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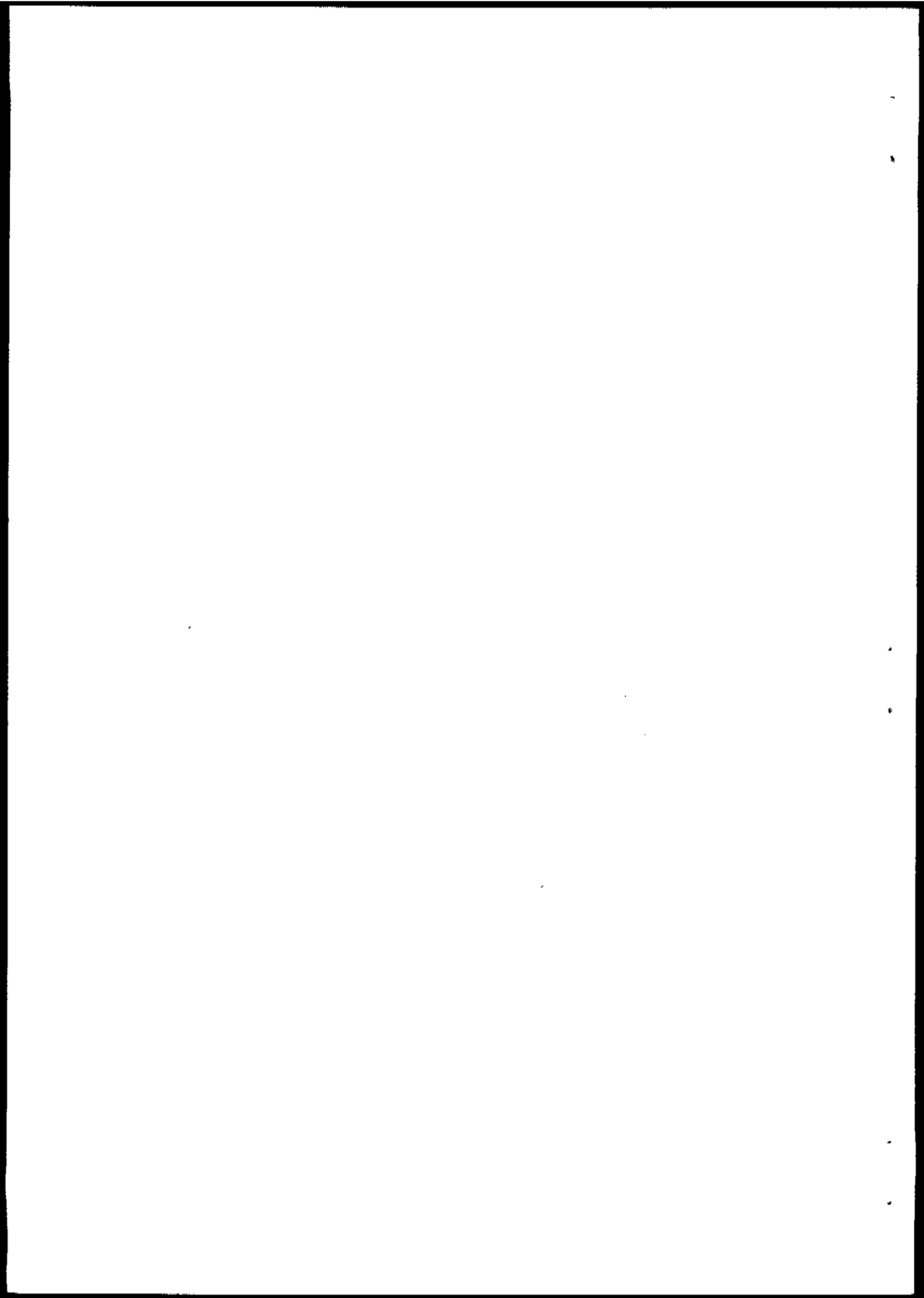
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## 1. Introduction

The nutrition programme in its new version was ready before the WHO Regional Committee meeting in September 1985 (Annex 1). The present meeting of the Nutrition Programme Advisory Group (PAG), in January 1986, was the first professional forum to discuss the programme and to give technical feedback. The PAG constituted 12 persons from 10 Member States, representing the disciplines of nutrition, public health, nutritional anthropology and medicine.

## 2. Conceptual basis for the EURO nutrition programme

The nutrition programme, when seen in the context of HFA2000 and the regional strategy, is placed within the area of health promotion. This has logically led to the programme placing main emphasis on the formulation of healthy public policies - in this case conscious food and nutrition policies - in Member States.

The PAG accepted this emphasis, and also went along with the basic concept of the nutrition programme in this respect, on nutrition strategy formulation. This concept is, in summary: within a Member State, there will be a "hierarchy" of nutrition planning as follows:

- nutrition strategy (overall conceptual framework)
- nutrition policy (signalling political readiness)
- nutrition plans (spelling out details)
- nutrition programmes (executing details)

### 2.1 A nutrition strategy

A nutrition strategy will have to take the following elements into consideration

#### (a) Objectives:

- nutritionally satisfactory diet, based upon and evaluated according to accepted nutrient goals, which are operationalized into dietary guidelines;
- a diet which is socially and culturally acceptable to people;
- stability in access to food (food security).

(b) It has to be based upon a thorough knowledge about the existing nutritional situation in the country, which is continually updated through nutrition surveillance of:

- dietary patterns and trends in the population;
- health impact of diet, epidemiologically assessed

(c) The nutrition strategy also has to take into account the political reality in which it is implemented, for example long-term planning in agriculture, food imports and exports, plans for self-sufficiency and type of economy.

(d) Another crucial element is the availability of personpower which is knowledgeable and competent in nutrition, and more specifically in public health nutrition.

## 2.2 A nutrition policy

A nutrition strategy can be formulated and even implemented in the absence of a nutrition policy. The adoption of a nutrition policy, however, signals administrative willingness to conduct a food policy which consciously takes health and nutrition into consideration. A nutrition policy which is not backed up by a nutrition strategy, and operationalized in practical terms as nutrition plans and programmes, runs the risk of remaining so many empty words.

## 2.3 Food and nutrition plans and programmes

The food and nutrition plans and programmes will be sector-oriented - most often even multi-sector oriented. They will, however, always be related to the existing nutrition strategy, which constitutes the overall conceptual framework.

## 2.4 Implementation

(a) The implementation of a nutrition strategy (or policy) presupposes an organizational structure, which most often will consist of two elements:

- an advisory body, which links up with professional expertise in basic research, clinical work, public health nutrition and social science;
- a political-organizational body, which links up with government bureaucracy responsible for decision-making and policy planning, and provides the link between these and food production and processing.

(b) It presupposes also conscious use of practical measures for implementation. These can broadly be divided into three categories, at least as far as government interventions are concerned:

- those concerned with availability of foods to the consumer (price interventions, regulation of marketing, export of "problematic" or profitable foods, agriculture policies and government mass catering);
- those geared towards changing the health impact of the food commodity or the diet more directly (food quality standards, food fortification regulations, regulations concerning food supplements (vitamins and minerals));
- those aimed at changing the awareness of knowledge of the consumer (education campaigns for professionals, politicians, producers or the public, communication through the PHC system and labelling).

3. General points regarding the implementation of the EURO nutrition programme

The Group accepted the conceptual basis for promotion of national food and nutrition policies within the nutrition programme, and recommended that the other areas of work planned for the programme be incorporated within this overall concept - at least in practice - so as not to detract from this most important part of the programme.

The Group also underlined the importance of addressing interest groups outside the ministries of health, especially active consumer groups who are instrumental in shaping the markets towards which food production and processing will later be geared. The recent upsurge of interest among the public in health foods and food-health policies in several Western countries was mentioned, and it was felt that health workers and nutritionists know too little about what actually shapes secular trends in food behaviour. As is often the case in health education, some population groups start changing their behaviour well before the health profession gets around to formulate and execute educational campaigns. This is a phenomenon where an analysis of what actually happens might provide interesting insight.

4. Specific plans up to 1989 within the EURO nutrition programme

4.1 Nutrition strategy organization analysis

The analysis of existing organizational models for the implementation of nutrition strategies in the Region was discussed, and a brief for such studies was drawn up (Annex 2). The discussion again highlighted the need for long-standing public endorsement of and interest in nutrition policy adoption. Without this kind of pressure there is little hope for implementation of the changes in agriculture and food procurement policy usually called for. The Group also underlined the importance of a "critical mass" of committed and persistent professionals who would provide the scientific rationale for these changes and be willing to devote time and energy to convince politicians, professionals and the public.

4.2 Nutrition strategy implementation analysis

The four specific measures for implementation of nutrition strategies proposed for 1986-87 in the nutrition programme were commented upon, and concrete proposals for studies were made.

- Nutrition education campaigns: what are the determinants of long-term secular trends in dietary behaviour? This could be combined with an analysis of the "social history of dietary guidelines" - to what extent have they shaped dietary patterns, and to what extent have they been shaped by dietary patterns? The analysis would focus on the process of change rather than the change itself (Annex 3).
- The influence of food prices on food consumption could be studied especially in Eastern European countries, and possible implications for Western European countries could be assessed.

- The effects of marketing regulation could utilize the experience already gained within WHO in connection with infant feeding questions. A study could be made of the "social history of the International Code of Marketing of Breast-milk Substitutes": who were the main actors/groups of actors? How did they interact? How did decisions come about, and what forces influenced them? What have the results been? Case histories from some countries might give interesting insight.
- Foreign trade regulations might also be considered as nutrition strategy tools.
- Another area of interest would be to look at how food legislation in a country is in line with the recommendations contained in dietary guidelines - i.e. to what extent the legislation is built on principles of healthy nutrition as laid down in such guidelines. A specific area of interest would be regulation/legislation concerning vitamin and mineral supplements, where practice is known to differ quite widely.
- The mass catering studies could also take up the question of governmental mass catering and look at how its practices comply with governmentally-endorsed dietary guidelines.
- Stimulation to product development in the food production and food processing sectors are valuable measures for nutrition strategy implementation, but may partially fall outside the scope of the work in the nutrition unit.

Finally it was emphasized that nutrition strategies/policies should wherever possible be considered in the context of any comprehensive health plan that might exist in the country. All efforts should be made to have nutrition policies included into such planning when it is undertaken.

#### 4.3 Nutrition of special groups

The special groups suggested as high priority groups for action within the programme were accepted as being of importance, but it was again pointed out that focus ought to be on nutrition strategy advocacy, so that the work undertaken in other areas ought to be made part of this overall concern.

#### 4.4 Nutrition surveillance

This important subject was discussed in some detail. Distinction was made between dietary trend surveillance and health impact surveillance. The activities undertaken in EURO in connection with the collection of macro-level data on dietary change were explained to and endorsed by the Group.

The question of health impact surveillance was discussed and two proposals for indicators for monitoring the strategy of HFA2000 were worked out (Annex 4):

- indicators of health impact directly related to nutrition (anthropometric indicators);
- indicators of health outcome related to nutrition (mortality/morbidity indicators).

5. The inclusion of behavioural aspects into the nutrition programme

The behavioural sides of nutrition are already to some degree contained in the proposals for research discussed above. It was, however, specifically pointed out that within the social sciences (especially in the United States) there is a growing body of social scientists with an interest in nutrition. They are recruited among others from among medical sociologists (of which there are 2000 in the United States and a sizeable contingency in the United Kingdom). These scientists have for a long time been interested in food traditions and behaviour, as distinct from nutrition behaviour. This need not necessarily be seen as a dichotomy.

Further, the introduction of behavioural aspects into nutrition would have to include both "ideational" (cultural) and situational (material) components. The method would be to start with epidemiological evidence, just as one would do for disease epidemiology: identify the range of behaviour(s), and look at what socioeconomical variables influence these: what accounts for different buying behaviour, preparation methods, frequency of meals outside home, etc. This analysis would attempt to disaggregate the social phenomena which influence behaviour.

It was noted that the EURO-NUT project in Wageningen has already taken up behavioural aspects in nutrition in a meeting in 1985, the proceedings of which were due to be published.

The nutrition programme might consider providing opportunities for nutritionists and social scientists to meet and learn from each other, for example through courses (of about two weeks' duration, with which there is good experience). The courses could be either for social scientists wanting to know more about nutrition, or for nutritionists wanting to learn something about the way in which social scientists think and work. The courses could offer subjects such as

- "The social epidemiology of nutrition" ("What are social characteristics of at-risk households?", "Cash-cropping vs. subsistence", "Women's time allocation in relation to child nutrition")
- Contributions to nutrition education programmes on feasibility of messages in nutrition education, using techniques from psychology to measure for example people's perception of priorities or hierarchy of important elements within the area of health.

Such courses have already been held in Finland, Mexico and the US (Massachusetts Institute for Technology), with very good results. The Institute for Nutrition Research in Oslo indicated interest in establishing this kind of course and would be interested in a joint venture with the nutrition programme in this respect. Comparison was made with the cardiologists' courses in epidemiology which have been going on for several years now.

6. "Guidelines for healthy nutrition"

Draft 4 of this document, produced by Professor W.P.T. James, had been circulated to participants in advance. The editorial group, consisting of Professor W.P.T. James, Professor W. Szostak, Professor A. Ferro-Luzzi and

T. V. 1985/05/15

Professor B. Isaksson, were all present in the meeting. The document had been discussed already during a meeting on the CINDI programme in Polvijärvi, Finland, in November 1985. This constituted a last chance for feedback from experts before the final draft. It is planned to offer a limited number of copies of the document to the EURO Nutrition Network, and to have it published as a book before the end of the year.

7. Priorities in research on public health nutrition

A detailed list of areas where more knowledge is needed was worked out (Annex 5). This list will be made available to relevant bodies within the Regional Office such as the European Research Action Plan (ERAP), the Programme on Research Promotion and Development, and, when deemed suitable, also to the European Advisory Committee on Health Research (EACHR).

The list comprises the following areas:

1. Obesity
2. Diet-related diseases of public health importance
  - atherosclerosis
  - cancer
  - diabetes
  - osteoporosis
3. Social epidemiology and public health applications
  - consumption patterns and nutritional risk (alcohol and sugar)
  - meal patterns
  - vitamin/mineral supplements
  - health effects of marginally deficient nutrient intakes
  - targetted interventions for high-risk sub-groups
4. Nutritional status of hospitalized patients including persons who need home care

**WHO / EURO  
NUTRITION PROGRAMME  
1985 - 1990**



**OCTOBER 1985**

2. Analysis of special measures for the implementation of food and nutrition policies

The Regional Office will:

Initiate studies and analyses of the following components of food and nutrition policies, based on priorities given by member states:

- nutrition education campaigns  
(study of various experiences with nutrition education campaigns: objectives and outcome - 1987)
- food price manipulation (taxes and subsidies)  
(study of influence of food prices on consumption: consequences for taxes and subsidies policies - 1986)
- nutrition labelling  
(consultation on consumer perceptions of nutrition labelling - 1990)
- food quality standards  
(study of effects of food quality standards on consumption patterns - 1991)
- food fortification/supplementation  
(consultation on effect of food fortification on public health - 1989)
- regulation of marketing  
(study of effects of marketing regulation on consumption patterns - 1986)
- mass catering: nutritional and social aspects  
(survey of nutritional aspects of mass catering: experiences in Member States - 1987)
- food aid (from donor and recipient side)  
(studies of food aid as an instrument of regulation of agricultural products, and as part of food supply or as income transfer - 1990)
- nutrition through the primary health care system  
(consultation on the potential of the primary health care system as change agent in regard to food habits, and on unintended effects of nutrition messages through the primary health care system - 1987).

The list may be subject to change(s) both in timing and content.

The Nutrition Unit will also work on specific topics in some areas of high priority for public health nutrition:

#### NUTRITION OF SPECIAL GROUPS

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##### Development of national nutrition programmes that cater for the needs of special groups

1. The elderly

The Regional Office will:  
- Propose recommendations for action, based on:  
first, discussions of priority problems in the area of nutrition of the elderly(1988), and second, studies of innovative action in the Region, to be undertaken in 1989.
2. Infants

The Regional Office will:  
- Work for an increased awareness of the problems in infant nutrition, and for action in the field.  
- Convene meetings with interested parties: health workers' organizations, consumer groups, industry.  
- Every second year member states will continue to report progress in the development of national infant nutrition programmes.  
- In 1986, a training workshop will be held on methods for monitoring the incidence and duration of breastfeeding.  
- In 1988 a study of weaning food practices in the Region will be initiated, followed by a consultation on recommendations for optimal weaning practices in 1989.  
- In 1990 a consultation will be held on the psychological importance to parents of mastering the feeding of their infants.
3. Obesity

The Regional Office will:  
- Jointly with the European Federation for Obesity Research, organise a working group on classification of obesity in 1986.  
- In 1987, initiate a survey of epidemiological information on the relationship between socioeconomic status, morbidity and obesity.  
- In 1988 a working group will discuss recommendations for the prevention of obesity, and these will subsequently be published.

4. Groups at risk culturally,  
psychologically or  
physically

The Regional Office will:

Identify such groups, which could be for example:

- immobilised persons
- allergic persons
- migrant populations
- food faddists
- adolescent girls
- middle aged men

Based on advice of and support from experienced persons in the Region, a variety of action will be undertaken, depending on the nature of problems and available options.

Finally, the Nutrition Unit will engage in an active dialogue with persons/institutions working in the field of nutrition:

OUTREACH AND COMPETENCE BUILDING

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1. Networking

The Regional Office will:

Establish a computerised list of people and institutions active in various areas of nutrition. Based on this the Unit will be able to distribute documents selectively, to keep in touch with colleagues throughout the Region, and when desirable, in other Regions as well. Conversely, colleagues are invited to inform the Unit of what goes on in their parts of the Region.

2. Training courses,  
model research programmes  
and development of  
learning materials on  
priority problems in  
public health nutrition

The Regional Office will:

- Designate "model institutions" for research and training at higher levels, specifically related to food and nutrition policies.
- Run training courses in selected areas such as:
  - "Training course for nutritionists in problem analysis, planning and management of nutrition-related activities, based on experience from Europe as well as other WHO Regions" (1986, 1988)
  - "Training course for statisticians and health officials in possibilities and problems in studies of dietary patterns" (1987, 1989)

Annex 2

BRIEF FOR THE STUDIES OF NUTRITION STRATEGIES  
IN SOME EUROPEAN MEMBER STATES

Prerequisites for the studies

The studies should be carried out by public health nutritionists with experience in policy analysis who should link up with national expertise in "organizational sociology" or political science - or vice versa. The in-country researcher should collect in advance existing material relevant to the studies, and carry out an analysis of the material following the framework outlined below.

A. In countries with an officially recognized nutrition strategy

1. A historical account of the development of the nutrition strategy into a nutrition policy and subsequent nutrition plans and programmes, describing:

- the content of the strategy in broad terms, including nutrient goals and dietary guidelines;
- leading personalities;
- sequence of events in the development of the strategy;
- combination of external circumstances relevant to the strategy.

2. An analysis of:

- traditions and social factors supportive to or hampering the implementation of the goals of the nutrition strategy/policy;
- role of media;
- existing competence in nutrition (critical mass?);
- organization of responsibilities:
  - advisory bodies
  - bureaucratic set-up.

3. Descriptive account of:

- existence of routine evaluation of the impact of the nutrition strategy (nutrition surveillance) and process analysis;
- resources allocated to the nutrition strategy (human and financial);
- areas included in nutrition strategy planning;
- implementation problems and successes;
- results, expressed in terms of dietary indicators and health impact indicators.

B. In countries with a potential for formulating a nutrition strategy

1. A historical account of conditions and activities relevant for nutrition strategy formulation.

2. A description of:

- existing situation based on available data:
  - dietary pattern (including trends)
  - mortality/morbidity pattern relevant to nutrition (health impact indicators)
  - public awareness and interest of guidelines
  - traditions and social factors of relevance to implementation of guidelines
- existing competence in nutrition at different levels
- existing institutions with advisory capabilities/capacity
- interest in nutrition within relevant ministries
- have existing dietary guidelines been translated into government mass catering establishments?

In both sets of studies the following should be considered:

- the integration of a nutrition strategy into existing overall health plans
- resources allocated to a nutrition component in the overall comprehensive health plan
- estimation of gaps in resources available - persons and finances.

Use of the studies

The studies would constitute relatively rapid reviews upon which further long-term studies could be based, initiated by the locally involved researchers (and actionists).

The case studies would be brought together under one cover to illustrate how nutrition strategies could be developed, in so many different ways, to inspire policy-makers to take the decision to have nutrition policies adopted.

The final publication should also comprise a review of experience in nutrition strategy formulation and evaluation outside the Region.

They could be used inter alia as background documentation for short (3-day) seminars in interested countries, on "The formulation of nutrition strategies".

Annex 3

RESEARCH PROGRAMME ON "DETERMINANTS OF SECULAR TRENDS IN DIETARY PATTERNS"

Purpose: to establish a research base on the behavioural aspects of nutrition, with reference to the sociological, economic, cultural and psychological factors affecting dietary change. Such an information base is required as a prerequisite for more effective planning of nutrition communication and education activities, as well as for identifying other types of intervention strategies to improve nutrition. The development of research capacities in behavioural aspects of nutrition will provide a base for future policy-relevant data collection and analysis.

Suggested steps in developing a programme

I Establish a multidisciplinary Research Planning Group

- ideally first identify potential research collaborators with previous experience in food-nutrition/social factors research
- identify/collate previous research on determinants of secular trends.

II To develop a guideline protocol there should be, prior to pretesting, general agreement on the primary form of:

A. Outcome variables (the "secular trends in diet") to be accounted for:

- [e.g. - specific nutrients  
- specific foods  
- dietary patterns (meal pattern; food group utilization; sources of calories-proteins; etc.)  
- food behaviour: procurement, preparation, consumption behaviours.]

B. Input variables ("Determinants"):

- Macro-level: marketing; media messages; health care provider advice; food availability, etc.
- micro-level (household and individual):
  - economic/food acquisition characteristics
  - social structural characteristics (e.g. household work organization, composition)
  - cultural characteristics (e.g. knowledge, beliefs, values, perceptions about food, health, self image, personal goals).

III Ethnographic work to develop knowledge base for constructing country-locally-appropriate protocols.

IV Development and pretesting of protocols, followed by cross-national consultations with wider research group.

V Primary data collection/analysis

VI Cross-project analysis/synthesis

VII Development of policy implications, papers from research results

Annex 4

DATA NEEDS IN NUTRITION FROM THE INFORMATION BASE FOR HFA I

The nutrition programme Advisory Group in Oslo, 27-29 January 1986, identified the existing information on health impact indicators relevant for nutrition. The processing of the data should be considered in two steps: (a) review of pre-existing data and derivation of conventional overall indicators, and (b) identification of a more specific set of indicators based on selective use of pre-existing data (for example concentrating on specific age groups).

Anthropometric indicators

Pre-existing data should be solicited on distribution of:

Height for age  
and  
Weight for height

for the following age categories:

1-4 (pre-school)  
5-10  
11-20  
above 20

or for one or more of the following age groups:

1 year (infants)  
at entry into school  
approx 20 years  
approx 45 years.

The figures should be presented by sex and when possible in absolute terms, and could be presented on the basis of standard deviation(s) or as percentiles.

Validity of sample size should be checked to be in accordance with the WHO publication "Measuring change in nutritional status", (WHO, Geneva, 1983). Method of sampling and standardization should be described, as well as the region and socioeconomic group from which it is taken if a nationwide or nationally representative sample is not provided.

DATA NEEDS IN NUTRITION FROM THE INFORMATION BASE FOR HFA II

Mortality indicators

Ischaemic heart disease  
Cerebrovascular disorders  
Stomach cancer  
Large bowel cancer  
Breast cancer  
Lung cancer  
Cirrhosis of the liver

all broken down by age and sex

Morbidity indicators

Same as above  
plus

- Non-insulindependent diabetes (though it was agreed that there may be difficulties in diagnosis/identification and standardization of data);
- Juvenile insulin-dependent diabetes may be easier to monitor but its possible link to nutrition is speculative at best;
- Hip fracture rates, as an indicator of osteoporosis - and nationally representative data might not be necessary, since what one would be interested in would mainly be trends over time;
- Obesity (possibly based on data under I).

Physiological indicators such as

- Total cholesterol
- Blood pressure data

Here it was noted that the collaborating centre in Prague might have relevant information.

Annex 5

PRIORITIES IN RESEARCH IN PUBLIC HEALTH NUTRITION

1. Obesity

1.1 Background

Population studies have revealed a U-shaped relationship between body mass index ( $W/H^2$ ) and total mortality as well as CVD- and cancer mortality. On the other hand, cross-sectional experimental studies are showing a direct relationship between BMI and a number of risk-associated biological variables, such as blood pressure, blood glucose, total cholesterol, HDL cholesterol (inverse), all of which indicate an increased risk with increasing BMI. A growing body of knowledge suggests that obesity is not one single condition, and that fat distribution (and type?) as well as its relation both to age and sex may be of importance. Such considerations must at least be part of the discussion of the importance of obesity as a public health issue.

Areas of research (which also involve the scrutiny of existing literature) should therefore encompass the following topics.

1.2 Definition/standardization

A definition and classification of obesity is needed because an increased BMI may predispose to ill health. As BMI is a continuous variable the definition should take into consideration the points mentioned below on categories of obesity and express the risk for ill health according to fractiles of the distribution in conventional terms like relative risk, excess risk or attributable risk. Interpretation of available data is currently hampered by the lack of standardization.

It is therefore recommended that standard reporting formats are developed for body mass index and waist-hip ratio.

1.3 Obesity as a risk factor

1.3.1 Types of obesity

(a) Recent data suggest that the fat distribution on the body may be of relevance, at least for the development of CHD. The basis for this observation is scarce and longitudinal studies are needed to test the hypothesis. It has been suggested that this distribution is linked to sexual hormones and plausible biological mechanisms are needed to establish a possible direct relationship between the sex distribution of CHD, fat distribution and sexual hormones.

(b) There are indications that fat depositions acquired early in life may be of greater importance both for obesity later in life and the risk of disease. Both the phenomenon of tracking and the possible differing impact of obesity according to at what age it occurred warrant further clarification.

(c) Both (a) and (b) imply longitudinal studies of the long-term effect of obesity on disease end points. These long-term effects may be mediated via other biological factors and it is necessary from a public health point of view to single out the independent contribution from obesity both on the variation of these factors and the disease end points. In this context it is natural to point at some studies showing a lower than anticipated risk in obese subjects with concomitant blood pressure elevation. This issue is obviously of importance when it comes to assessing obesity as a public health problem.

#### 1.4 Obesity as an indicator in epidemiological surveillance systems

This is really part of the anthropometric surveillance but is also mentioned under this heading. The importance of such surveillance will be clear from the conclusions above. Such surveillance is made easier by the relatively short time lag between changes in nutritional habits and subsequent effects on BMI.

#### 1.5 Determinants of obesity

Determinants of obesity can be split into

- behavioural factors which include, for instance, food habits, attitudes, social traditions, body- and self-image, and
- structural conditions, e.g. availability of food, quality of food, access to information.

The relative importance of these determinants must be explored if preventive actions are to be undertaken.

#### 1.6 Consequences of slimming

The health consequences of fast slimming are not well known. Fat-soluble organohalogenes and other toxins deposited in fat tissue are released when fat stores are suddenly reduced. Both metabolic changes and possible related disorders have to be elucidated.

### 2. Other diet-related diseases of public health importance

#### 2.1 Atherosclerosis

(a) Until now the relationship between fat intake and atherosclerosis has mainly concentrated on classes of fatty acids like saturated, mono-unsaturated and polyunsaturated fatty acids. Recently it has become evident that fatty acids of the n-3 series may have specific protective effects on the atherosclerotic and thrombotic processes leading to CHD. The mono-unsaturated fatty acids may also have a higher cholesterol-lowering effect than has been recognized. On the other hand, peroxidative modifications of polyunsaturated fatty acids need to be studied. The effects of trans-fatty acids on atherosclerosis are not sufficiently clarified.

In summary, the impact of different types of dietary fatty acids on lipoprotein metabolism and on the development of atherosclerosis need to be studied.

(b) More information is needed on the effects of different quantities and qualities of fibre on different processes leading to atherosclerosis (e.g. serum cholesterol levels, glucose tolerance and insulin).

(c) Recent epidemiological and experimental studies have indicated that fish consumption (both lean and fat fish) may lower the risk for CHD. More studies are needed to clarify these associations and to explore the mechanisms involved. Further studies should be conducted on possible beneficial effects of fish consumption on CHD.

(d) It cannot be excluded that there are unknown relations between CVD and specific food items. Correlation between the consumption of certain food items and cardiovascular diseases will therefore have to be studied.

(e) It is well established that serum lipid levels are influenced by several lifestyle-related factors including diet. The relative efficacy of dietary therapy compared to drug therapy is less well known. Studies should be conducted comparing pharmacological with non-pharmacological (dietary) treatment of dyslipidaemia. The effects both of single factors (e.g. dietary fat) and a combination of factors should be looked at.

## 2.2 Hypertension: diet and hypertension

Many dietary factors have been suggested to be related to the development of hypertension - e.g. sodium, potassium, calcium, fat and alcohol. In addition, hypertension is related to obesity.

Controlled studies of pharmacological vs non-pharmacological (dietary) treatment of mild hypertension should be organized using multicentre studies. Studies should be aimed at the effects both of single factors (e.g. salt) and combinations of factors.

## 2.3 Cancer: diet and cancer

Several epidemiological studies suggest some correlation between dietary factors and certain types of cancer.

Obesity and excessive intake of fat have been shown to be closely correlated to endometrial cancer, breast cancer and colon cancer. A high salt intake has been suggested to be related to gastric cancer. Certain factors have been suggested to be protective, like beta-carotene/vitamin A, fibre and ascorbic acid.

This information has been derived mainly from cross-sectional studies. Longitudinal studies are needed, with better and more standardized methods for dietary intake measurement. If possible, controlled studies should be conducted.

## 2.4 Diabetes

In Finland there has been an increase in the incidence of insulin-dependent diabetes over the last 20 years. Also there is a large variation in the incidence between populations. This suggests that environmental factors, including diet, may play a role. Possible dietary factors in the development of insulin-dependent diabetes (esp. juvenile onset) should be studied.

## 2.5 Osteoporosis

An age-corrected increase in the incidence of hip fracture has been observed in several developed countries.

It is possible that environmental factors, such as physical activity, obesity, smoking, alcohol and dietary factors influence the outcome of osteoporosis.

Therefore, more studies are needed to identify the role of environmental factors, and the preventive potential of dietary measures.

Measurement of bone density and registration of hip fracture incidence should be undertaken in different populations with varying lifestyles and dietary habits. Longitudinal studies would best identify risk factors for hip fractures.

## 3. Social epidemiology and public health applications

### 3.1 Consumption patterns and nutritional risk

#### 3.1.1 Alcohol and sugar

Although it is well recognized that consumption of alcohol, and to a somewhat lesser extent, sugar, are highly unevenly distributed within populations, the relationship of distribution patterns to population-wide recommendations has not been seriously assessed. Such assessment must take into account the range of individual tolerance and relationships of intake of sugar and alcohol to other nutrients and meal patterns. There is a serious dearth of information about these relationships, as well as a lack of data on determinants of intake levels.

#### 3.1.2 Alcohol

Research is needed for the development of a scientific basis for recommendations for intake, especially focused on identifying the variability in individual tolerance and metabolic normality as well as factors associated with the development of cirrhosis and other alcohol-related disease.

#### 3.1.3 Sugar

Research is needed to improve the evidence concerning health and nutrition risks associated with given levels of sugar intake, particularly in relation to other dietary components. The role of sugar in the nutrient density of diets of vulnerable groups (e.g. elderly and handicapped) requires further analysis as a prerequisite to establishing recommendations. Methods that give more valid data for individual sugar consumption should be developed.

### 3.2 Meal patterns

Public health planning, including regulations concerning mass catering and nutrition communication, depend on assumptions concerning patterns of food intake over the course of the day. However, there is a serious dearth of knowledge about how people are actually eating and what the distribution of

different meal patterns are within populations. Moreover, meal patterns may be undergoing rapid change, but the magnitude of change and its relationship to lifestyle is virtually unknown. Moreover, the consequences of different meal patterns for total nutrient intake or their relationship to health outcomes has barely been analysed; in other words, the public health significance of changing meal patterns is unknown but may be of some significance.

Descriptive data on the distribution of intake over the course of the day (meal patterns) of different populations and analysis of relationship of meal patterns to nutrient intake are therefore needed.

### 3.3 Vitamin/mineral supplements

The widespread availability of vitamin/mineral supplements and popular literature of nutrition advice as well as aggressive marketing create an environment for potential abuse of these products and danger of vitamin/mineral toxicity. However, there is very little data on consumption behaviour with respect to overconsumption; the danger may be more perceived (on the part of public health professionals) than real, but the possibility remains that subgroups within particular populations are genuinely "at risk" of vitamin/mineral toxicity from these.

Furthermore, little is known about the effects of chronic low overdosage of vitamin and mineral supplements (at a level of 2-3 times the RDA) throughout a lifetime.

Descriptive data are needed on the distribution, in populations, of use of vitamin/mineral supplements with emphasis on identifying groups at risk of excess consumption.

The effects of chronic, low overdosage over a lifetime should be explored.

Also, regulations on allowable quantities and on advertising differ widely within the Region, so it is recommended that a review of these regulations be undertaken.

### 3.4 Health effects of marginally deficient nutrient intakes

The health consequences of severely deficient intakes are well known. For reasons of genetic variation and biological adaptation, such consequences are overtly expressed in relatively small proportions of the population. There is a need to consider sub-clinical effects of minor deficiencies that may affect larger proportions of the population and have more widespread public health implications.

Information is required on the effects of marginally deficient intakes of nutrients, operating over the long and short term, on physical, mental and social performance and, based on such results, the development of suitable tests to measure such effects on a population basis.

### 3.5 Targetted interventions for high-risk sub-groups

Even in affluent populations sub-groups exist where clusters of nutritional risk factors occur with high frequency and are associated with measurable increases in morbidity and mortality. Effective and targetted

interventions to reduce such risks are often lacking for reasons of low social priority and the absence of up-to-date experience in developing appropriate services with emphasis on mobilizing local resources and using informal support systems.

Information is required on the nutritional needs of high-risk sub-groups on a regional basis and on alternative approaches to targetted interventions. Strategies to make more effective use of local resources and of informal delivery systems need to be developed for this purpose.

4. Nutritional status of hospitalized patients including persons who need home care

The problems of hospital patients/immobilized persons can perhaps best be tackled by seeing this in the perspective of "governmental mass catering". The concept of "immobilized" also includes home care patients. There are groups that work on this subject; however, they are limited to enteral/parenteral feeding. Several groups in the Nordic countries have realized the importance of the problems of feeding patients and study the food consumption of patients and its relation to hospital malnutrition.

Annex 6

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