

## **“Ad hoc gruppe - Fødevarerikkerhet”**

### **PROCESSING FOR FOOD SAFETY** Forming the sound basis for a Nordic Research Area Net

RECOMMENDATIONS

FROM

THE NORDIC AD HOC GROUP

**1. Front page**

<b>Project full title</b>		Ad hoc gruppe - Fødevarerikkerhet	
<b>Date of preparation</b>		16.06.2003	
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### **3. Summary and Recommendations**

#### **Project full title:**

Ad hoc gruppe - Fødevaresikkerhet

#### **Strategic objectives addressed**

To contribute to further development of the Nordic Research Area by the co-ordination and networking of the Food Safety aspects of national and Nordic research and innovation programmes in Food.

#### **Project summary and recommendations**

The Nordic Council of Ministers recommends all the Nordic countries to participate actively to solve problems of common interest to ensure safe food of high quality through a sustainable production. All the Nordic countries, and Nordic Industrial Fund, are running research programmes on food, and each programme is worth in the region of 15-30 mill NOK/year. However, the food safety aspect of these research programmes continues to be too fragmented, and the funding is both insufficient and sub optimal. A coordinated response towards this challenge will improve co-ordination of the programmes, including better validation of the Food Safety aspects and the level of financial support.

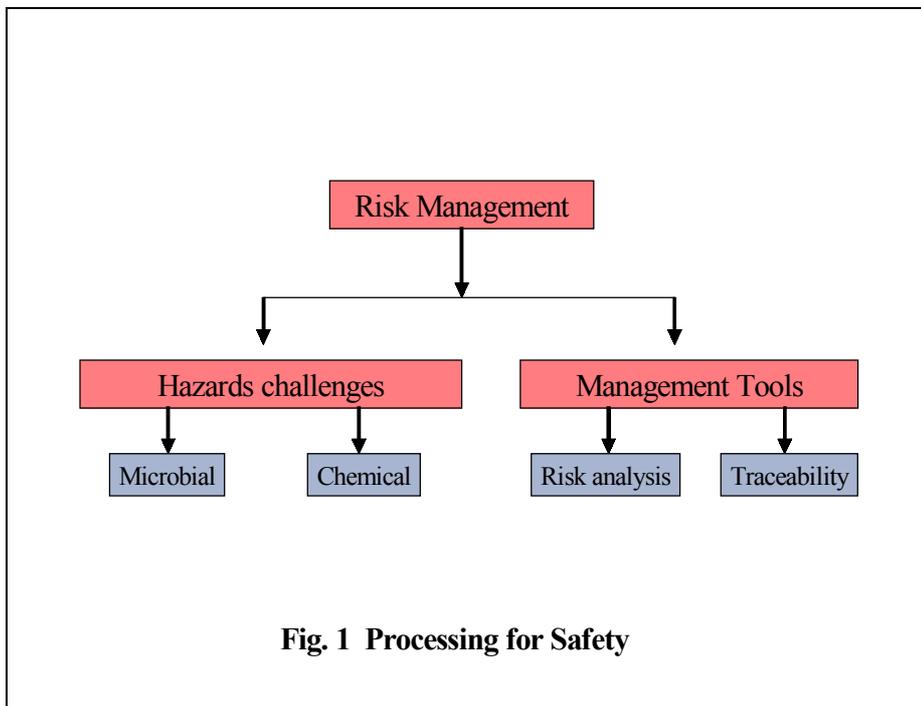
Since 1994 The Nordic countries have coordinated part of their Food Research Programmes through a Nordic Research Area Net managed by The Nordic Industrial Fund (NI), a model considered to be both successful and reproducible. In June 2002 The Board of NI decided to prepare for the Nordic Research Area Net (NRA-NET) in Processing for Food Safety, using a Nordic Ad hoc Group (NAhG) of Programme Managers and Programme Makers from the five Nordic countries.

Three meetings and one workshop were organized to establish trust and mutual understanding by focusing on information exchange and strategic activities. Sustained cooperation was prepared through joint activities. In the meetings and the workshop the NAhG used studies and analysis of the national/Nordic research infrastructure, and ongoing national/Nordic programmes to define joint strategic topics, to identify a Nordic Expert Group (NEG) and to define the NRA-NET Programme structure as described in figure 1 (page 5). The NAhG used the NEG to define the scientific and industrial challenges within the selected strategic topics, including new opportunities and gaps in the existing programmes.

The selection criteria for the joint strategic topics were:

- National priorities
- Relevance for the Nordic food industry
- Ongoing Nordic “world-class” research

- Potential to be included in Priority 5: Food Quality and Safety of EU's 6. Framework programme



The following strategic topics and corresponding sub topics were jointly selected by the NAhG:

## 1. *Campylobacter*

In the Nordic region *Campylobacter* has shown increased in registered cases in all Nordic countries from 1990. It is identified as one major cause of diarrhoea illness, and are more frequent than *Salmonella* in many countries. The symptoms are just as severe as in most *Salmonella* cases. Infections follows consumption of poultry, raw milk, water or after direct contact with animals. Young people are at higher risks, and incidences seem to be both area-dependent and seasonal-dependent. *Campylocacter* is of major concern for the chicken industry. The contamination rates of chicken flocks in the Nordic countries is high, Denmark 20-80%, Finland 1-8%, Iceland 44%, Norway 4% and Sweden 10%.

The continuing emergence of food borne pathogenic micro-organisms is a significant health problem. The total number of man-years lost in Europe due to deaths or illness could be as high as 3 million, with a cost of 350 - 7,300 million € per year. The problem is increasing and changing over time. In the period 1993 – 1998 the reported incidence of food borne infections in Europe increased by 46%. Emerging pathogens are infectious or toxin producing agents that during the last 20 years have caused a dramatic increase in human disease, or may do so in the future.

***NRA-sub topic:       Campylobacter free production systems - From reactive to preventive and predictive actions***

Globalisation of the food processing industry and the food market from raw material to finished product is a challenge in terms of maintaining food safety. The global food market is a potential source of newly and future emerging food borne pathogenic micro-organisms. Increasingly, foods do not come from one source or one country, but are combination of raw materials coming from many diverse countries and very different production systems. The aim is to ensure that the original contamination does not enter the chain at critical points by design and testing novel approaches for production systems that gives low or zero pathogenic loads on food. A Nordic strategy "From reactive to preventive and predictive actions" should be developed, using Campylobacter as a case study. A new diagnostic method developed in Norway will reduce the time needed for analysis from days to a few hours. Modelling tools should be developed to predict the emergence of Campylobacter by identifying the underlying cause and problem; social, industrial, technological, demographic, human behavioural, environmental, spreading, growth/survival, virulence, present in raw material, establishment in process environment, survival processing and storage and post processing growth.

## **2. Risk analysis**

Risk analysis consists of risk assessment, risk management and risk communication. The key to "Processing for Food Safety" is risk analysis from farm (or catch) to fork and the protection of consumers against health hazards and misleading information. It is the decision makers in industry and authorities that daily manages risks in practice using HACCP, own-checking systems, policy and resource allocation.

The aim of risk analysis is to help decision makers to make good risk estimates through hazard identification, hazard characterization and exposure assessment, including assessment of the level of contamination and the level of consumption. The use of risk analysis will help decision-making in the various steps of the production chain and help define Food Safety Objectives (FSO), including acceptable level of protection, economics, social aspects, political aspects and culture. The use of traceability will help decision makers to effectively recall products from the market when a microbial, chemical or nutritional health risk surpass defined limits.

***NRA-sub topic:   Food safety – risk analysis***

The use of scientific risk analysis will increase both at the international level (FAO/WHO, EU, Codex, OIE), at the national level, and at the industry level. It is a special need for exposure assessment and evaluation of the effects of management options and communications. Predictive models suitable for company-level risk assessments should be developed in order to improve management of risks. Quantitative risk analysis could pose a powerful tool in the control e.g. Campylobacteriosis as soon as necessary data are available. The Nordic countries should co-operate in research for and exchange of data for this purpose.

### 3. Traceability

Traceability is defined as “The ability to trace the history, application or location of an entity by means of recorded identifications”. Basically there are two types of traceability: (1) Internal traceability - in-house data interfaced to production management systems, and (2) Chain traceability - the data that are exchanged between companies and/or between countries. The traceability control mechanisms are methods and instruments used for authentication and testing that we receive what the documentation declaration for the product says.

**NRA-sub topic: Documented and harmonised routines for recall of products to consumer - Development of reliable traceability methods and systems.**

The Product Safety Directive (January 2003 - proposal) requires that “Producer must have documented routines for recall of all products to consumer”. The Hygiene of Foodstuffs Directive (2004 - proposal), requires documented traceability for all links in the food chain, and applies to all producers of foodstuffs. The objective is to increase consumer confidence in the food supply by strengthening the scientific and technological basis for ensuring complete traceability along the entire food chain, including animal feed. It will ensure that products can be linked to their source while also protecting products of declared origin (both geographical and production system). It will also assure traceability of genetically modified organisms, and other products based on recent biotechnology developments, from raw material origin to purchased food products.

### 4. Process induced risk - chemical pollution from processing

Some of the major food scandals have been of chemical origin. Allergenic compounds, antibiotics, mycotoxin, dioxin, PCB, PAH, brominated flame retardants, heavy metals, hormones, radioactive compounds and process-induced compounds like acrylamide are all well known chemical challenges. However, the NAhG recommend that the joint Nordic research in this potentially wide area should focus on chemical hazards formed during food processing.

**NRA-sub topic: *Health risks from processing of foods and food products***

Different hazardous chemical compounds like acrylamide may be formed by heat treatment, smoking and other processing methods of foods. Their mechanisms of formation, methods of analysis, bio-availability, biomarkers of exposure and biological effect with emphasis on cancer risk should be explored. Exposure assessment from production chain up to the consumption, including the effects of management options, may also be included in the research. It is recommended that the Nordic research in Process induced risk should focus on a special hazard with a multidiscipline programme involving chemistry, nutrition, food technology, consumption, human nutrition, medicine, mathematics and possibly economics.

## **Healthy Diet - concern about the increasing weight of the Nordic population**

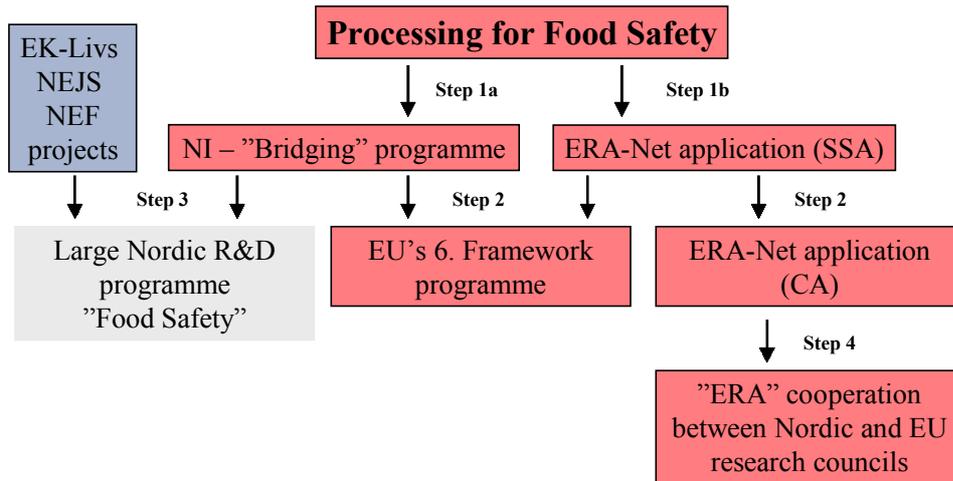
The NAhG recognizes this topic to be of considerable importance, but does not recommend the Nordic Industrial Fund to include Healthy Diet in the programme “Processing for Food Safety” at this stage. The NAhG acknowledges that there are reasons to be concerned about the increasing weight of the Nordic population. The Nordic food industry may have an important role in bringing new and healthier products to the market in the future. Obesity has increased in the Nordic countries from around 5% to approximately 15% of the population in the last 15 years. It is a global epidemic of major concern which could wipe out some of the gains we’ve made in areas such as heart disease, several forms of cancer, and other chronic health problems. Dietary strategies in combination with research in obesity prevention will be of high priority in the future (WHO, EU, national), and dietary factors will be a part of this research. In the USA, funding of obesity research has increased every year for the last 10-15 years. So far no specific prevention strategy has been shown to be effective (promotion to eat less, less fat and to be more physical active). The NAhG therefore recommends that the Nordic Industrial Fund initiates further planning of R&D activities within this topic.

### **Research instruments and recommendations**

The NAhG recommends the following instruments to be used to implement a sustainable future NRA-NET in Processing for Food Safety:

1. Starting from Nordic national priorities within the selected sub topics, and the use of Nordic world-class expertise, we should form a Nordic Industrial Fund (NI) “Bridging” programme to secure synergies between the national Nordic efforts in Food Safety, and to prevent double working.
2. The NI “Bridging” programme should contribute to solve industrial oriented Nordic R&D needs, as well as promoting the cooperation between the Nordic research councils, research institutions, universities, governments and industry. The NRA-NET projects should have the potential to be included in Priority 5: Food Quality and Safety of EU’s 6. Framework programme.
3. It should be evaluated whether the NI “Bridging” programme and the Nordic Food Authorities “EK-Livs programme” may form the basis for a future large and coordinated Nordic R&D programme in Food Safety. The evaluation should be performed through a joint effort between the relevant Nordic organizations and national institutions in the Nordic countries and it should be co-ordinated with the ad hoc group of the Nordic Council of Ministers – Agriculture/Forestry, Fishery and Food, that has been given the task to evaluate the possibility of forming a framework programme for research and education covering all these sectors.
4. The NI “Bridging” programme and other European national programmes should form a “European Research Area Net in Food Safety”, aiming at free movement of knowledge, researchers and technology, improved coordination of national research activities and policies.

To achieve the goals the recommended next steps in the development of the Nordic cooperation in “Processing for Food Safety” are outlined in figure 2.



**Figure 2. Steps in the development of Nordic cooperation in "Processing for Safety"**

The NAhG recommends a two step procedure for the establishment of a Nordic Research Area in Processing for Food Safety:

1. **Open call for "Expressions of interest"**. In this step the food industry and the research institutes will have a possibility of focusing on the major challenges within each of the four topics selected for Nordic collaboration.
2. **Selected call for synergy projects**. Based on the "Expressions of interest" received the Nordic Industrial Fund should select the most promising which should be developed into applications for synergy projects. The most important criteria for selection should be 1) relevance for the Nordic food industry, 2) national relevance, 3) ongoing Nordic "world class" research within the topic, and 4) potential for a future application to EU's 6. framework programme. The "Expression of Interest" will also give the Nordic Industrial Fund a basis for a more detailed analysis of the need of a joint Nordic programme for research on food safety.

The Nordic food industry and the food authorities in the Nordic countries will have an overlapping need for expertise in the future. It would therefore be of interest to discuss future collaboration between the initiatives made by the Nordic Industrial Fund and the EK Livs initiative. Based on common Nordic political goals within food safety the NAhG propose that the various Nordic organizations consider the possibility and need to establish a joint Nordic

research programme on food safety. It should be noted that the Nordic Council of Ministers (Agriculture, Forestry, Fishery and Food) at its meeting on 24 June 2003 decided to establish a new ad hoc group with representatives from the sectors of the Council, i.e. agriculture/forestry, fishery and food, involving also the sectors of research and education. The purpose of the ad hoc group is to evaluate the possibility of forming a framework programme for research and education covering the Council, i.e. these sectors in total. As EK-Livs is a part of this process the question of a research programme should be seen in this broader context and co-ordination between the initiative of NI and this ad hoc group is necessary.

The NAhG recommend the following progress plan to be used to implement the Nordic Research Area Net in Processing for Food Safety:

### **September 2003**

Submission of final report and recommendations to the board of NI

### **October 2003**

Open Call for Expression of interest to the Nordic Industrial Fund's NRA-NET in "Processing for Food Safety", to confirm and to chart the need for Nordic cooperation in the field. Cut-off date 01.11.2003

### **November 2003**

Selection of "Expression of interests", by a representatives from the Ministries, Research Councils and other National Funding Agencies in Finland, Denmark, Sweden, Iceland and Norway (The Nordic Ad hoc Group). The selected projects will receive 50.000 NOK each to process the expression of interest into a NRA-NET project application with all Nordic countries represented.

### **December 2003**

Recommendations "based on the findings from the selected project" to The Board of the Nordic Industrial Fund to fund the NRA-NET in "Processing for Food Safety"

### **January 2004**

Start-up of the NRA-NET programme in "Processing for Food Safety"

However, Food Safety is a global challenge, too large to be met by the Nordic countries acting alone. Therefore, the NAhG has via NI applied to the European Commission for a 12 month Specific Support Action, "PROFORSAFE" (Appendix 5, page 61), to establish a sound basis for a future European Research Area Net (ERA-NET) in Processing for Food Safety using the NRA-NET as a model. The objective is to identify a minimum of 5 new partners via National Contact Points (NCP's) in Member States, Candidate Countries and Associated Countries, interested in coordinating ongoing national/regional programmes with the NRA-NET. The NCP from Finland has already identified a potential partner, "FOODSAFERA", who are preparing a complementary ERA-NET application in Food Safety, representing Finland, Holland, UK, France and Italy.

The NAhG recommend the following progress plan to implement the European Research Area Net in processing for Food Safety:

**June 2003**

Application to the EU Commission for a 12 month Specific Support Action aiming to identify at least 5 Member States or Candidate Countries that are interested in coordinating the Food Safety aspects of their ongoing national/regional programmes with the NRA-NET in Processing for Food Safety

**October 2003**

Enlarge the present Nordic Ad hoc Group to a European Ad hoc Group (EAhG) with Programme Managers or Programme makers from the Ministry, Research Councils or other National Funding Agencies in at least 10 Member States, Candidate Countries and the Associated Countries Norway and Iceland

**March 2004**

Application to the European Commission for a 5 year Coordinated Action “PROFORSAFE” in Processing for Food Safety

**June 2004**

Start-up of the ERA-NET programme in “Processing for Food Safety”

**4. Background**

Globalisation of the food processing industry and the food market from raw material to finished products is a challenge in terms of maintaining food safety. The European Union and the SME's of Europe have put Food Safety as one of their top priorities. The Nordic Council of Ministers has also taken several initiatives to strengthen their food safety policies, including measures aimed at ensuring that consumers have a greater influence in relation to matters of food safety. Protection of consumers against health risks and misleading information is essential.

Internationally, the Nordic countries have a reputation for good food safety standards. However, food safety is now an issue of great concern world-wide, and the Nordic countries face a major challenge in maintaining and justifying that reputation in the future.

The Nordic Council of Ministers have agreed that all the Nordic countries should participate actively in solving problems of common interest to ensure safe food of high quality through a sustainable production. All the Nordic countries and the Nordic Industrial Fund are running research programmes on food. The budget for each of the programmes is 15-30 mill NOK/year. However, the food safety aspect of these national/Nordic research programmes continues to be too fragmented, and the funding is both insufficient and sub optimal. A joint response towards this challenge will improve co-ordination of the national/Nordic

programmes, including better validation of the Food Safety aspects of the programmes and the level of financial support.

Better coordination may be achieved by using a Nordic Ad hoc Group to form a Nordic Research Area Net (NRA-NET) in Processing for Food Safety, preventing duplication of efforts by building a common platform for improving the coherence and coordination of the research efforts across the Nordic countries. The resulting Nordic Ad hoc Group will bring national administrations closer together, and build mutual understanding and trust. Increased co-operation with Nordic colleagues by studies and analysis will result in greater complementarities which will have a long lasting effect for the Nordic consumers. In the long run a better coordination of Food Safety research in the Nordic Area should also be of great benefit to the Food Safety Authorities in the Nordic countries.

The Nordic Industrial Fund (NI) has been selected to guide the transition from policy paper to a NRA-NET in Processing for Food Safety, and further to establish the foundation on which to build and expand the NRA-NET into a European Research Area Net (ERA-NET) through a Specific Support Action ERA-NET application. NI has in-depth experience of managing a NRA-NET. Since 1994 NI has managed the coordination of sections of The Nordic countries Food Research Programmes through a NRA-NET called NordFood I and NordFood II (Table 1, page 12).

In June 2002 The Board of NI decided to prepare for a similar NRA-NET in Processing for Food Safety, through a 12 month Specific Support Action funding of a Nordic Ad hoc Group with Programme Managers and Programme Makers from The Nordic Council of Ministers (NMR), The National Technology Agency, TEKES, Finland, The Swedish Agency for innovation Systems (VINNOVA), The Danish Ministry of Science, Technology and Innovation (VTU), The Research Council of Norway (RCN) and The Icelandic Centre for Research (RANNIS).

Table 1. Nordic Research programme in NordFood managed by (NI)

Food Programmes, period	Total Projects, number	Total Budget NOK/period	Norwegian participants, number	Swedish participants, number	Finish participants, number	Danish participants, number	Icelandic participants, number
NordFood I 1994 – 1999	30	250 mill	55	106	60	61	37
NordFood II 1999 - 2002	42	150 mill	65	78	69	53	36

## **5. Objectives of the project**

### 5.1 The primary objective

The primary objective of the present project was to establish a sound foundation for a future NRA-NET in Processing for Food Safety managed by the Nordic Industrial Fund (NI).

### 5.2 The tasks objectives

- To establish mutual understanding and trust in the Nordic Ad hoc Group (NAhG) with Programme Managers and Programme Makers from The Nordic Council of Ministers (NMR), The National Technology Agency, (TEKES), Finland, The Swedish Agency for innovation Systems (VINNOVA), The Danish Ministry of Science, Technology and Innovation (VTU), The Research Council of Norway (RCN) and The Icelandic Centre for Research (RANNIS).
- To define joint strategic topics from ongoing national/Nordic research programmes and to identify a Nordic Expert Group (NEG)
- To define the scientific and industrial challenges within the selected strategic topics and to define new opportunities and gaps in the existing programmes with the help of the Nordic Expert Group (NEG).
- To conclude on the sub topics within the joint strategic topics to be focused on in the NRA-NET.
- To agree on the instruments to be used to implement a sustainable future NRA-NET in Processing for Food Safety.
- To apply to the EU Commission for a 12 month Specific Support Action aiming to identify at least 5 Member States or Candidate Countries that are interested in coordinating the Food Safety aspects of their ongoing national/regional programmes with the NRA-NET in Processing for Food Safety

## **6. Work plan and Results**

### 6.1 Introduction

The technical content of the present project, aiming at forming a sound basis for a future NRA-NET, was built on the basic idea of establishing trust and mutual understanding by mainly focusing on information exchange and joint strategic challenges, using the

information for an in depth analytical process. Some important joint activities were also included to prepare for sustained co-operation.

The approach was to form a Nordic Ad hoc Group (NAhG) of Programme Managers and Programme Makers and a supporting Nordic Expert Group (NEG). One workshop was organized to perform studies and analysis of the strategic topics of existing national/Nordic Food programmes to enhance the preparation of future agreements/arrangements and to prepare The Nordic Ad hoc Group for sustained cooperation.

## 6.2 Milestones

The following working process was selected for setting up the NRA-NET in Processing for Food Safety:

### **M0 - November 2002**

- Strategic topic selection from existing national/Nordic programmes in Food/ Food safety

### **M2 - January 2003**

- Organizing a workshop to define the scientific and industrial challenges within the selected strategic topics using a Nordic expert group

### **M4 - April 2003**

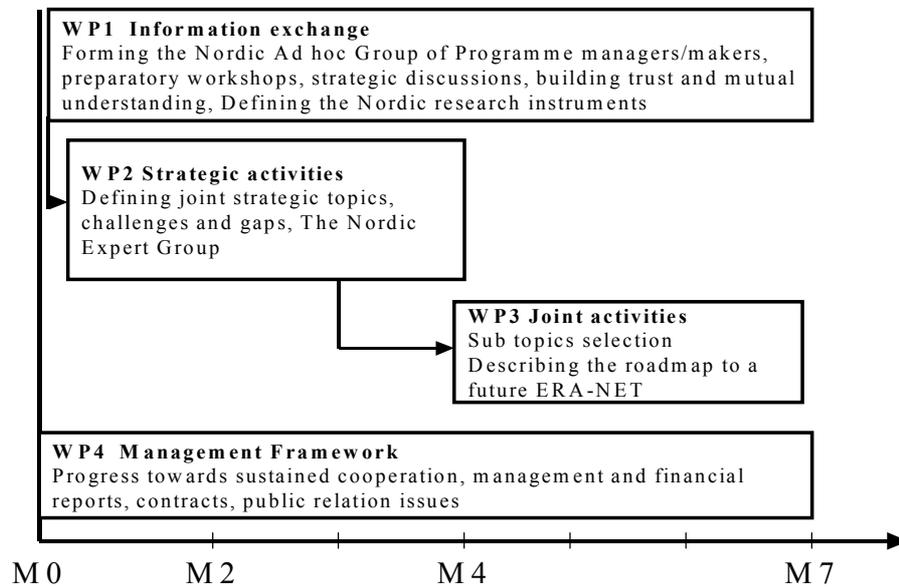
- Defining the Nordic research instruments to be used in the NRA-NET

### **M7 - June 2003**

- Preparation of a Specific Support Action ERA-NET application aiming at expanding the NRA-NET to an ERA-NET
- Sub topic selection from ongoing Nordic research programmes in Food and Food Safety
- Presentation of the NRA-NET in “Processing for Food Safety” to the Board of the Nordic Industrial Fund

### 6.3 Graphical presentation

In setting up the sound basis of a future NRA-NET four main work packages was implemented as illustrated in figure 3 (page 14). The details of the individual work packages are described in 6.4.1-6.4.4 (page 18 – 30).



**Figure 3. NRA-NET Work planning and Graphical presentation**  
M = Milestones, important decision points within the network  
0-7 = Month from project start

## 6.4 Workpackages and Results

### Workpackage list (full duration of project)

Work-package No <sup>1</sup>	Workpackage title	Lead participant No <sup>2</sup>	Person-months <sup>3</sup>	Start month <sup>4</sup>	End month <sup>5</sup>	Results No <sup>6</sup>
1	Information exchange	1	2	0	7	R1
2	Strategic activities	1	2	0	4	R2, R3 R4, R5
3	Joint activities	1	1	4	7	R6, R7
4	Management	1	1	0	7	R8
	<b>TOTAL</b>		<b>6</b>			

<sup>1</sup> Workpackage number: WP 1 – WP n.

<sup>2</sup> Number of the contractor leading the work in this workpackage.

<sup>3</sup> The total number of person-months allocated to each workpackage.

<sup>4</sup> Relative start date for the work in the specific workpackages, month 0 marking the start of the project, and all other start dates being relative to this start date.

<sup>5</sup> Relative end date, month 0 marking the start of the project, and all ends dates being relative to this start date.

<sup>6</sup> Deliverable number: Number for the deliverable(s)/result(s) mentioned in the workpackage: R1 - Rn.

### Results list (full duration of project)

Results No <sup>7</sup>	Deliverable title	Delivery date <sup>8</sup>	Nature <sup>9</sup>	Dissemination level <sup>10</sup>
R1	An established Nordic Ad hoc Group (NAhG) with Programme Managers/Makers from the Ministries, Research Councils and other National Funding Agencies in Finland, Denmark, Sweden, Iceland and Norway.	7	O	PU
R 2	Definition of joint strategic topics selected from ongoing national/Nordic research programmes	0	R	PU
R3	Identified Nordic Expert Group (NEG) within the selected topics	0	O	PU
R4	Definition of scientific and industrial challenges within the selected strategic topics, and defined new opportunities and gaps in the national/Nordic programmes	2	R	PU
R5	Definition of the Nordic research instruments to be used to implement a future NRA-NET research programme in Processing for Food Safety	4	R	PU
R6	Definition of the sub topics within the joint strategic topics to be focused on in the NRA-NET.	7	O	PU
R7	An agreed roadmap to be used to implement a sustainable future ERA-NET in Processing for Food Safety through a Specific Support Action application to the EU-Commission	6	R	PU
R8	A periodic activity report A final report covering all the work, objectives, results and conclusions	2/7	R	PU

<sup>7</sup> Deliverable numbers in order of delivery dates: R1 – Rn.

<sup>8</sup> Month in which the deliverables will be available. Month 0 marking the start of the project, and all delivery dates being relative to this start date.

<sup>9</sup> Please indicate the nature of the deliverable using one of the following codes:

- R** = Report
- P** = Prototype
- D** = Demonstrator
- O** = Other

<sup>10</sup> Please indicate the dissemination level using one of the following codes:

- PU** = Public
- PP** = Restricted to other programme participants (including the Commission Services)
- RE** = Restricted to a group specified by the consortium (including the Commission Services)
- CO** = Confidential, only for members of the consortium (including the Commission Services)

### 6.4.1 Information exchange

#### **Objectives**

To establish mutual understanding and trust in The Nordic Ad hoc Group (NAhG) with Programme Managers/Makers from the Ministries, Research Councils and other National Funding Agencies in Finland, Denmark, Sweden, Iceland and Norway.

To agree on the instruments to be used to implement a sustainable future NRA-NET in Processing for Food Safety.

#### **Description of work**

Meetings of the Nordic Ad hoc Group (NAhG) and one workshop have been organized to exchange information of the national/Nordic research infrastructure, emphasising Food Safety, to start the process of bringing national authorities closer together, and to build mutual understanding and trust, which will provide long lasting benefits for the whole programme.

The instruments to be used to implement a sustainable future NRA-NET in Processing for Food Safety was discussed in a workshop conducted after the identification of the selected strategic topics and new opportunities and gaps in the national/Nordic programmes.

#### **Results**

The Nordic Ad hoc Group (NAhG) with Programme Managers/Makers from the Ministries, Research Councils and other National Funding Agencies in Finland, Denmark, Sweden, Iceland and Norway have prepared for sustained cooperation through meetings/workshops. In the first meeting the national representatives presented ongoing projects, including financial resources and important experts/institutions in the Nordic countries. Marjon Boelskov presented EU's 6. Framework programme related to Food Safety. The presentations were followed by a discussion of the definition of food safety and possible joint topics to be focused on. It was decided that the next phase in the progress plan towards a Nordic Food Safety program should take into account the following; 1). The Nordic countries should adopt the objectives and the definition of Food Safety from EU's 6. Framework programme, 2) The topics selected should be related to Priority 5: Food Quality and Safety of EU's 6. Framework programme, 3). The topics should be of major relevance for the Nordic food industry, and 4). The topics should be selected on the basis of "world-class" expertise in the Nordic countries.

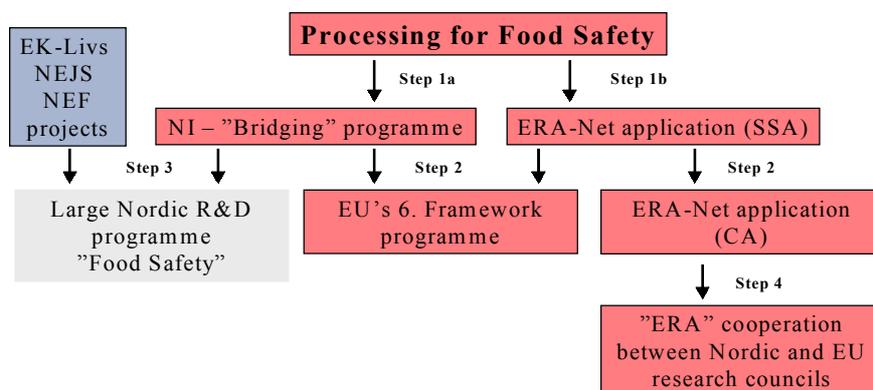
#### **EU - Food Safety - Objective and Definition (From *the Draft Work programme, Dec. 2002*)**

*The primary objective is to improve the health and well-being of European citizens through a higher quality of their food, improved control of food production and of related environmental factors. This approach readdresses the classical "farm-to-fork"-approach*

*(including fishing and aquaculture) by giving priority to consumer' demands and rights for high quality and safe food.*

**The NAhG recommend the following instruments to be used to implement a sustainable future NRA-NET in Processing for Food Safety.**

1. Starting from Nordic national priorities within the selected sub topics, and the use of Nordic world-class expertise, we should form a Nordic Industrial Fund (NI) "Bridging" programme to secure synergies between the national Nordic efforts in Food Safety, and to prevent double working.
2. The NI "Bridging" programme should contribute to solve industrial oriented Nordic R&D needs, as well as promoting the cooperation between the Nordic research councils, research institutions, universities, governments and industry. The NRA-NET projects should have the potential to be included in Priority 5: Food Quality and Safety of EU's 6. Framework programme.
3. It should be evaluated whether the NI "Bridging" programme and the Nordic Food Authorities "EK-Livs programme" may form the basis for a future large and coordinated Nordic R&D programme in Food Safety. The evaluation should be performed through a joint effort between the relevant Nordic organizations and national institutions in the Nordic countries and it should be co-ordinated with the ad hoc group of the Nordic Council of Ministers – Agriculture/Forestry, Fishery and Food, that has been give the task to evaluate the possibility of forming a framework programme for research and education covering all these sectors.
4. The NI "Bridging" programme and other European national programmes should form a "European Research Area Net in Food Safety", aiming at free movement of knowledge, researchers and technology, improved coordination of national research activities and policies.



**Figure 2. Steps in the development of Nordic cooperation in "Processing for Safety"**

To achieve the goals the next recommended steps in the development of the Nordic cooperation in “Processing for Food Safety” are outlined in figure 2 (page 19).

### **The NI – “Bridging” programme**

Ongoing Nordic projects should be used to define the sub-topic targets within the selected topics, and to locate possible “world-class” expertise to be used for the R&D tasks. The topic “Process induced risks” should only include chemical hazards. After identifying the sub-topic targets which might be included in Priority 5: Food Quality and safety of EU’s 6. Framework programme, the research institutions (researchers) should be asked to submit a Nordic “Expression of interest”, including at least three Nordic countries, to the Nordic Industrial Fund within November 1<sup>th</sup>. From the received “Expression of interest” The Nordic Ad hoc Group should select approximately 10 projects which will receive 50.000 NOK each to make a qualified “Bridging” project application, preferably with participation from all the Nordic countries. A “Bridging” project should be aiming at 3-5 mill NOK from the Nordic Industrial Fund, both for networking activities and some targetet research activities, and a possible second step of preparing a EU-application should be considered.

The following timetable were agreed to enable The board of the Nordic Industrial Fund to make the final funding decision in the November/December meeting 2003.

#### **September 2003**

Submission of final report and recommendations to the board of NI

#### **October 2003**

Open Call for Expression of interest to the Nordic Industrial Fund’s NRA-NET in “Processing for Food Safety”, cut-off date 01.11.2003

#### **November 2003**

Selection of “Expression of interests” by a representatives from the Ministry, Research Councils and other National Funding Agencies in Finland, Denmark, Sweden, Iceland and Norway (The Nordic Ad hoc Group). The selected projects will receive 50.000 NOK each to process the expression of interest into a NRA-NET project with all Nordic countries represented.

#### **December 2003**

Recommendations to The Board of the Nordic Industrial Fund to fund the NRA-NET in “Processing for Food Safety”

#### **January 2004**

Start-up of the NRA-NET programme in “Processing for Food Safety”

### **The ERA-Net application (SSA)**

In the same way as the Nordic countries cooperate on Food Safety research, the European Research Area (ERA) are aiming at free movement of knowledge, researchers and technology, improved coordination of national research activities and policies and the development of a European research policy. Activities supporting the preparation of future ERA-NETs are eligible for EU financial support, like preparatory conferences or seminars, studies and analysis of the research fields, establishment of working or expert groups, information and communication activities, specific events for candidate countries, establishing contacts and the setting up of fora to prepare for coordination actions (CA), the instrument to be used to implement an ERA-NET (step 2).

No research activities will be financed by ERA-NET (SSA), but a one year (max) ERA-NET SSA-project 200 000 € (max) funding may be obtained for all eligible support activity costs (up to 100%), overheads (20% of direct costs, except subcontracts), administrative & financial management (100% up to max. 7% of the EU contribution). One single participant (public body) like The Nordic Industrial Fund is eligible. To implement an ERA-NET it is possible to apply for 3 million € for a period of up to 5 years, covering up to 100% of the extra costs involved in multinational cooperation through Coordination actions.

The NAhG recommend the following progress plan to implement a European Research Area Net in processing for Food Safety;

#### **June 2003**

- To apply to the EU Commission for a 12 month Specific Support Action aiming at identifying at least 5 Member States or Candidate Countries that are interested in coordinating the Food Safety aspects of their ongoing national/regional programmes with the ERA-NET in Processing for Food Safety

#### **October 2003**

- Enlarge the present Nordic Ad hoc Group to a European Ad hoc Group (EAhG) with Programme Managers or Programme makers from the Ministries, Research Councils or other National Funding Agencies in at least 10 Member States, Candidate Countries and the Associated Countries Norway and Iceland

#### **March 2004**

- Application to the European Commission for a 5 year Coordinated Action “PROFORSAFE” in Processing for Food Safety

#### **June 2004**

- Start-up of the ERA-NET programme in “Processing for Food Safety”

### **Nordic Ministerial Declaration on Food Safety - The Basis of a large Nordic R&D programme ”Food Safety”**

Food Safety is high on the political agenda both in the Nordic Region, in the EU, and globally. In June 2000 a cross-sectorial conference was held in Copenhagen on food safety. On this occasion, an ambitious Ministerial Declaration was adopted. It very clearly states how

the Nordic countries intend to contribute towards the realisation of the EU white paper on food safety. Furthermore, the Nordic ministers responsible for agriculture, fishery and foods in 2002 adopted the so-called Greenland declaration, thereby agreeing on closer collaboration in order to influence the international negotiations on food safety and to strengthen consumer's influence on food matters.

To achieve a sustainable development, the NAhG recommend to evaluate the possibility to establish a large Nordic R&D programme in Food Safety (investing 250 million NOK in Nordic R&D for a period of 5 year), using the NI "Bridging" programme and the "EK-Livs programme" as the basis of an action plan. The Nordic Council of Ministers "EK-Livs programme" is focusing on the need of research on food safety from the point of view of the food authorities. The programme are divided into five working topics; 1. Chemical hazards, 2. Microbial hazards, 3. GMO-assurance, 4. Human nutrition and 5. Animal welfare. The "EK-Livs programme" and the NI "Bridging" programme will have different target groups, but the research goals and the topics and the researchers involved will to a large extent be overlapping.

Since the time that the NAhG discussed this recommendation the Nordic Council of Ministers responsible for Agriculture, Forestry, Fishery and Food at its meeting on 24 June 2003 decided to establish a new ad hoc group with representatives from the sectors of the Council, involving also the sectors of research and education. The purpose of the ad hoc group is to evaluate the possibility of forming a framework programme for research and education covering the Council, i.e. these sectors in total. As EK-Livs is apart of this process the question of a research programme for food should be seen in this broader context and co-ordination between the initiative of NI and this ad hoc group is necessary.

#### 6.4.2 Strategic activities

##### **Objectives**

To define joint strategic topics from ongoing national/Nordic research programmes and to identify a Nordic Expert Group (NEG)

To define the scientific and industrial challenges within the selected strategic topics and to define new opportunities and gaps in the existing programmes with the help of NEG.

##### **Description of work**

The Nordic Ad hoc Group (NAhG) has used workshops to study and analyse the national/Nordic research infrastructure, with the emphasis on Food Safety. Complementarity between Food programmes has been identified from ongoing national and Nordic programmes. Publicly funded programmes, ongoing or ended in the year 2002, has been reviewed and described briefly with respect to topic, goal, funding, activity period, the experts and the research institutions involved (for details see appendix 4). The national representatives in the Nordic Ad hoc group have presented the ongoing national programmes and the major experts/institutions. Joint strategic topics and the relevant expertise was identified and selected from the ongoing national/Nordic research programmes based on transnational relevance and scientific excellence.

The Nordic Ad hoc Group (NAhG) selected a Nordic Expert Group (NEG) from the identified expertise to aid the consortium in the studies and the analysis of the research Programmes. The NAhG and The NEG coordinated their information through an expert seminar and workshop. The expert group presented the scientific and industrial challenges for each of the selected topics.

## Results

The following joint strategic topics were selected from ongoing national/Nordic research programmes. The topics selected were related to Priority 5: Food Quality and Safety of EU's 6. Framework program according to the *Draft Work programme Dec. 2002*, suggesting the following instruments to be used:

### **Campylobacter**

EU-topic: Pathogen free production systems  
EU-instrument: Specific targeted research project or coordination action

### **Risk analysis**

EU-topic: Food safety, risk assessment and communication  
EU-instrument: Integrated project or network of excellence

### **Traceability**

EU-topic: Development of reliable traceability methods and systems to establish the  
the  
origin/mode of production of food products  
EU-instrument: Integrated project or network of excellence

### **Process induced risk - chemical pollution from processing**

EU-topic: Health risks from heat treated foods and food products  
EU-instruments: Specific targeted research project or coordination action.

### **Healthy diet – be concerned about the increasing weight of the Nordic population**

EU-topic: Quality seafood for improved consumer health and well-being  
EU-instruments: Integrated project or network of excellence

EU-topic: Nutritional and lifestyle habits of adolescents throughout Europe, including production of functional foods with sensory properties attractive to adolescents  
EU-instruments: Specific targeted research project or coordination action

From a number of Nordic experts identified within the selected topics the following 5 experts, one from each Nordic country, were invited to participate in the Nordic Expert Group (NEG) to help defining the scientific and industrial challenges, the new opportunities and gaps in the Food Safety aspects of the Nordic research programmes.

1. Campylobacter  
**Professor Franklin Georgsson, Iceland**

2. Risk analysis  
**Professor Riitta Maijala, Finland**
3. Traceability  
**Dr. Petter Olsen, Norway**
4. Process induced risk - chemical pollution from processing  
**Dr. Elisabeth Borch, Sweden**
5. Healthy diet – be concerned about the increasing weight of the Nordic population,  
**Professor Bjørn Richelsen, Denmark**

In the following a summary of the Nordic Expert Group's (NEG) presentations of the scientific and industrial challenges for each of the selected subjects are presented:

#### Microbial challenges: Campylobacter

Newly and future emerging foodborne pathogenic micro-organisms are a significant health problem. The total number of man years lost in Europe due to deaths or illness could be as high as 3 million each year, with a cost of 350 - 7,300 million € per year. The problem is increasing and changing over time. In the period 1993 – 1998 the reported incidence of food borne infections in Europe increased by 46%. Emerging pathogens are infectious or toxin producing agents that during the last 20 years have caused a dramatic increase in human disease, or may do so in the future.

In the Nordic region *Campylobacter* has shown increase in registered cases in all Nordic countries from 1990. It is identified as one major cause of diarrhoea illness, and are more frequent than Salmonella in many countries. The symptoms are just as severe as in most Salmonella cases. Human cases are mostly sporadic, but also outbreaks occur. Infections follow consumption of poultry, raw milk, and water or after direct contact with animals. Young people are at higher risk, and incidences seem to be both area-dependent and seasonal-dependent. Campylocacter is of major concern for the chicken industry. The contamination rates of chicken flocks in the Nordic countries is high, Denmark 20-80%, Finland 1-8%, Iceland 44%, Norway 4% and Sweden 10%. Research is needed on contamination in poultry flocks during transport and slaughter, cross-contamination during transport, spread of contamination during slaughtering, scalding, de-feathering, evisceration, washing, chilling, portioning, de-boning and packaging. The Campylobacter problem may be reduced by freezing, but the consumer require fresh chicken, and other solutions will be required.

A Nordic strategy "From reactive to preventive and predictive actions" should be developed. Actions there are effective in actually preventing the occurrence of food borne pathogens, as well as methods to predict the occurrence of new emerging pathogens. The main objective should be to reduce the prevalence of newly emerging food borne pathogens causing illness by determining the factors which enable pathogens to establish themselves in certain environments, and to develop or acquire and express virulence traits. The strategy should result in recommendations that will influence critical environments in such a way that pathogens are not established, and the development of new innovative technology for methods of eliminating micro-organisms in the food production chain. Modelling tools should

be developed to predict the emergence of new pathogens by identifying the underlying cause and problem to emerging pathogens; social, industrial, technological, demographic, human behavioural, environmental, spreading, growth/survival, virulence, present in raw material, establishment in process environment, survival processing and storage and post processing growth.

### Risk analysis

**Risk management** from farm to fork is the key to “Processing for Safety”, and to protect the consumers against health risks and misleading information. It is the decision makers in industry and authorities that daily assess risks in practice using HACCP, own-checking systems and resource allocation. The use of risk assessment will help decision making in the various steps of the production chain, assess health hazards in a more transparent way, and help defining Food Safety Objectives (FSO), including acceptable level of protection, economics, social aspects, political aspects and culture. The use of traceability will help decision makers to effectively recall products from the market when a microbial, chemical or nutritional health risk has been identified. The legislation “*Product Safety Directive*”, *January 2003 (proposal)* requires “Producer must have documented routines for recall of all products to consumer”. The “*Hygiene of Foodstuffs Directive*”, *2004 (proposal)* requires documented traceability for all links in the food chain, and applies to all producers of foodstuffs.

The aim of **risk assessment** is to help decision makers to make good risk estimates through hazard identification, hazard characterization and exposure assessment, including level of contamination and level of consumption. The challenges in risk assessment in food safety are lack of data or poor quality data, and lack of expertise to evaluate the data for the purpose of risk management, legislation, standards and control. Quantitative risk assessment could pose a powerful tool in the control of human *Campylobacteriosis* as soon as necessary data are available. The nordic countries should co-operate in exchange of data and necessary research for this purpose. The use of scientific risk assessment will increase both at the international level (FAO/WHO, EU, Codex, OIE), at the national level, and at the industry level.

It is recommended that the Nordic research in risk assessment should focus on special hazards with multidiscipline programs in microbiology, chemistry, nutrition, food technology, consumption, mathematics and economics. It is a special need for exposure assessment, from production chain up to the consumption, including the effects of management options. Predictive microbial modelling, toxicological models etc for company-level risk assessments should be developed in order to improve management of risks.

### Traceability

Traceability is defined as “*Ability to trace the history, application or location of an entity by means of recorded identifications*”. It is two types of traceability, Internal traceability, your own data interfaced with production management systems, and Chain traceability, the data you get and give between companies and/or between countries. The traceability control mechanisms is defined as methods and instruments used for authentication and testing that we receive what the documentation claims. A product is defined by the origin, its properties and processing. A lot of this information is recorded, but subsequently lost in the production

chain. Our goal must be to eliminate or at least significantly reduce this information loss, so that everyone has potential access to relevant, timely and unambiguous data about the food/product. Keeping track of production date and batch identifier doesn't help if the producer cannot relate the production batch to input batches. The production batch must be of limited size, it must be related to a finite set of input batches, and this relation ("transformation") must be explicitly documented. With increasing information demands from buyers and consumers of food products, it is no longer practical to transmit all the relevant data physically along with the product. A more sensible approach is to label each package with a unique identifier, and then transmit or extract all the relevant information electronically.

In EU's 6. Framework programme in traceability "*The objective is to increase consumer confidence in the food supply by strengthening the scientific and technological basis for ensuring complete traceability along the entire food chain including animal feed. It will ensure that products can be linked to their source while also protecting products of declared origin (both geographical and production system). It will also assure traceability of genetically modified organisms, and other products based on recent biotechnology developments, from raw material origin to purchased food products*". On December 11<sup>th</sup> 2002, the EU Commission called representatives from all their food-traceability related projects to the meeting "*European Research on Traceability Processes along the Food Chain*" in Brussels. The purpose was to point out the mismatch between research area and topic for food traceability, and express dissatisfaction with the number and maturity of the 'Expressions of Interest' submitted. The commission wanted to give higher priority to this field, and encouraged the projects and researchers to work together, and indicated the possibility for an additional topic in the Work programme for 2004.

Projects suitable for Nordic cooperation could be "Non-proprietary pilot implementation projects in and between chains", "Building the traceability infrastructure for pilot food products, study what effects it has on the industry and on the consumer", "Develop feedback loops to the earlier links in the production chain, study effects of new information", "Consumer requirements and response, privacy and access in normal and exceptional circumstances", "Overall design of traceability infrastructure", "Standardisation of request/response scheme (XML)", "Non-proprietary implementation projects within chains", "Re-engineering of processes to maintain traceability, costs and benefits", "Standardisation of which values measured and method of measurement", "Threshold levels for measured values", "Integration projects between chains, definition of maximum batch size, granularity requirements for batch identification, choice of number series and carriers for batch ID (bar codes, RF-tags)"

### Chemical challenges

The topic "Process induced risks" should only include chemical hazards. Some of the major food scandals have been of chemical origin. Allergenic compounds, antibiotics, mycotoxins, dioxins, PCB, PAH, brominated flame retardants, heavy metals, hormones, radioactive compounds, food additives and process-induced compounds like acrylamide are all well known chemical challenges. It covers the total food chain from the environment, through the raw materials, processing and final products. In a wide sense it includes many factors where the food industry itself has limited possibilities for influence. A possible narrowing of a huge

topic would be to focus on the chemical hazards which the industry may influence directly. Such topics might be chemical hazards being formed during processing and possible hazards due to the use of various food additives in the food industry.

### Nutritional challenges

Obesity has increased in the Nordic countries from around 5% to approximately 15% of the population in the last 15 years. It is a global epidemic of major concern which could wipe out some of the gains we've made in areas such as heart disease, several forms of cancer, and other chronic health problems. Dietary strategies in combination with research on obesity prevention will be of high priority in the future (WHO, EU, national), and dietary factors will be a part of this research. In US funding of obesity research has increased every year the last 10-15 years. The obesity problem is partly a result of how successful the food industry has been in delivering convenience products to the consumers. It is now possible to eat 24 hours a day without making any physical activity in order to obtain the food, resulting in a positive energy balance.

Diet Food that promote weight gain (obesity) has probably a high energy density caused by fat and sucrose, particular in sweet drinks, "fast food" etc, and also enlarged portion sizes. However, the evidences are not strong. Food that reduces weight gain has probably low energy density (fruit, vegetables, water, fiber), fat% less than 30, reduced portion size, and reduce sugar in liquid form.

Prevention of obesity is normally done by trying to change people's choices (promotion) concerning eating behaviour and physical activity. The industry is recommended to produce healthier food to make the healthy choices easier or change the content of the food products which the consumers would prefer. Functional foods are products enriched with substances known or assumed to be associated with health benefits, very similar to alternative medicine, natural products and herbal medicine. So far no effects have been found related to the obesity epidemic (prevention) by introducing "low fat food" or alternative artificial sweetened "sweet drinks" (0 calory). However, fat substitution with Olestra have some effects in short term obesity treatment, but their effects on obesity prevention have not been investigated. The market will probably be flooded with functional food in order to "prevent" the obesity epidemic. However, so far no specific prevention strategy has been shown to be effective (promotion to eat less, less fat and to be more physical active). Why do the interventions fail? Research is necessary to test every new idea/strategy and every new product. To prevent the obesity epidemic research is urgently needed. Optimal dietary strategies are unknown, and promotion of fruit and vegetables show little effects.

### 6.4.3 Joint activities

#### **Objectives**

- To select of sub topic from ongoing Nordic research programmes in Food and Food Safety
- To agree on the methodology, to be used to implement a sustainable future ERA-NET in Processing for Food Safety.

## **Description of work**

The Nordic Ad hoc Group has discussed the sub topics to be focused on in a sustainable future NRA-NET in Processing for Food Safety, using recommendation from the Nordic Expert Group and Priority 5: Food Quality and Safety of EU's 6. Framework programme as guidelines.

The Nordic Ad hoc Group has discussed the methodology, the instruments and the roadmap to be used to implement a sustainable future ERA-NET in Processing for Food Safety. A working group of The Nordic Ad hoc Group, including Johs. Kjosbakken, Oddur Mar Gunnarson and Ola Eide, was organized to prepare an application for Specific Support Action to the EU Commission to form the sound basis for a European Research Area Net in Processing for Food Safety. Several draft proposals were circulated to all members of the Nordic Ad hoc Group for comments before the final application was submitted

## **Results**

The following sub topics were selected using ongoing Nordic research programmes in Food and Food Safety, recommendation from the Nordic Expert Group and Priority 5: Food Quality and Safety of EU's 6. Framework programme as guidelines.

## **Campylobacter**

***NRA-sub topic:***        ***Campylobacter free production systems - From reactive to preventive and predictive actions***

**NRA-instrument:**     Specific targeted research project or coordination action

Globalisation of the food processing industry and the food market from raw material to finished product is a challenge in terms of maintaining food safety. The global food market is a potential source of newly and future emerging food borne pathogenic micro-organisms. Increasingly, foods do not come from one source or one country, but are combination of raw materials coming from many diverse countries and very different production systems. The aim is to ensure that the original contamination does not enter the chain at critical points by design and testing novel approaches for production systems that gives low or zero pathogenic loads on food. A Nordic strategy "From reactive to preventive and predictive actions" should be developed, using Campylobacter as a case study. Modelling tools should be developed to predict the emergence of Campylobacter by identifying the underlying cause and problem; social, industrial, technological, demographic, human behavioural, environmental, spreading, growth/survival, virulence, present in raw material, establishment in process environment, survival processing and storage and post processing growth.

## **Risk analysis**

***NRA-sub topic:***        ***Food safety, quantitative scientific risk analysis***

**NRA-instrument:**     Integrated project or network of excellence

The use of scientific risk assessment will increase both at the international level (FAO/WHO, EU, Codex, OIE), at the national level, and at the industry level. It is a special need for

exposure assessment, from production chain up to the consumption, including the effects of management options and communications. Predictive models suitable for company-level risk assessments should be developed in order to improve management of risks. Quantitative risk assessment could pose a powerful tool in the control of human Campylobacteriosis as soon as necessary data are available. The nordic countries should co-operate in research for and exchange of data for this purpose.

## **Traceability**

### ***NRA-sub topic: Documented and harmonised routines for recall of products to consumer - Development of reliable traceability methods and systems.***

The Product Safety Directive (January 2003 - proposal) requires that “Producer must have documented routines for recall of all products to consumer”. The Hygiene of Foodstuffs Directive (2004 - proposal), requires documented traceability for all links in the food chain, and applies to all producers of foodstuffs. The objective is to increase consumer confidence in the food supply by strengthening the scientific and technological basis for ensuring complete traceability along the entire food chain, including animal feed. It will ensure that products can be linked to their source while also protecting products of declared origin (both geographical and production system). It will also assure traceability of genetically modified organisms, and other products based on recent biotechnology developments, from raw material origin to purchased food products.

## **Process induced risk - chemical pollution from processing**

### ***NRA-sub topic: Health risks from processing of foods and food products***

Different hazardous chemical compounds may be formed by heat treatment, smoking and other processing methods of foods. Their mechanisms of formation, methods of analysis, bio-availability, biomarkers of exposure and biological effect with emphasis of cancer risk should be explored. Exposure assessment from production chain up to the consumption, including the effects of management options, may also be included in the research. Some of the major food scandals have been of chemical origin. Allergenic compounds, antibiotics, mycotoxin, dioxin, PCB, PAH, brominated flame retardants, heavy metals, hormones, radioactive compounds and process-induced compounds like acrylamide are all well known chemical challenges. It is recommended that the Nordic research in Process induced risk should focus on a special hazard with a multidiscipline program involving chemistry, nutrition, food technology, consumption, human nutrition, medicine, mathematics and possibly economics.

## **ERA-NET Instruments**

The agreed methodology, instruments and a roadmap to be used to implement a sustainable future ERA-NET in Processing for Safety are described in the Specific Support Application to the EU-Commission, “Processing for Food Safety – Forming the sound basis for the expansion of a Nordic Research Area Net to a European Research Area Net”, as shown in Appendix 5 (page 61).

#### 6.4.4 Management

##### **Objectives**

The overall follow up of the networking activities. Report to the board of The Nordic Industrial Fund. Financial control. Public relation issues.

##### **Description of work**

The Network co-ordinator, Johs Kjosbakken, had the overall responsibility for monitoring the work performed, reviewing the objectives and progress achieved towards sustained cooperation.

The Workpackages task leader, Oddur Mar Gunnarsson, did the overall follow up of the networking activities directly. He was responsible for the preparation, organisation, reporting and follow up of all consortium meetings. He followed up all horizontal issues, including the preparation of the Nordic Ad hoc Group, the approval of documents, results and approaches relating to the networking activities. He was also responsible for all management decisions of the network related to the consortium/contract, management, and the preparation of sustained co-operation.

A joint secretariat was set up at the Nordic Industrial Fund, including public relation personnel to make project news and results known outside of the consortium through the internet. Ola Eide, Kjernekompetanse AS, a high level strategic advisor with industrial and programme management experience, was hired for administrative support to the consortium management. He prepared the reports, i.e. the periodic activity report, the Specific Support Application to the EU-Commission “Processing for Food Safety – Forming the sound basis for the expansion of a Nordic Research Area Net to a European Research Area Net”, as shown in Appendix 5 (page 62) and the final report covering all the work, objectives, results and conclusions.

##### **Results**

The technical content of the Nordic Specific Support Action was presented to the Board of The Nordic Industrial Fund through a periodic activity report in February 2003. The Board of the Nordic Industrial Fund agreed that the programme activities described in Figure 1 (page 31) should form the basis for a potential programme in “Processing for Food Safety”.

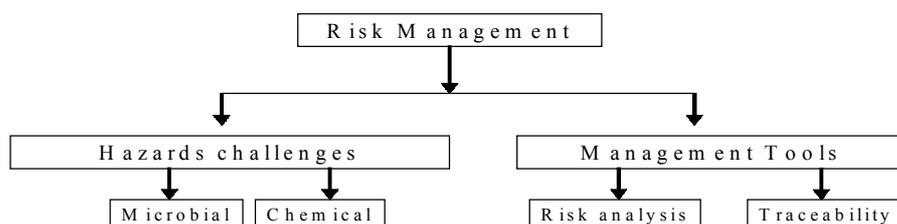


Fig. 1 Processing for Food Safety

## **7. Conclusions and Potential impact**

The proposed NRA-NET in “Processing for Food Safety” will form a sound basis for a Nordic Research Area Net and it will support better coordination/cooperation of national/Nordic programmes in the field of food safety. It will also encourage improved consumer influence on processing for food safety. The proposal is targeted towards four specific and industrially important topics.

The proposed NRA-NET will build a common platform for improving the coherence and coordination of the research efforts in Processing for Food Safety across the Nordic countries, preventing duplication of efforts. The resulting Nordic Ad hoc Group has brought national administrations closer together, built mutual understanding and trust. Increased co-operation with Nordic colleagues will in the long run result in a more clear understanding of complementarities which will have a long lasting effect for the Nordic consumers. A better coordination of Food Safety research in the Nordic Area should also be of great benefit to the Food Safety Authorities in the Nordic countries.

The NAhG recommend the following progress plan to be used to implement the Nordic Research Area Net in processing for Food Safety;

### **September 2003**

Submission of final report and recommendations to the board of NI

### **October 2003**

Open Call for Expression of interest to the Nordic Industrial Fund’s NRA-NET in “Processing for Food Safety”, to confirm and to chart the need for Nordic cooperation in the field. Cut-off date 01.11.2003

### **November 2003**

Selection of “Expression of interests”, by a representatives from the Ministries, Research Councils and other National Funding Agencies in Finland, Denmark, Sweden, Iceland and Norway (The Nordic Ad hoc Group). The selected projects will receive 50.000 NOK each to process the expression of interest into a NRA-NET project application with all Nordic countries represented.

**December 2003**

Recommendations to The Board of the Nordic Industrial Fund to fund project applications (max. 8) within the NRA-NET in “Processing for Food Safety”

**January 2004**

Start-up of the NRA-NET programme in “Processing for Food Safety”

The NAhG recommend the following progress plan to implement the European Research Area Net in processing for Food Safety:

**June 2003**

Application to the EU Commission for a 12 month Specific Support Action aiming to identify at least 5 Member States or Candidate Countries that are interested in coordinating the Food Safety aspects of their ongoing national/regional programmes with the NRA-NET in Processing for Food Safety

**October 2003**

Enlarge the present Nordic Ad hoc Group to a European Ad hoc Group (EAhG) with Programme Managers or Programme makers from the Ministry, Research Councils or other National Funding Agencies in at least 10 Member States, Candidate Countries and the Associated Countries Norway and Iceland

**March 2004**

Application to the European Commission for a 5 year Coordinated Action “PROFORSAFE” in Processing for Food Safety

**June 2004**

Start-up of the ERA-NET programme in “Processing for Food Safety”

**8. Budget****8.1 Phase I**

From the received “Expression of interest” The Nordic Ad hoc group will select 10 projects which will receive 50.000 NOK each to make a NI “Bridging” project application, preferably with participants from all the Nordic countries.

**8.2 Phase II**

A three year NI “Bridging” project should have a budget of up to 6 mill NOK with 50 % of the funds coming from the Nordic Industrial Fund, covering both for networking activities and some targeted research activities. A possible second step of preparing an EU-application should also be included. The cost of a three-year programme, including up to 8 projects (including 1-2 projects for each topic), are shown in table 2. In addition these projects should all have a solid base in national funding as exemplified in appendix 4.

Table 2. The cost of a three-year NRA-NET

Project nr.	Phase I, NOK 2003	Administration, NAhG, NOK 2003	Phase II, NOK 2004 – 2006 NI	Phase II, NOK 2004 – 2006 Other	Administration, NAhG, NOK 2004 - 2006
1	50.000	-	3.000.000	3.000.000	-
2	50.000	-	3.000.000	3.000.000	-
3	50.000	-	3.000.000	3.000.000	-
4	50.000	-	3.000.000	3.000.000	-
5	50.000	-	3.000.000	3.000.000	-
6	50.000	-	3.000.000	3.000.000	-
7	50.000	-	3.000.000	3.000.000	-
8	50.000	-	3.000.000	3.000.000	-
9	50.000	-	-	-	-
10	50.000	-	-	-	-
<b>SUM</b>	<b>500.000</b>	<b>250.000</b>	<b>24.000.000</b>	<b>24.000.000</b>	<b>750.000</b>