Norges forskningsråd

Work Programme

The Food Programme:
Norwegian Food from Sea and Land

www.forskningsradet.no/matnorge

1. Introduction.

Food includes raw materials and processed products from sea and land. Food differs from other products by being based on biological processes and raw materials. This means that the provision of good quality and durable products constitutes a great challenge. Food is one of the most important factors in maintaining good health. The contents of healthy substances in food and food safety are undoubtedly of decisive importance to all consumers. Food products must also be produced in a manner that is acceptable to consumers.

It is important to ensure positive communication about food, in which the focus is on taste, culture and the joy of good food. Without tasty products, it will hardly be possible to get through to consumers with the message of the importance of a healthy diet. Food is culture, culinary experience, health and a pure necessity.

The new food research programme is based on the view that food is essential to our health and quality of life. The programme will focus on innovation throughout the value chain from consumer to primary production for both agricultural food products and seafood. Norwegian food production must be competitive and market-oriented, based on innovative, healthy products and processes with a high level of knowledge and expertise.

1.1 Innovation for Future Food Production – New, Good and Safe Food

Consumers are increasingly being influenced by a more global food market – both regarding products that are available on the Norwegian market and products that Norwegian consumers encounter abroad. These are challenges that will have a significant effect on Norwegian food production throughout the value chain from market to primary production in both the marine sector and the agricultural sector. Innovation, wealth creation and adaptability are of importance to all players in this industry. Norwegian marine food production has an international market and must therefore deal with these changes in a large number of countries concurrently.

The greatest challenges for future Norwegian food production for the Norwegian market and the export market are to utilise a considerable potential that provides a number of opportunities. In general outline, the potential for improvements is as follows:

- Norwegian food production can become more competitive through more market-adjusted production
- Norwegian food production can become more competitive by focusing on products with significantly increased valued added and on improved knowledge compared with the current level
- Norwegian food production can reduce the level of costs through more rational production.

These three opportunities can be utilised separately or in combination.

The programme is to utilise a considerable potential for synergy between agricultural and marine industries. This includes good competence in technology and logistics from agricultural food production and good knowledge about export and export markets in marine food production. Marine food production must deal with fluctuations in the base of raw materials, an international market with different trends and requirements and varying international framework conditions. Agricultural food production primarily caters for the domestic market, but reduced protection against cross-border trade, including as a result of

changes in international trade agreements, means that there is sharper competition from imported products. It must also be assumed that the trend of increased globalisation of the trade in food products will continue. However, these changes open up for a higher volume of exports than today, including for niche products with distinctive Norwegian characteristics. Structural changes, new technology and new improved production methods must be implemented in order to meet changed framework conditions and changes in consumer habits.

In addition to the above opportunities, consumer requirements will play an even more central role in the future than today, and consumer-oriented innovations will become even more important. Consumer focus on health, food safety, products that are easy to prepare and a wish for variation are examples of this. The social gain of preventive health care work through better diets and good food safety requires research-based documentation as a basis for innovative industrial development.

Concentration and growth of multinational companies and changes in distribution and sales create further challenges that make great demands on knowledge, expertise as well as the ability to predict and understand market needs and requirements and to base the production on this knowledge.

An important objective is to increase the participation of industry enterprises (both SMEs with networks and large integrated companies) in the production of knowledge in order to achieve an increase in product and process innovations. Niche products (primary production and processing) will be a major opportunity, but also constitute a challenge in terms of technology, market and organisation, for example for the handling of food safety. Food culture and tradition also constitute a basis for new products.

Primary production, the processing industry and the distribution stage are a value chain in which experience and new competence and knowledge are among the key factors in securing the future of Norwegian food production and for the settlement pattern in the districts. The supplier industry is also an important part of this “food cluster”.

In total, all these factors constitute a significant need for new, research-based knowledge as a basis of innovation in Norwegian food production and for the industries to develop into being more innovative and competitive, so that they contribute to health-promoting development in society in general and for the individual consumer. This means that the R&D initiatives must be increased considerably. The new programme includes problems and issues throughout the value chain. The objective is to boost the performance of the industry through research-based innovation based on market and consumer needs and requirements as well as the existing framework conditions. Joint collaboration projects (networks) in which the different players in the value chain participate will be desirable.

In addition, the public authorities will have a considerable need for research-based knowledge to enable them to handle optimally the overall supervisory responsibility for food production in Norway. This includes the health of animals and plants, animal welfare, food safety, ethics, sustainability and food quality. The rules must ensure consumers of a high level of protection. The rules must also be drawn up in a manner that promotes wealth creation. The food administration therefore needs research-based knowledge as an important basis for the evaluation of the risks connected with various raw materials, products, processes and properties in the different stages of the food production chain. The food administration also needs research as a supplier of expertise to ensure that the food production industry is

provided with optimal framework conditions in connection with the preparation of international codes.

Risk knowledge is completely essential to the framework conditions that exist for achieving the potential inherent in food production in Norway. Risks connected with food and feedstuffs include microorganisms, viruses, parasites or chemical compounds, including contaminants, biotoxins, drug remnants, food substances and nutrients, which, in given situations, may represent a health risk for humans or animals.

All links in the food value chain have a responsibility for ensuring safe food. The players in the food industry have a responsibility for ensuring that they have sufficient knowledge about risks that may be of importance in this connection. This is one of the central themes in the field of food policy. The industry has a clear responsibility in relation to ensuring safe food for consumers, whereas the public authorities are responsible for supervising that the industry handles its responsibility.

The common denominator for industry, public authorities and consumers is a great need for the development of knowledge, because this is absolutely essential for meeting the objective of healthy and safe food and to ensure wealth creation.

1.2 Current State of Food Production in Norway[1]

Primary production and the food processing industry constitute a large employment sector in Norway, and the industries are of decisive importance to the settlement pattern throughout Norway. The food processing industry alone accounts for 25 % of Norwegian industry's gross production value as well as 52,000 many-years, corresponding to 19 % of industrial employment in Norway. Marine capture fisheries, fish farming and agriculture comprise a total of approximately 80,000 man-years. Overall, this means that more than 130,000 man-years in all parts of Norway have food production as their main source of income. These industries have significant ripple effects, which means that the total employment in local areas and central parts of Norway is significantly higher.

The turnover in the Norwegian food processing industry amounts to approximately NOK 105 billion, of which processing and preservation of fish and fish products constitute NOK 26.5 billion. Added to this is the value of the primary production (from agriculture and fisheries) that is sold without significant processing. Marine food products had an export value of approximately NOK 28.7 billion with exports to more than 150 countries in 2004. The export share was as high as 90 % of the total production.

1.3 Target Groups

The primary target groups of the programme are ***trade and industry*** and ***public administration***, whereas the ***R&D communities*** are very important for the performance of the research tasks that trade and industry and the public administration need.

Trade and industry include primary producers (farmers and fishermen), trade and industry organisations, enterprises and farms in agriculture and fisheries, the food industry and the supplier industry for this sector.

[1] The data have been obtained from Statistisk sentralbyrå – Statistics Norway (data from 2002) and Mat og industri 2004 (Norwegian Institute for Agricultural Research)

The public administration includes the Norwegian Food Safety Authority and the "food ministries". The Scientific Committee for Food Safety will also be an important user of research-based knowledge.

The R&D communities are to ensure that Norway has relevant scientific knowledge, expertise and capacity in relation to national requirements and at international level. The universities have an important task of ensuring optimal recruitment of researchers qualitatively and quantitatively as well as in relevant fields.

1.4 Basic Documents

The programme is based on a number of plan documents and processes, including:

- Action Plan for Priorities in Food and Agricultural Research (Ministry of Agriculture and Food/The Research Council of Norway 2001)
- Long-term Plan for Agricultural Research
- The Research Council of Norway's Strategy (2004)
- Proposal for Wealth Creation in the Marine Sector (Ministry of Fisheries and Coastal Affairs 2004)
- Aquaculture 2020. Barrier-breaking – if… A Foresight Analysis (2004)
- Research Priorities in Organic Production and Distribution (The Research Council of Norway 2004)
- Research Needs in Animal Welfare in Norway (The Research Council of Norway 2005)
- Action Plan for Consumer-Oriented Food Policy 2004 – 2005 (Ministry of Fisheries and Coastal Affairs, Ministry of Health and Care Services, Ministry of Agriculture and Food and Ministry of Children and Family Affairs)
- Increased Wealth Creation in the Fisheries Industry (the Grønnevedt Committee, Ministry of Fisheries and Coastal Affairs, July 2004)
- Strategy for Industrial Development: The Agricultural Sector – More Than Agriculture (Ministry of Agriculture and Food 2004)
- Animal Husbandry and Animal Welfare (Report no. 12 to the Storting, Ministry of Agriculture and Food, 2002/03)
- Recipe for a Healthier Norway (Report no. 16 to the Storting, Ministry of Health and Care Services, 2002/03)
- Industrial Development in the Marine Sector – The Blue Field (Report no. 19 (2004-2005) to the Storting, Ministry of Fisheries and Coastal Affairs, 2004/05).

In addition, food science and technology research and research aimed at the primary industries and the processing industry under the EU's 6th and 7th framework programmes will be of significant importance. The Research Report (The Will to Research. Report no. 20 (2004-2005) to the Storting) will be important to the future planning of the programme.

2. Vision and Mission

The programme has the responsibility for industrial and administrative research throughout the value chain from consumer to primary production for agricultural food production and seafood with the exception of themes in aquaculture, which are covered by the new Aquaculture Programme.

2.1 Vision

Competitive and innovative industries that supply Norwegian food for the future.

2.2 Mission

- To strengthen innovation for increased competitiveness, wealth creation and market orientation for Norwegian food production.
- To develop Norwegian food production so that high standards for health, quality, ethical values, sustainability and the environment are ensured.
- To contribute to the food administration having research-based, updated knowledge as a basis for its administrative work and for the drawing up of national and international codes.
- To contribute to improvement, work division and creation of cutting-edge competence so that the R&D communities overall have knowledge and expertise at international level in fields of great importance to the development of trade and industry and public administration in Norway.
- To utilise the possibilities of good synergies between the marine and agricultural industries

3. Research Priorities

The research conducted under the programme is to contribute to offering consumers a good range of healthy and safe food products that are of good quality and produced based on the right ethical standards at all levels. The research is also to contribute to ensuring that Norwegian food production is competitive on price and quality on both the domestic market and the international market, and that the great importance of the food sector for wealth creation and settlement throughout Norway can be developed further. This can be achieved by increasing the value of the products, by increased efficiency throughout the value chain from consumer to production of raw materials and through market growth. The research is to provide the food administration and trade and industry with a scientific basis for risk analysis and for measures and communication with consumers and trade and industry.

The public authorities have a responsibility for laying down minimum requirements for food products and the way in which they are produced in order to be marketable. All links in the value chain are responsible for ensuring that the food products are produced in accordance with these statutory minimum requirements for health, welfare, food safety and quality. In addition, the food products may have properties in excess of the minimum requirements that ensure that the industry can realise a potential for increased wealth creation in its food production.

It is an important objective for the programme to establish some user-led research projects and/or knowledge-building projects that cover the whole value chain from market to primary production and that have synergy effects between marine and agricultural food production. Such initiatives may be delimited to one of the themes listed below or they may be interdisciplinary projects that include several themes. There may also be a need to prioritise the development of technology platforms in central themes.

Under this wide research programme, there will be a need for industrial and administrative research in a number of themes. The themes in the work programme will apply throughout the programme period. The annual calls for proposals for research will contain specific information about the themes (possibly sub-themes) that will be given priority as well as about the other guidelines on which the projects will be based. Important interdisciplinary themes across the principal themes listed below will be:

- Competitive raw materials and industrial production
- Innovative products and processes
- Food and health

Important principal themes in the new programme are:

3.1 Market Research

The programme will support market research aimed at ensuring that Norwegian food products will be competitive both on the Norwegian market and on the global market by strengthening market knowledge in Norwegian food production. This will be achieved by strengthening the food-producing industries' ability to market-orient their production and to meet central market challenges on a global market and on their domestic market. The export markets and the importance of constantly increasing globalisation will be of decisive importance to the development of Norwegian food production. For Norwegian food products that face international competition, it will be of decisive importance that the industries are able to utilise and, not least, communicate the unique properties, advantages and values of the Norwegian products compared with competing products from other countries. Necessary market research is a prerequisite for the ability to utilise these advantages.

Knowledge must be developed that provides a basis for better market communication, differentiation of the product range, including positioning in and development of profitable market niches, and implementation of competitive market strategies in industries and enterprises. Importance is attached to having good knowledge about market adjustment on the Norwegian market and the international market regarding:
-market development such as changes on the markets, competitive conditions, competitors and product development
-consumer knowledge such as consumer behaviour, consumer trends, health, simple preparation and price analyses
- market conditions such as food security, food safety and market emergency preparedness, environmental requirements, ethics as well as product standards and quality requirements
- distribution such as logistics, chain formation, market power and changes in the value chain

3.2 Innovative and Market-adjusted Products and Entrepreneurship

The programme will support research that provides new, market-adjusted products that have a high value and that have been developed and produced on the basis of a high level of knowledge. Importance is attached to utilising the potential for synergy between marine and agricultural raw materials. It will be important to integrate product development, design, new knowledge about the use of resources, use of new materials and production by means of advanced information technology throughout the value chain. The theme will also focus on innovative and profitable niche products as well as products from small-scale production. In addition to purely sensuous qualities, the consideration for ethics, the environment and sustainability may add an extra dimension to the quality concept and provide the product with added value. Product properties and products that can open up for new markets for Norwegian food products are of special interest. An important possibility will be health-promoting products with good documentation of their properties. Functional and innovative packaging solutions also form part of the programme. Taste and the possibility of the product making a positive contribution to food culture and to the joy of good food should have a central position for all products. In order to strengthen the knowledge base for wealth creation, the focus will be on research that results in improved methods for consumer-oriented product development, innovation work and entrepreneurship.

3.3 Production Technology, Process Technology and Logistics

The programme will contribute with research that results in reduced production costs and/or higher value for finished products, for which there is a demand on the market. Through co-operation between the primary industries, the food processing industry and the supplier industry, new technology is to be developed that reduces production costs and/or technology that results in qualitatively better products with higher prices. In such a cluster, new concepts and processes and new technology (possibly further development of known processes and technology) are to be developed in order to achieve more profitable and effective production of new, improved products with increased value. Automation and simplification of the processes will be important. It is necessary to handle the contents of nutritionally beneficial substances throughout the production process. This entails an increased requirement for the development of new, gentle production processes and improved methods of preservation. The development of new forms of packaging is an important theme, and, in this connection, one should also understand how the market views a long shelf life and various forms of food packaging. The programme is to contribute to ensuring that a larger share of the raw materials are utilised in the food production for high-quality products and that by-products from the primary industries and the food processing industry are used to the greatest possible extent as raw materials in new knowledge-based products. Biotechnology will be an important tool for the processing of raw materials and by-products and as an analysis tool. There is a need to develop better logistics and information systems and tools for system analysis throughout the whole chain from consumer to primary production. Logistics, traceability and management of product quality are closely linked, and research that leads to good systems for logistics and traceability throughout the chain will be an important prerequisite for ensuring consumer confidence on a market that is exposed to competition.

3.4 Competitive Production of Raw Materials

The programme will support research that contributes to competitive, sustainable and environmentally friendly production, catching, harvesting and handling of raw materials that consumers demand directly or that provide a basis for innovative industrial processing. It will be important to utilise primary production resources and ensure that the raw materials have and maintain their quality, durability and good properties throughout the value chain until they reach the consumer. Technology for competitive harvesting, slaughtering, catching and intermediate storage that ensure that raw materials have good properties and are based on ethics, sustainability and environmentally friendly methods is important. The theme includes research into utilisation of natural advantages and other advantages in the use of marine and agricultural raw materials as well as game that are only used to a minor extent today. In order to strengthen competitiveness, knowledge is required about optimal production systems and types of operations, including organic production, that safeguard health and welfare in production and that ensure safe and reliable food production. The areas of focus under the programme will include the development of measuring technology and analysis methods that contribute to good documentation of the properties of the raw materials used. Livestock breeding, plant breeding and cultivation systems are included. Use of biotechnology will be an important tool in, for example, livestock breeding, plant breeding, animal health and plant health.

3.5 Food-Related Health Quality and Quality of Life

The programme will support research that provides a basis for products that contribute to a healthy diet in consumers, which results in improved quality of life while also ensuring food safety. The connection between food, health and quality of life is an area of increasing focus. There is a need to increase research initiatives in this field to document biological and health effects of food in general and of nutrients, additives and other substances with biological

activity. New products should be developed based on this knowledge. There is a particular need for documentation of the properties of various food substances as well as the properties of ingredients and additives. Nutritional research and consumer research that provide a basis for the development of a varied range of products for different population groups will be important. Research aimed at mapping the health effects of and consumers' reactions to genetically modified food products forms part of these initiatives. Consumers must be ensured of safe and healthy food of "genuine" quality through environmentally friendly and ethically acceptable food production. Research aimed at increasing knowledge about the occurrence and optimal control of pathogenic parasites and microorganisms as well as the prevention of food allergies and intolerance will be important. Unacceptable contents of foreign agents in food and the health effects of foreign agents will also be areas of focus.

3.6 Innovation in the Public Sector/Food Administration

The rules for Norwegian food production are, to a great extent, laid down at global level in Codex Alimentarius and at regional level in EU/EEA codes as well as in the International Plant Protection Convention. The programme is to contribute to creating a basis for ensuring that the Norwegian and international codes are based on high-quality research and expertise. Norway must contribute with such research-based knowledge and expertise in these forums in order to provide optimal framework conditions for Norwegian food production. For seafood, it is important that protection principles are based on a separate research-based risk assessment. For agricultural food products, it is important that protection principles include the special conditions that exist in Norway.

The food administration will need knowledge in many areas that have been mentioned under the other themes. This applies, for example, to plant health, animal and fish health and welfare, food safety and food quality. In addition, the food administration will need research into themes such as risk (risk assessment, risk handling and risk communication).

4. Participation of Trade and Industry and the Public Administration

Increased innovation in trade and industry and in the food administration is the central objective for the programme. This means that the industries and the food administration must be central players in the ranking of priorities and funding of the research activities under the programme.

The various **industries** that are the target groups of the programme are well represented in the planning of the programme so that their priorities will have a prominent place in the work programme. The industries must also be ensured of a majority of the representatives on the Programme Committee that is subsequently to run the programme. This means that the industries will play a key role in the ranking of priorities for target areas within the programme's knowledge-building field of responsibility and in the allocation of project funds. User-led innovation projects (UIPs) and knowledge-building projects with user involvement (KUIs) will be the most important instruments for the industrial research. UIPs are to contribute to achieving the financial and economic potential inherent in the industries. KUIs are to contribute to knowledge and competence improvement in the R&D communities in areas that the industries prioritise. The possibility of close links between researchers and enterprises should be provided by researchers working in the industry in periods.

The public administration's research needs will be met by the food administration being represented in the work programme planning and on the Programme Committee. Furthermore,

the food administration will prepare annual reports on the ranking of priorities for its R&D needs. Researcher projects will probably be the most important instrument for the food administration.

The industries will also participate actively in the programme through close co-operation and co-ordination with the Fisheries and Aquacultural Industry's Research Foundation, the Fund for Research Duty on Agricultural Products and funds via the Agreement on Agriculture.

5. International Co-operation

Research aimed at food production will provide a number of interesting possibilities for international co-operation and policy instruments. The new programme must be designed so that it will have a unique position in an international context, while also ensuring the greatest possible benefit of the international policy instruments available in the food area. International co-operation must be an integral part of the programme to meet national needs for knowledge building and for industrial innovation initiatives.

5.1 The EU's 7th Framework Programme (7FP)

These activities are in the planning stage and will be commenced in 2007. The planning is based on the budgetary parameters for this programme being significantly larger than for the 6th Framework Programme. Norway plays an active role with proposals for the new framework programme. Good co-ordination between the food science and technology research in 7FP and the Research Council's new programme will be important. The Food Programme must have the necessary flexibility to handle this possibility.

5.2 The EU's ERA-NET Projects in the Food Area

The Research Council of Norway participates in three ERA-NET projects that are connected with food and food safety. These projects are:

- SAFEFOODERA **(**Forming a European platform for protecting consumers against health risks)
- Core Organic (Joining resources to improve research in organic food and farming)
- ERA PG (Plant Genomics – fertile for collaboration)

The responsibility for the ERA PG project lies with the FUGE Programme (Functional Genomics in Norway), whereas the new Food Programme will be responsible for follow-up in the SAFEFOODERA and Core Organic projects. During the programme period, transnational calls for proposals for research in selected themes, where funds from the programme may be used, may be relevant.

5.3 EUREKA

The programme will prioritise EUREKA projects with participation of players from Norwegian trade and industry on an equal footing with national projects.

5.4 International Bilateral Co-operation

With funding from the Ministry of Agriculture and Food, research co-operation will be established between the USA and Norway, including in the field of food safety, in 2005. Norway has bilateral research co-operation agreements with a number of countries. In the marine sector, co-operation with Japan and China will be of special interest.

5.5 Nordic Co-operation

Nordic Joint Committee for Agricultural Research (NKJ): NKJ is a contact and advisory body for the five Nordic countries' national research councils in the agricultural food area. NKJ has its own calls for proposals for research and programmes, but the projects must be funded nationally. The Food Programme will be the research expertise contact point for Norway's part.

Nordic Innovation Centre (NICe): The Research Council is involved in NICe's industrial research activities in food safety. The research initiatives are based on joint priorities in the Nordic countries. In addition, NICe funds other industrial research projects aimed at the Nordic food processing industry.

Nordic Working Group on Fisheries Research (NAF): NAF provides advice and initiates activities in research and development in the fisheries sector.

The Nordic Research Board (Nordforsk): The Nordic Research Board will be established as a new Nordic agency as from 2005. The Nordic Research Board will be an important instrument for promoting the Nordic countries as a leading research region regardless of the themes in question.

6. Policy Instruments

The use of policy instruments in the Research Council, including instruments and funding mechanisms for innovation and industrial research, is under revision. Instruments used under the programme will be:

- User-led innovation projects (UIPs)
- Knowledge-building instruments. These may be researcher projects, knowledge-building projects with user involvement (KUIs) and strategic programmes. KUIs will be the most important knowledge-building instrument under the programme. Researcher projects may be used in connection with special calls for proposals for research aimed at the public administration's research needs. The role of the Food Programme in strategic programmes will be defined at a later stage.

In addition, SkatteFUNN – the tax deduction scheme for R&D expenses – will be an important instrument, which is to be co-ordinated with the user-led innovation projects under the programme.

It is important that knowledge building takes place in both user-led research projects and in knowledge-building projects. The knowledge-building projects are to contribute to the R&D communities having the knowledge and expertise demanded by trade and industry and the public administration in a 5-10 year perspective. Doctorate degree programmes and post-doctoral activities will be central tasks for the new programme. The universities will have an important task to perform here. International mobility in the projects will also be important. This applies to both research stays for Norwegian research fellows and researchers at foreign R&D institutions and stays in Norway for foreign researchers. An important part of the knowledge-building activities is to nurture researcher talents who want to and have the ability to use research results as a basis for commercial exploitation. The programme is to contribute to extensive co-operation with administrative agencies aimed at commercialisation of research results.

In order to ensure that the research is of a good quality, there must be competition for all project funding. This applies to both user-led research projects and knowledge-building projects. For user-led projects, the rule must be that several enterprises or perhaps an industry co-operate on each individual project. Project applications from individual enterprises will only be supported in exceptional cases. For knowledge-building projects, co-operation between different R&D communities will be an important criterion for promoting cutting-edge knowledge and expertise and avoiding unnecessary parallel development of knowledge and expertise. Co-operation with enterprises and R&D communities abroad will be of increased importance and will be an important criterion for selection of applications, especially in areas in which Norway has poor competence. Good co-ordination must be ensured with the use of strategic programmes as an instrument. Joint thematic calls for proposals for research through the ERA-NET projects in which the Research Council participates are to be given priority. Decisive importance will be attached to triggering the great potential for research and industrial synergy between the marine and agricultural industries.

7. Co-operation, Demarcation and Synergies

Internally in the Research Council

For such an extensive and central theme as food, a definition of responsibility, co-operation and co-ordination will be required in a number of areas, concurrently with the possibilities for synergies across the different programmes being stimulated.

Aquaculture. The Aquaculture Programme will focus on farming of salmon and marine species (including fish health and welfare in the fish farming industry) and sales of unprocessed seafood from fish farms. The Food Programme will be responsible for dealing with processing of raw materials from the aquaculture industry and sales of such products. There will be a need for demarcations and co-operation in many areas between the two programmes; not least for the overall market research in the marine sector.

VAREMAT. This programme is currently responsible for research connected with the supplier industry for the food processing industry. It should be clarified whether the supplier industry for the food processing industry and the primary industries have the greatest advantage of co-operation with the supplier industry for other industries or whether the supplier industry and the food processing industry should be included in the new Food Programme as an important cluster. As from 2006, the activities will be included in the new Wide Arena initiative.

SkatteFUNN scheme. The SkatteFUNN tax deduction scheme for R&D expenses (indirect and rights based) will be the first choice of instrument for the industries in the food area. The industries use the Food Programme primarily for more research-intensive projects and with several enterprises co-operating on joint innovations. It will be an important task to ensure that trade and industry use both instruments in different parts of the same project.

Programme for Industrial Development Based on Area Resources: This new programme will be responsible for research aimed at policy drafting in general, including in the food area. This applies, for example, to international trade policy, including the WTO.

Research-based Innovation and Commercialisation (FORNY): The objective of this programme is to increase wealth creation by commercialising research-based business ideas

with a large market potential. Especially the knowledge-building part of the new Food Programme will require good links to the FORNY programme.

Programme for Mobilisation of R&D-related Innovation (MOBI): The principal objective of the MOBI Innovation Programme is to build up research projects in enterprises with limited R&D activities (especially in the SME sector) in co-operation with R&D communities. The MOBI Innovation Programme is consequently an important instrument for food production enterprises.

Co-operation on strategic programmes: An evaluation of the future use of strategic programmes will form a central part of the Research Report, which will be published in the spring of 2005. The new programme will have core knowledge about important areas for knowledge building in the food area in both the short term and the longer term. The programme should therefore be actively involved in the use of strategic programmes.

Co-operation on more basic food science and technology research: There will still be a need for more basic research in the food area. It must be clarified whether such research has the best synergy with industrial food research, so that it should come under the Food Programme, or whether it should be hived off as a separate activity in the Science Division. One example of such research is the "Food and Health" part of the current Food Science and Technology Programme. This activity is planned to be continued as part of the new Food Programme.

Functional Genomics in Norway (FUGE): The FUGE Programme is to contribute to co-ordination between R&D communities and trade and industry and to goal-oriented structure and organisation of the thematic initiatives in basic research (incl. bioinformatics), marine research and medical research.

Sea and Coast. The objective of the Sea and Coast Programme is to obtain knowledge that will form the basis of the long-term management of marine resources. Especially for marine capture fisheries and the development of knowledge about environmental intoxicants as risk factors in seafood, the Food Programme will require co-ordination with the Sea and Coast Programme.

Changing Landscapes – Use and Management of Cultural Environment and Natural Resources (LANDSCAPE): The programme is to provide knowledge that supports the development of holistic, long-term use and management of the cultural environment and natural resources.

Public Health: The programme is planned to be implemented in the period 2006 – 2010. Physical activity, nutrition/diet and social inequality will be main themes in this new programme, and there will be a need for co-operation with the Food Programme.

Environment, Work and Health: This programme is planned to be implemented in the period 2006 – 2010.
The programme will focus on how different environmental factors affect our health. This may also apply to environmental factors in food.

External Co-operation

Innovation Norway (Programme for wealth creation for food products and initiatives in the marine sector).
A new co-operation agreement between the Research Council and Innovation Norway and the employment of the Research Council's regional representatives at some of Innovation

Norway's regional offices should provide completely new opportunities for programme and project co-operation. The Research Council will primarily focus on industrial research, whereas Innovation Norway will primarily focus on industrial development work. Many industry-oriented projects that enterprises or industries wish to implement include both research and development. For such projects, the two institutions must provide flexible models for joint funding.

The Norwegian Food Safety Authority: The food administration has been reorganised. The new food administration is discussing whether the framework of the public administration-oriented research into food safety, which comes under the current Food Science and Technology Programme, should be expanded thematically. It will also be a decisive question whether the Norwegian Food Safety Authority wishes to place such an initiative in an industrial research programme in the Research Council.

The Fund for Research Duty on Agricultural Products/Research funds via the Agreement on Agriculture. Through the call for proposals for research under the JordMat Programme in the autumn of 2004, a good constructive basis has been established for joint initiatives that can be developed further as part of the new programme.

The Fisheries and Aquacultural Industry's Research Foundation (FHF): Good co-operation relations have been developed between a number of the present programmes in the Research Council and FHF. In order to develop this co-operation further, FHF and the Research Council must implement joint and concurrent planning processes. The co-operation model that has been developed between the Research Council and the Fund for Research Duty on Agricultural Products for research initiatives under the JordMat Programme should be able to form an important basis for the development of a similar research co-operation model in the marine area as well.

8. Economic Framework

The economic framework for the new programme (zero growth and growth alternative) is shown in the Research Council's draft budget for 2006. The programme is planned to be funded by the Ministry of Agriculture and Food (LMD), the Ministry of Fisheries and Coastal Affairs (FKD), the Ministry of Trade and Industry (NHD) and the Ministry of Health and Care Services (HOD).

Based on a zero-growth budget, the framework will be approximately NOK 130 million per annum, whereas the growth-based draft budget provides a framework of approximately NOK 170 million per annum. These are large amounts, the reason being that the new programme covers a vast overall area of responsibility. However, the zero-growth budget only corresponds to one per mille of the total food production value in Norway.

These draft budgets do not include funds for strategic institute and university programmes in the food area. Funds for public administration-oriented research into food safety, which are currently channelled from the Ministry of Agriculture and Food to the Norwegian Food Safety Authority and on to the Research Council, are not included in the budgets either. The work programme has been drawn up with a view to the public administration-oriented research being continued with earmarked funds in excess of the framework for the ordinary programme.

The programme will also manage project funds in selected target areas from the Fund for Research Duty on Agricultural Products, the Fisheries and Aquacultural Industry's Foundation and funds via the Agreement on Agriculture in accordance with a further agreement with their executive committees.

The programme is to have a catalyst effect on the industries' use of funds for research, and the industries will use considerable funds in user-led research projects and in knowledge-building projects with user involvement.