil, air, and biodiversity, while also incorporating nature into financial and economic products. Alongside this, we are exploring the economic opportunities offered by nature, and investigating how, through innovation, economic activities such as water storage, housing construction, infrastructure, and recreation can help with the recovery and conservation of nature.

Nature has been given its own place in the Dutch knowledge and innovation agenda, underlining the fact that nature restoration, conservation, and management require innovation and action from the worlds of science, government, and business.

Five innovation programmes

Five multi-year programmes focussing on knowledge and innovation designed to make nature in the Netherlands more resilient:

1A Strengthen biodiversity and nature
Work on broadly strengthening species and habitats, reducing pressure on ecosystems, and introducing innovative forms of policy, management, and monitoring.

1B Strengthen and value ecosystem services
More insight into the benefits and costs of natural capital, such as soil quality and water quality, strengthen the services that nature provides us, and calculate their value to the economy.

1C Deploy nature-based solutions effectively and sustainably
Develop nature-based solutions, ensuring that such solutions are based on prioritising aspects such as domestic and international climate mitigation and adaptation.

1D Transition to a nature-inclusive society
Knowledge and experiments targeting new economic, social, and legal frameworks and mechanisms, innovative financing approaches, and the enhancement of awareness and participatory behaviour.

1E Technology and data-driven nature policy and nature management
Development of technology and infrastructure for collecting and processing data on nature and biodiversity, knowledge-based and data-based nature policy and management.

Mission 2: Agriculture and horticulture

In 2050, Dutch agriculture and horticulture will be entirely sustainable: economically future-proof, resistant to a changing climate, operating within the boundaries of the natural environment, and boosting the well-being of people and animals.

Dutch agriculture and horticulture is at the forefront internationally. This is partly due to knowledge development and innovation in the past, which has led the sector to excel in both quantitative and qualitative production, with sustainability standards that are already leading in global terms.

2. Agriculture and horticulture

- **2A Agriculture and horticulture within the boundaries of the natural environment**
- **2B Earning capacity, perspective, and value creation**
- **2C Resilient plant production on healthy soil or substrate**
- **2D Resilient animal husbandry systems**
- **2E Circularity, production, and use of sustainable raw materials**
- **2F Energy transition in agriculture and horticulture**

At the same time, it is also clear that much additional new knowledge is needed for an agricultural sector which can operate sustainably and profitably in all respects in the future, and that there is room for a wide range of innovative solutions and applications.

This will allow farmers and horticulturalists to continue to respond to growing needs for products such as plant-based proteins, energy, raw materials for biomaterials, nature management, and landscape management. Agricultural companies in a sustainable society will be able to grasp these opportunities without causing a negative impact on the climate, nature, and animal welfare.

Numerous opportunities and challenges converge on the farms of individual farmers. Universally applicable solutions are rare. Innovations that are beneficial in one area can sometimes be counterproductive in others. For this reason, reinforcing the sustainability of agriculture and horticulture is a highly complex task. Integrated approaches that suit all parties and interests involved are needed.

The knowledge and innovation agenda helps by getting parties on the same page with a single common goal: agriculture and horticulture that can function within ecological and social limits, maintain the attractiveness of the countryside, and give businesspeople insight into new products, markets, services, and production methods. This opens the door for knowledge institutions, businesses, and government authorities to move forward in the right direction together.

Six innovation programmes

Six multi-year programmes focussing on knowledge and innovation that promote sustainable agriculture and horticulture in every aspect:

2A Agriculture and horticulture within the boundaries of the natural environment
Develop clear frameworks for ecologically sustainable agriculture and horticulture, and encourage the development or further development of production systems within those frameworks.

2B Earning capacity, perspective and value creation
Develop innovative and profitable market models and business models for farmers, horticultural businesses and associated businesses, where financing and risk management are of key importance.

2C Resilient plant production on healthy soil or substrate
Develop vegetable production systems and their building blocks that are climate-proof, resistant to diseases and pests, and appropriate in terms of the preconditions of biodiversity, soil water, water quality, and phytosanitary safety.

2D Resilient animal husbandry systems
Develop animal production systems and their building blocks that are entirely appropriate for the preconditions of soil quality, air quality, water quality, and net-zero in terms of climate and resources, and in line with the goals for animal dignity, animal health, human health, and landscape management.

2E Circularity, production and use of sustainable raw materials
Aim to close various cycles, including water and nutrients, at company, sector, and production chain level, in which the agricultural and horticultural sectors function both as users and producers of raw materials.

2F Energy transition in agriculture and horticulture
Focus on the development of net-zero agricultural production systems and innovative options for energy generation and storage of energy.

Mission 3: Area planning and water

In 2050, rural and urban areas will be planned and used within the limits defined in the preconditions of natural systems, such as climate, water, and soil. This will broadly boost prosperity for those who live, work, and recreate there. A coherent, water-based and soil-based perspective will be in place for both types of area.

Soil, water, and land will be used intensively in the Netherlands by all kinds of actors, and ensuring that all this usage combined meets the requirements of climate, energy and ecosystems presents us with major challenges. We are already struggling with long periods of drought, salinization and the effects of extreme weather. The way our space is planned and used will have to undergo some radical changes.

To solve the challenge presented by the Dutch landscape, we must base our actions on the possibilities and limitations of the soil system and water system, both in the countryside and urban areas. In the latter, for example, urban greenery improves the quality of life and reduces flooding and heat stress. The quality of soil and water is already under pressure, and we can no longer always take the availability of sufficient fresh water for domestic use, industry, irrigation, and nature for granted.

To ensure the Netherlands of the future is as well planned and usable as possible, we are going to have to work together on making all kinds of refinements. For this reason, it is crucial that all the users of land, water and soil, each with their own knowledge and insights, engage with each other. Unfortunately, sectors still unintentionally act at cross purposes way too often. The quality and availability of fresh water will obviously improve in the long term if knowledge institutions, drinking water companies, farmers, nature managers, and industry share their knowledge and ideas.

For this reason, the innovation programmes in this mission are not only aimed at established knowledge institutions and policy makers at national and regional levels; they are expressly searching for positive ways to involve businesspeople and experts in the agricultural and horticultural sectors, industry, construction, and recreation, as well as citizens, in developing knowledge. What is important to them?
Which of their creative ideas deserve a platform and broad application? Are they part of the bigger picture?
If all these parties participate in innovation programmes, they can, together, help solve the Netherlands' spatial challenges.

3. Area planning and water

Three innovation programmes

Three multi-year programmes focussing on knowledge and innovation aimed at vital rural and built-up areas in a climate-proof Netherlands:

3A Future-proof spatial planning of the rural area
Develop ways to jointly arrive at a coherent perspective for the use of the countryside, that is in balance with natural systems and improves the prosperity and well-being of the people who live, work, and recreate there.

3B Future-proof planning of the built-up area
Focus on ways to ensure that measures in the areas of nature, soil, water, and buildings reinforce each other in urban areas, and in this way guarantee climate resilience and quality of life in the long term.

3C Future-proof freshwater system
Focus on the preconditions that a future-proof freshwater system places on the planning and use of rural and built-up areas, and on ways to keep scarce fresh water supply and demand in balance at every level in the future.

Mission 4: Food

In 2050, the Dutch food system will be ecologically, socially, and economically sustainable, with an ecological footprint half the size of the footprint in 2015. Food in the Netherlands must be sustainable, tasty, healthy, and safe. The entire food chain will be economically healthy.

4. Food

- **4A** An ecologically and economically sustainable agricultural and food system
- **4B** Sustainable processing and food safety, both fresh and processed food
- **4C** Alternative proteins: chain, products, and consumers
- **4D** Sustainable and healthy food supply and consumer behaviour
- **4E** Food security both now and in the future, domestic and international
- **4F** Multiple valorisation of food and non-food

All the food grown, processed, distributed, and consumed in the world requires far more land, energy, water, and other resources than the planet can sustainably supply. Our food system is responsible for greenhouse gases and other emissions, thereby simultaneously placing extra pressure on natural ecosystems both in the Netherlands and wider world.

The food system's ecological footprint will therefore have to be reduced in size. At the same time, Dutch food must meet high standards in the future: attractive, safe, accessible to everyone, and contributing to lifestyles that are less likely to lead to obesity, lifestyle diseases, and major differences in healthy life expectancy. This is another area that offers new opportunities for the European and globally strong Dutch agri-food sector.

To achieve this ambitious goal, innovations are needed throughout the food chain; from 'farm to fork' and beyond, a process that also involves food companies, producers, shops, restaurants, consumers, and waste processors. Companies throughout the chain, which often straddles international borders, will distribute the costs and benefits of sustainability fairly and remain economically profitable and healthy. This will enable them to continue to contribute to the export of Dutch food products, knowledge and technology, areas of significant importance.

The transition to a more sustainable food system affects a considerable number of parties and themes. It requires some major steps, such as a tendency to replace animal proteins with proteins from other sources, reducing waste throughout the chain, making diets healthier, and processing what is currently considered residual products into higher-quality products.

On the path to 2050, the Netherlands will already take concrete intermediate steps. For example, by 2030, half of all consumed proteins will be of non-animal origin. Consumers will therefore have more access to sustainably produced, healthy, safe, and fairly priced food. Compared to 2015, half as much food will be wasted in 2030, and residual products in the food system will be optimally reused.

New knowledge and innovations are essential for all these major, closely related steps, and will give the strong Dutch agri-food sector new prospects.

Six innovation programmes

Six multi-year programmes focussing on knowledge and innovation aimed at sustainable, healthy, valued, accessible, and safe food:

4A An ecologically and economically sustainable agricultural and food system
Restructure the agricultural and food system, more transparency in the food chain, and sustainable positioning of the Netherlands in global food production chains.

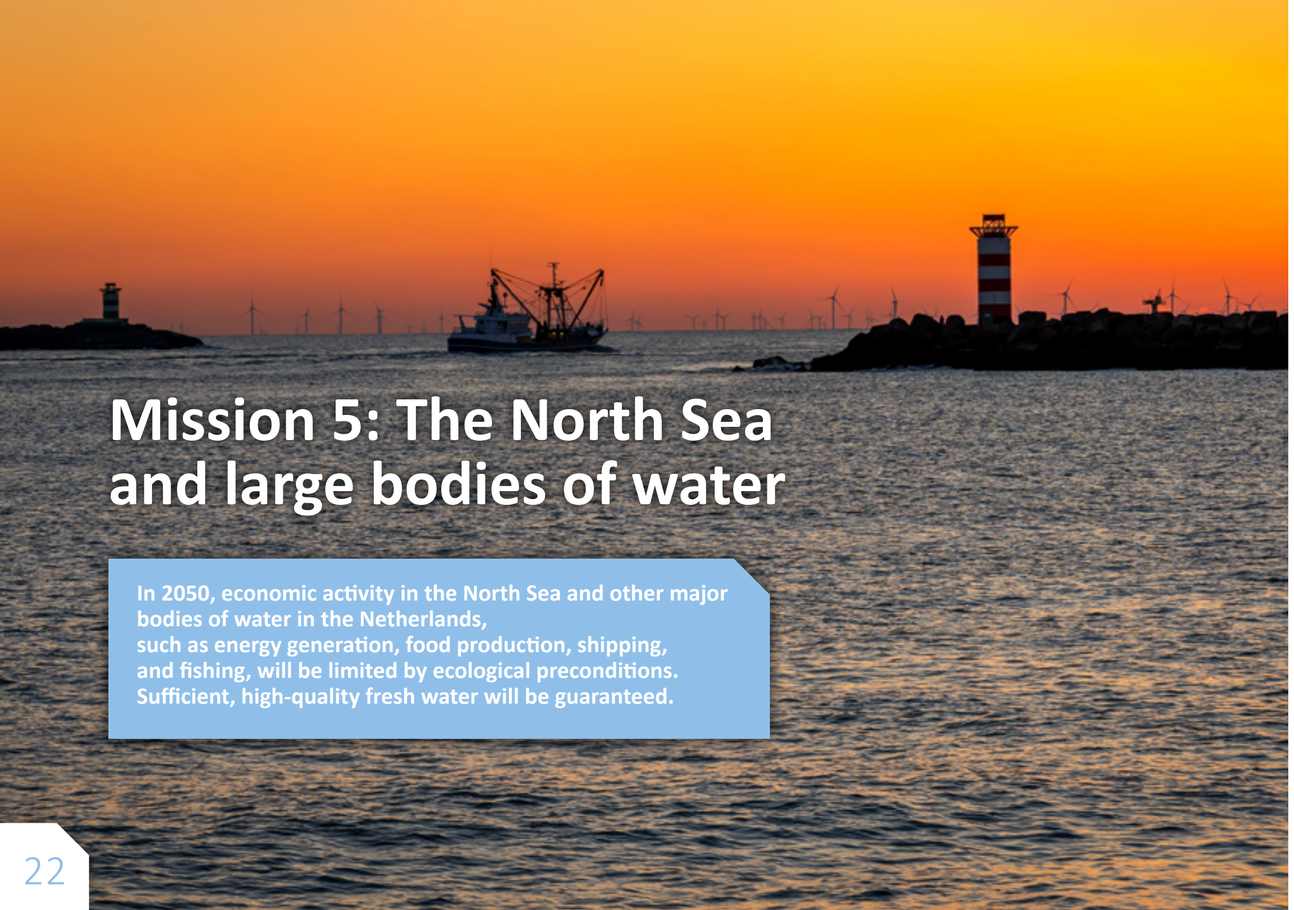
4B Sustainable processing and food safety, both fresh and processed food
More efficient use of energy, water, and raw materials in processing industries; more sustainability in the production chain, distribution chain, and ensuring food safety; further sustainabilisation of horticultural chains in food and floriculture

4C Alternative proteins: chain, products, and consumer
Higher production, larger and better range of products, higher consumption of non-animal or alternatively produced food proteins, and insight into the characteristics of such proteins and possible impact on health of a shift in human diets.

4D Sustainable and healthy food supply and consumer behaviour
Expand the range of sustainable and healthy food products, encourage and support more sustainable consumer behaviour, and insight into their possible health effects.

4E Food security now and in the future, internationally and in the Netherlands
Aimed at improving insight into the shock resistance of domestic and international food systems; higher, more sustainable production and efficiency of agri-food sectors, healthier consumer diets, and reduced food loss and waste in low-income and middle-income countries.

4F Multiple valorisation of food and non-food
More efficient use of bio-based raw materials, full valorisation of by-products and residual products, development and recycling of bio-based materials and products.



Mission 5: The North Sea and large bodies of water

In 2050, economic activity in the North Sea and other major bodies of water in the Netherlands, such as energy generation, food production, shipping, and fishing, will be limited by ecological preconditions. Sufficient, high-quality fresh water will be guaranteed.

Most of the world's and the EU's surface area is water. In the Netherlands, seas, lakes, and large rivers and their associated ecosystems are also vitally important, sometimes more than we realise.

They provide food, prosperity, and well-being, as well as biodiversity. Large bodies of water are also important buffers during droughts and extreme rainfall caused by climate change.

Marine ecosystems are under high pressure due to global warming and increasing human activity, such as fishing and offshore energy extraction. As is the case on land, we will adapt the use of large bodies of water to what ecosystems can cope with.
This applies to the Dutch deltas and the North Sea, as well as in the oceans and around the Caribbean islands.

Knowledge and innovation are desperately needed here to determine the carrying capacity of ecosystems, to determine space for sustainable economic use, and to protect and strengthen nature, among other reasons.
Within the frameworks of the ecological preconditions, we will produce high-quality food through profitable fishing and aquaculture. At the same time, it will also be possible to continue or initiate the large-scale generation of wind energy, extraction of raw materials for construction, floating structures, shipping and other blue sectors where these are appropriate within responsible spatial, ecological, and safety frameworks.

5. The North Sea and large bodies of water

- **5A** Sustainable North Sea and oceans
- **5B** Sustainable rivers, lakes, and intertidal areas
- **5C** Nature-inclusive agriculture, fisheries, and water management in the Caribbean Netherlands
- **5D** Sustainable blue economy
- **5E** Aquatic food production

It is crucial that this mission seeks collaboration between government institutions, knowledge institutes, and companies, and that this is extended internationally. After all, there are no borders in the ecosystems of large bodies of waters, the export opportunities are considerable, and the challenges are formidable.

Five innovation programmes

Five multi-year programmes focussing on knowledge and innovation aimed at the sustainable and safe use of oceans, the North Sea, and other bodies of waters in the Netherlands:

5A Sustainable North Sea and oceans
Insight into the resilience of ecosystems in the North Sea and oceans, and the impact of climate change. Food production and economic use within established ecological conditions; nature restoration and biodiversity that meet demonstrable targets.

5B Sustainable rivers, lakes, and intertidal areas
Knowledge of ecosystems at the boundaries between water and land; insight into positive and negative effects of economic use and the associated preconditions; revenue models for new planning concepts; adapted water and nature management to cope with issues such as drought, salinisation, and flooding.

5C Nature-inclusive agriculture, fisheries, and water management in the Caribbean Netherlands
Knowledge of the ecosystem in the ocean around the Caribbean Netherlands, restoration and protection of threatened habitats (such as coral reefs); fishing and recreation within ecological preconditions; effective wastewater cleaning strategies

5D Sustainable blue economy
Sustainable energy production on and from water; sustainable systems for food production, raw material extraction and floating buildings at sea; proven approach for measuring and cleaning up waste in the sea and ocean.

5E Aquatic food production
Fully sustainable fishing and aquaculture as an integral part of food policy; greater awareness and appreciation of marine food; new models for multifunctional ways of doing business.

Mission 6: Safe deltas

In 2050, despite rising sea levels and a greater fluctuations in river flows, the Netherlands will still be a safe and resilient low-lying and water-dominated landscape. Land and water will be protected with affordable, circular, net-zero, and nature-inclusive measures. Ports will be accessible, and it will be possible to navigate rivers, canals, and the North Sea safely.

The Dutch deltas have the strictest flood risk standards worldwide. There is protection is at multiple levels: flood defences and dykes, spatial planning, and a solid crisis organisation.

Uncertainty about how quickly sea levels will rise, more fluctuations in river discharges, more extreme rainfall and longer drought periods, in combination with other social challenges such as climate mitigation and circularity, require new considerations and solutions for the distant future. These also have an impact on other innovation themes and current policy and implementation programmes.

The knowledge and innovation agenda for the theme Agriculture, water and food focuses on innovative additions to our protection against flooding on the one hand, and on the distribution of available water across the Netherlands on the other. The solutions must meet all kinds of preconditions, such as feasibility, affordability, and speed, as well as lower consumption of energy and raw materials, protected biodiversity, and nature inclusivity.

Various sectors are involved in designing methods to reduce energy consumption, and to use construction raw materials such as sand and gravel in a more circular way. Sectors which consume these raw materials are involved building homes, business premises, roads, and other infrastructure works.

Sustainable and safe maritime and inland shipping is crucial for a vital, resilient, low-lying and water-dominated landscape like the Netherlands. Globally, the economically important maritime sector is responsible for almost three percent of all greenhouse gas emissions. In the future, ships and maritime installations will be built and recycled with minimal consumption of raw materials, and be operated net-zero - also for the protection of the Dutch deltas.

In the coming decades, the pressure on seas, rivers and canals will increase, due to factors such as a major expansion of offshore energy and food production and the need to transport more cargo more sustainably, meaning by ship. Innovation will be necessary to maintain and, where possible, increase safety, despite increasing traffic.

Three innovation programmes

Drie meerjarige programma's focussen op kennis en innovatie gericht op Nederland als veilige en weerbare delta:

6A Sustainable measures for safe, resilient, navigable deltas
Knowledge of the future water system under more extreme climate scenarios with regard to flood risks and water availability; development, testing and adjustment of multifunctional, nature-inclusive, circular, and climate-neutral measures.

6B Reduce the use of primary raw materials for construction and other industries
Halving the use of primary sludge, sand, and gravel for delta protection measures. Greater use of local and recycled construction materials; more sustainable extraction of primary raw materials.

6C Safe, circular net-zero shipping
Make existing ships more energy efficient, net-zero, and quieter; increase the efficiency of the shipbuilding sector in terms of economic activity, energy and raw materials; technology to keep shipping safe despite increasing traffic offshore and on inland waterways.

Safe deltas

- **6A** 6A Sustainable measures for safe, resilient, and navigable deltas
- **6B** Reduce the use of primary raw materials for construction and other industries
- **6C** Safe, circular net-zero shipping

Key technologies

By 2030, key technologies will have been developed that contribute to multiple missions in blue-green sectors. They will help those sectors achieve their missions and goals more effectively, faster, or more efficiently.

Making new key technologies available is less a mission, and more a goal, as it can significantly increase the success of various blue-green missions..

This knowledge and innovation agenda reserves a special role for smart technologies and biotechnology in the coming years.

These smart technologies include a growing range of methods and techniques such as big data, sensors, AI, digital twins, and smart design, which are increasingly finding their way into the blue-green domain. The agenda provides great opportunities to accelerate essential transitions with key technologies.

This also applies to various forms of biotechnology, where agriculture and horticulture, for example, can benefit considerably from plant starting materials (such as seeds and seed potatoes) and animal breeds that can contribute to ecological sustainability, net-zero, and circularity.

Biotechnology that makes use of the almost limitless variety of micro-organisms and biological enzymes for all kinds of processes is expected to be extremely useful in areas such as making degradable bioplastics, high-quality food ingredients, and natural disease control agents.
It is also expected to have a major impact in the large-scale, safe and efficient breakdown, recycling and upgrading of all kinds of by-products and residual products that are currently still considered waste.

Three innovation programmes

Three multi-year innovation programmes focussing on the development of key technologies for the blue-green agenda:

ST1 Smart technologies for the blue-green domain
Digital and robotic technology to make blue-green systems, including agriculture, horticulture, and water, more efficient, intelligent, transparent, safe, adaptive, labour-friendly, resilient, and ecologically sustainable.

ST2 Biotechnology and breeding
Genetic variation and innovative technology for plant breeding and animal breeding to provide agriculture and livestock farming with plant and animal breeds optimally suited for the blue-green missions.

ST3 Fermentation and bioconversion
Development and large-scale application of microbiological and enzymatic conversions with potential for applications in ecological and climatic sustainability, and circularity

Key technologies

ST1 Smart technologies for the blue-green domain

ST2 Biotechnology and breeding

ST3 Fermentation and bioconversion

More information

This summary and the complete Knowledge and Innovation Agenda for Agriculture, Water and Food can be found online at kia-landbouwwaterfood.nl. Companies and knowledge institutions can also contact us via email for more information info@landbouwwatervoedsel.nl.

Jointly published by the following

The Netherlands Ministry of Agriculture, Nature and Food Quality
The Netherlands Ministry of Health, Welfare and Sport
The Netherlands Ministry of Infrastructure and Water Management
Top Sector Agri & Food
Top Sector Horticulture & Starting Materials Top Sector Water & Maritime

The Hague, November 2023