

On Food and Nutrition Policy Activities in the USA, Australia, and Norway

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ABSTRACT

Formulation and implementation of a national food and nutrition policy is important for ensuring good health and quality of life. This study examined the formulation and implementation of food and nutrition policies in the USA, Australia, and Norway. Library searches, MEDLINE and POPLINE searches, and personal communications were used for collecting information and data on nutrition activities and policy formulation and implementation in each country. These countries were selected because policy activities have been ongoing since the 1930s with a clear improvement in the nutritional status of the people. Multisectoral participation, conflicts of interest, strategies to alter diet, and attempts to deal with new problems have been highlighted and compared. Findings of the study may be useful to policy-makers in less-developed countries during future policy-making processes.

Key words: Nutrition policy; Food policy; Nutritional status; United States; Australia; Norway

INTRODUCTION

Food and nutrition policies have the long-term goal of improving the nutritional status of people to ensure life-long health, well-being, and productivity. The World Food Conference in 1974 expressed concerns about the need for improving nutrition in all countries and recommended that all governments formulate and integrate concerted food and nutrition plans and policies (1). "A nutrition policy is usually considered as comprising a coherent set of principles, objectives, priorities and decisions adopted by a government and implemented by its institutions as an integral part of its national development plans" (2).

The process that forms the policy continuously shapes it, as it moves from conception to adoption, implementation, evaluation, and reformulation. Its

beginnings are in the past, and its development depends on those who care about it, despite the hostile or indifferent environment. A policy may be transformed by the social climate and specific organizational environment within which it evolves (3). According to the Triple-A approach of UNICEF, the process entails three steps:

- Assessment of the nutrition situation
- Actions, including policy formulation, culminating in a set of guidelines implemented through services and programmes
- Analysis of policy implementation through monitoring and evaluation. This leads to the next triple-A cycle.

The persistence of widespread hunger and malnutrition around the world, despite increased food production, has led to the view that a broader concept of food and nutrition policy is essential. World leaders of developed countries have an opportunity now to provide assistance to food-poor nations, because "the multisectoral problem of over-nutrition in food-rich countries is tied to the solution of undernutrition in food-poor countries" (3).

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Among the developed countries, the USA, Australia, and Norway have formulated food and nutrition policies to promote a healthy lifestyle for their populations. The present study was carried out to understand the process of policy formulation and implementation and the achievements of these countries and to examine how the present food and nutrition policy of Bangladesh may benefit from the lessons learnt from these countries.

MATERIALS AND METHODS

The study was conducted during July 1997-2001.

Information and data on nutrition activities were collected over the past several decades, including the process of formulation and implementation of food and nutrition policy and achievements in three developed countries through library searches, MEDLINE and POPLINE searches, electronic media, personal communications, etc. A good number of documents, scientific papers, and publications were examined.

Among the food and nutrition policies of developed countries, the policies of the USA, Australia, and Norway were selected for this study because policy formulation and implementation has been ongoing for the last few decades with considerable success and because adequate information and data from literature were available for review and analysis.

Nutrition activities over the past few decades are described. The strengths and weaknesses and the successes and failures of the food and nutrition policies were reviewed, interpreted, and analyzed. The lessons learnt from these policies have been presented to suggest formulation or reformulation and implementation of future effective food and nutrition policy in less-developed countries, especially Bangladesh.

RESULTS

Food and nutrition policy activities in the USA

The USA is the largest food-producing country in the world. Every year, about \$ 40 billion is spent on nutrition assistance programmes alone, and many more millions are spent on nutrition education, monitoring, research, and nutrition-related programmes (4). These investments show a strong political commitment of the Government to the nutritional security of the people. In comparison, most less-developed countries lack strong political commitments.

Nutrition activities

The chronological events in the field of nutritional developments in the USA from 1950 to 1999 are shown in Table 1. The table shows that micronutrient deficiency was prevalent during the 1970s, and this was addressed through nutrition-education programmes and prophylaxis through fortification of common staples. However, problems of overnutrition, obesity, and nutritional disorders emerged in the 1980s and increased during the 1990s due to many reasons, including high intake of calories (fats and sugar), low intake of fruits and vegetables, and insufficient physical activity.

Process of policy formulation

Nutrition is multisectoral in the USA. Three departments—Department of Agriculture, Department of Health and Human Services (DHHS), and Environmental Protection Agency—are involved in the nutrition policy activities. Federal agencies usually issue regulations for public comment that, after revision, are issued as final regulations (4).

The compiled set of laws composes the legal framework in America which is a major part of the Federal Government's plan of action for nutrition. Coordination of nutrition monitoring and research activities across the government and periodic reviews of the dietary guidelines for Americans are authorized by the Nutrition Monitoring and Related Research Act of 1990. The 1995 Farm Bill Guidance outlines the fundamental principles of public policy in relation to food and nutrition (4). It indicates that the food and nutrition policy framework is a concerted effort within the major framework of public policy, and it is not considered a separate issue. An Interagency Board for Nutrition Monitoring and Related Research has been formed and has developed a Comprehensive Ten-year Plan for Nutrition Monitoring and Related Research (5) to serve as a blueprint for developing federal work plans and agency budgets. A nine-member National Nutrition Monitoring Advisory Council provides the advisory mechanism for nutrition monitoring. This Council provides critical data to formulate or update nutrition policy and points to the importance of basing policy on current data through regular monitoring and evaluation.

Policy implementation and achievements

The dietary guidelines for Americans developed in 1980 and subsequently revised in 1995 serve as the

central focus of federal dietary recommendations. The revised guidelines were issued in January 1996 (4). The meat and dairy industry mounted continuous pressure on the Department of Agriculture to withdraw its Eating Right Pyramid food guide, and it was ultimately withdrawn in 1991. The Department of Agriculture has a conflict of interest because of its dual mandates to promote agricultural products and to advise the public about healthy food choices (6).

those on physical activity, are relevant to nutrition under the broad concept of International Conference on Nutrition. All these objectives provide a framework for nutrition actions at the local, state, and federal levels. The first Surgeon General's report on nutrition and health was another important policy document that highlighted the over-consumption of certain dietary components, particularly fat, as a major public-health problem (4).

Table 1. Chronological list of nutrition activities in the USA, 1950-1999

Period	Nutrition situation	Nutrition services
1950s-1960s	Foods were abundantly grown, but many people in the lower economic classes were malnourished both in urban and rural areas	Food production increased through technological advancement; creation of awareness about healthy lifestyles; applied nutrition programmes; and food and nutrition security services to the target group
1970s	Recognition of the prevalence of malnutrition, faulty eating habits, anaemia, vitamin A deficiency, and iodine deficiency disorder (IDD) as major nutritional problems of public-health importance	Nutrition-education programmes through schools and communication media; special nutrition programme for the targeted population; and prophylaxis against anaemia, vitamin A deficiency, and IDD
1980s	Nutritional status of the Americans was not good due to overnutrition, obesity, and nutritional disorders. Nutrition and food science recognized as the most interdisciplinary of all sciences by the National Academy of Sciences	Dietary guidelines for Americans were developed in 1980 and revised in 1985; involvement of several departments of Federal Government in nutrition-related activities; and efforts for authorizing a number of laws and implementing regulations for nutrition and adoption of the National Food and Nutrition Policy through a multisectoral approach
1990s	Rise in obesity, and low intake of fruits and vegetables rich in dietary fibre. Nutrition security and enhancing nutritional well-being were considered as policy objectives	Dietary guidelines for Americans were revised; Nutrition Monitoring and Research Act adopted and reflected in the National School Lunch and Breakfast programme; the 1995 Farm Bill Guidance outlines fundamental principles of public policy in relation to food and nutrition; reflection of the policy in National Plan of Action on Nutrition and sectoral plans; nutrition programmes were being undertaken at different levels

When conflicts arise between healthcare providers and food producers, they should be negotiated so that the nutrition guidelines are not compromised. DHHS has developed a key policy document with multisectoral participation called "Healthy People 2000: National Health Promotion and Disease Prevention Objectives". This policy was revised in 1995 following the mid-course review (4). Twenty-seven of the 300 objectives are nutrition-related, and many others, including

The diets of most Americans either meet or exceed the Recommended Dietary Allowances (RDAs) for many important nutrients, including protein, vitamin C, thiamine, riboflavin, and niacin. Results of the Healthy People 2000 midcourse review indicate that only 22% achieved the dietary goal for total fat and only 21% for saturated fat (4). Overweight and obesity have become endemic. Kuczmarski *et al.* reported in 1991 that the proportion of overweight people

had increased dramatically, and over one-third of adults or 50 million people, were overweight (7). Toriano *et al.* reported that the prevalence of overweight among children aged 6-11 years was approximately 22%, representing a 7 percentage point increase over the last 10 years (8). Twenty-one percent of adolescents aged 12-19 years are overweight, which is an increase of 6% over the last decade (9).

A national study on school children found that the average calorie intake on school days was 11% above the level suggested in RDAs (10). The common explanations are that children develop poor eating habits from a young age, eating habits are difficult to change, food outlets sell and advertising promotes, processed and fat-rich foods, and people are unaware of the dietary guidelines. Murphy *et al.* reported that food preferences of people were not consistent with the recommendations of dietary guidelines to moderate foods high in salt, fat, and sugar (11). The consumption levels of fruits, vegetables, and other foods rich in dietary fibre are increasing, but at considerably low levels that may help prevent certain forms of cancer (12). It has been recommended that several servings of whole-grain products be included in all diets each day (13). According to research findings and recommendations, dietary guidelines have been modified and action plans have been prepared, but food behaviour has not changed quickly.

Nutrition policy is meant to influence attitudes and choices of consumers by way of advertising, health education in schools and workplaces, and counselling by physicians. Food and agricultural policies accelerate the process of adapting the production and distribution systems for agriculture and food to better meet the demands of more informed consumers (14). However, these two approaches are not sufficient if nutrition information does not reach people, as in the case of those in lower socioeconomic positions, and producers continue to distribute cheap processed foods and sugary drinks.

Breastfeeding is an interesting example of government involvement in what was once thought to be a personal nutritional decision among new mothers. Although breastfeeding is the optimal method of feeding most newborns and is promoted by the federal policy, only slightly more than half of U.S. mothers choose to initiate breastfeeding, and the rate is lower

in some sub-populations, especially African-Americans (4). Among mothers who did not breastfeed their children in the first six months of life, most fed infant formula, and only a small proportion used cow's milk as a substitute for either breastmilk or formula (4). As an industrialized country, the USA has made some progress in breastfeeding but it needs further initiative at the state and local levels. In the case of developing countries, where breastfeeding was almost universal, the trend is for urban mothers to breastfeed less and less. To reverse the trend, they have had to adopt the baby-friendly hospital initiative and restrictions on the display of baby formula. Without these and more serious measures, developing countries, like Bangladesh, may face the possibility of having an 'American-style' problem. They need to be concerned about sustaining breastfeeding in rural areas where it is still the common practice.

The strengths of American food and nutrition policy are that it was included in the Federal Government policy, and an Interagency Board for Nutrition Monitoring and Related Research develops comprehensive workplans and agency budgets on nutrition. Besides, the Government has continued its strong commitment to improve the nutrition and health status of the population. The major weakness is the conflict of interest of people who are formulating and implementing policy. Often the interests of food producers and food processors run counter to healthy eating guidelines. One current example is the conflict over drinks that contain too much sugar. Lack of strong coordination of activities at the federal, state and local levels may be another weakness. Because of the cultural heterogeneity of the population, food behaviour and choices may be different among different cultural groups. Certain segments of the population are particularly at risk of overweight and obesity, although it has now become a major public-health problem. Activities aimed at altering consumption and physical activity tend to include school programmes and community campaigns instigated at the local level. However, the American food and nutrition policy has generally been successful and made good progress, with the major problem now being an increase in overweight and obesity.

Food and nutrition policy activities in Australia

Australia is one of the developed food-rich and food-exporting nations of the world. Only 6% of the work

force is engaged in farming (15). Enough food is produced to feed around 35 million people (16)—more than half of them overseas.

Nutrition activities

The chronological events on nutrition activities in Australia from 1930 to 1999 are shown in Table 2. Table 2 shows that nutrition activities started in Australia from 1930 when poor dietary habits existed in the country. This led to efforts to improve the nutritional status and promote a healthy lifestyle through policies and programmes on food and nutrition, setting dietary goals and guidelines, and involvement of all sectors in nutrition-related activities. These efforts have led to some successes in Australia. The Federal Government, along with the state and local-level infrastructure, has undertaken nutrition programmes for its

target populations, which include Aboriginal people and children from lower socioeconomic families.

Process of policy formulation

The Government of Australia has a clear mandate for the promotion of public health and the achievement of social justice. The Government established the National Advisory Council on Nutrition (1936-1938) 'to foster the general nutrition of the rising generation' and to correct 'faulty dietary habits in general by the publication of sound propaganda' (17). In 1979, the Federal Department of Health (as it then was) took a significant step when it announced a 'food and nutrition policy' (18). It emphasized primarily the distribution of a set of dietary goals in 1979 and guidelines in 1982. The Government, in May 1992, constituted an Oversighting Committee to develop a consensus policy for adoption (19).

Table 2. Chronological list of nutrition activities in Australia, 1930-1999

Period	Nutrition situation	Nutrition services
1930s-1960s	Food was available, but the nutritional status of the people of lower socioeconomic classes was not satisfactory. Faulty dietary habits existed in the country	Food production increased; creation of awareness about healthy diets; applied nutrition programme; and National Advisory Council on Nutrition established (1936-1938) to foster general nutrition in the rising generation
1970s	Prevalence of malnutrition, necessity for a multisectoral approach to combat malnutrition, faulty eating habits, and major nutritional disorders were identified by the Federal Government	Nutrition-education programme through schools and communication media on "healthy food choices-easy choices"; propaganda to change faulty dietary habits and announcement of the national food and nutrition policy by the Federal Department of Health
1980s	Nutritional status of Australians was not good due to overnutrition, obesity, and nutritional disorders. Nutrition was recognized as an inter-disciplinary subject and thus considered to involve other concerned sectors in nutrition activities	Adoption and distribution of a set of dietary goals and guidelines for Australians by the Department of Health in 1979 and finally by the National Health and Medical Research Council in 1983. Involvement of all sectors in nutrition-related activities. National Better Health Programme recommended by the Better Health Commission in 1985 considered nutrition as one of the five important components for better health of Australians
1990s	Increase in obesity, nutritional disorders, and chronic degenerative diseases; low intake of lean meat, fruits, and vegetables rich in dietary fibre. Nutritional improvement through healthful diet and specific interventions is the desire of the Federal Government of Australia	The dietary guidelines were modified and endorsed in 1992. Involvement of consumers, producers, and food industries in nutrition activities was a good step in Australia. Nutritional awareness through media campaigns continued. National food and nutrition policy was modified and adopted in 1992. Reflection of the national food and nutrition policy into state policies, plans, and programmes. Nutrition programmes are being undertaken at the federal and state levels

As suggested by Heywood and Lund, a national policy requires coordinated activities across a number of sectors (20). The formulation of Australia's food and nutrition policy has involved representatives from the public and private sectors, agriculture, food manufacturing, retailing, consumers, and the media sectors. The aims of the policy are to increase the availability of nutritious food, especially in remote areas, to increase the affordability of nutritious foods for economically-disadvantaged people, and to increase the understanding of good nutrition and foods. A number of strategies to achieve these objectives were identified and included in the policy document (19). Grossman and Webb stated that local food and nutrition policies were becoming a fashionable way of improving public health in Australia (21). McMillan reported that a high prevalence of nutrition-related diseases was observed among Aborigines living in remote areas (22). The division of power between agriculture and health bodies not only constrains inter-sectoral decision-making at a practical level, but also creates an additional element of inter-governmental tensions and jealousies, particularly over funding issue (23).

There were also conflicts in decision-making and of vested interest. The animal products lobby objected to the lack of consultation before the policy document was produced and raised objections to the identification of unhealthy foods in the discussion paper (24). The Victorian Farmers and Graziers Association saw it as a recommendation to cut consumption of red meat, where the policy advocated a reduction in fat (25). The Victorian Employers' Federation expressed the concerns of the private sector about a policy which, at this stage, appeared to smack of state socialism and to be representative of bureaucracy and seconded experts (26). They also claimed that the policy proposals were in conflict with the government's 'deregulatory' economic policy; frequent discussions led to the construction of some bridges and solutions. For example, with the meat producers a critical linkage was provided by basic researchers working on fat composition and health effects of lean meat (27), and by animal production researchers working on the feasibility and economics of producing and marketing leaner animals. The Nutrition Foundation of Australia (NFA), at a national level, saw the Victorian programme as detrimental to its aim of achieving a "national food and nutrition policy based on cooperation between government, health professionals, educators, the food industry and the consumers" (18). Individual policies

at the state or territory level should be formulated and implemented according to local requirements but should be consistent with national or federal-level policies.

Policy implementation and achievements

The food and nutrition policy of Australia is being implemented through strategies that support Australian dietary guidelines, involve key sectors in the food system, and foster community participation. For example, the food consumed in Australia needs to conform to a comprehensive set of food standards with regular inspection required to implement the standards. NFA is responsible for developing these standards, and the states and territories are responsible for implementing and administering them (19). There are strong commitments at the state and territory level not to compromise with inappropriate foods that do not follow the standards. The food and nutrition policy is a partnership of government, industry, and the community, and all are closely involved in its implementation. The Commonwealth Department of Health, Housing and Community Services, as part of its Health Advancement Program, is responsible for coordinating the implementation of the policy in cooperation with other groups (19). This level of multi-sectoral consensus and involvement has been a hallmark of Australia's success. The Australian Federal Government has sponsored, initiated, or legislated many important review and policy documents relevant to the national food and nutrition policy. A report, published for the Australian Health Minister in 1988, identified various goals and targets for achieving Health for All (28). Based on this report, the National Better Health Program was implemented in Australia from 1989 to 1992. Initiation and achievements of this programme helped the move towards the formulation of a new national food and nutrition policy.

Coordinated or joint effort in the implementation of the food and nutrition policy has provided positive results. For example, the Victoria food and nutrition policy provides an approach integrating activities of the agriculture, education, and health sectors. Implementation was in line with the Australian dietary guidelines (29). The dietary guidelines for Australians was modified and endorsed by the National Health and Medical Research Council (NHMRC) in June 1992 as per the suggestion of its Subcommittee on Nutrition Education (30). The Subcommittee took a broad view of traditional education techniques, including

the development of a nutrition curriculum at all levels of education, complemented by strategies that promote a supportive environment, addressing social, cultural and economic factors that influence nutritional status (31). The Australian Government also made statements aimed at developing a fairer, more prosperous, and more just society for every Australian, along with the identification of disadvantaged groups and specific strategies for these groups (32). The views of consumers were reported in the proceedings of food policy conferences held in 1991 and 1992 (33). Finally, scientists from the Department of Public Health at the University of Sydney reviewed the national health goals and targets in the light of the current situation (34) as did the Government at a meeting in Rome. A 'National strategy for ecologically sustainable development' has been initiated from the highest level to improve the quality of life of the population and for future generations (35). A joint statement on Australian agri-food industries was made in 1992, which provides a national strategy to improve the international competitiveness and export orientation of Australia's agricultural and food processing industries, including further industry integration, work-place reform, and market-development activities (36).

The policy statements through a collaborative initiative were usefully implemented in Australia. The strength of the Australian food and nutrition policy is its unique coordination among important sectors; conflicts if they arise are resolved through negotiation. Another strength is the commitment of the Federal Government. Apart from the successes in improving the nutritional status and quality of life, Australians are also at risk of overnutrition, obesity, and nutritional disorders. Currently, an effort has been made to address this problem through policies and programmes on diet and physical activity.

Food and nutrition policy activities in Norway

Norway is one of the healthiest nations in the world with a high per-capita income. The seeds of its nutrition policy are more than half a century old, and the country was the first to adopt a comprehensive food and nutrition policy. Perhaps the best known model of interventionist food and nutrition policy is that of Norway (18).

Nutrition activities

Table 3 shows the chronological events of nutrition activities in Norway from 1930 to 1999. Norway con-

siders not only its own people but also the world community, particularly as it pertains to food security issues in developing nations. The global food crisis inspired the country to grow more food for self-sufficiency in the 1970s.

A National Nutrition Council (NNC) was established in Norway in 1937. It drew up guidelines for food supply and nutrition policy to promote public health and also to encourage agriculture. Several approaches were undertaken to improve the nutritional status and health of the people. The Government is committed to implementing its policies and to increasing food production; for example, it provides half of the income of Norwegian farmers. Norway is a proven example of multi-sectoral participation in nutrition activities, although it has learnt by experience over many years.

Process of policy formulation

The complex food and nutrition policy of Norway, setting goals for 1990, was formally begun in 1975 (3). Despite many constraints, diplomatic efforts and intensive work by NNC representatives and the Ministry of Agriculture produced a draft policy by the early autumn of 1975. It was summarized in a memorandum from the Minister of Agriculture to the Cabinet, which, in turn, quickly approved it and sent it to the Parliament as the Norwegian Food and Nutrition Policy (37).

For decades, the agriculture and health sectors have competed for the leadership role in formulating and implementing nutrition policy in Norway. The key players in policy formulation include those in the powerful agricultural system led by the Ministry of Agriculture and several dozens of stakeholders. The agriculture sector gained power and resources through its early alliance with vanguard health and nutrition proponents, thereby sustaining the voice of its farm constituency in national decision-making. The established health sector was comparably vast but not mobilized for nutrition policy advocacy. The 1981 policy paper was an attempt by health and nutrition proponents to regain control of the policy, which had been captured by farm interests, who took the lead in designing the first policy paper in 1975. NNC had been the policy-keeper throughout the phases of policy initiation and adoption and also attempted to create an environment that would support policy adoption and implementation. Individual consumer needs, regional requirements, national consumption and production

goals, and global considerations were addressed in the policy goals and objectives.

Norway's efforts in nutrition and health have experienced many obstacles and opportunities for inter-sectoral policy-making. The Ministry of Agriculture and its associated farms and food industries have powerful economic interests. Because the Health Ministry's traditional focus was on personal health services and cost control, their interest in public health could not have a comparable home. NNC, which acts as the chief advocate for the Norwegian National Nutrition Policy, had worked under such a problematic situation.

Policy implementation and achievements

An Inter-ministerial Coordinating Committee on nutrition consisting of members from nine different ministries was given the responsibility for long-term and

annual policy implementation concerning nutrition and diet (38). The implementation of the policy in the 1980s followed a 1981 policy assessment and reformulation. According to Milio's view, the national goal was the central, pervasive, and persistent issue in Norway's dairy-dominated agriculture and food traditions (3). Their intention was to reduce total food fat energy up to 35% considering minority health and nutrition view and how much emphasis to be given on the reduction of animal fats relative to other widely-used fats. The consequences of such decisions, if effectively carried out, had vast economic, political and health implications. The policy paper left the issue ambiguous, and the Parliament approved it without alterations. The paper did not suggest modifying the limited funds allowed to the designated implementing and policy-keeping apparatus: the expert, but only advisory, NNC and 10-member Inter-Ministerial

Table 3. Chronological list of nutrition activities in Norway, 1930-1999

Period	Nutrition situation	Nutrition services
1930s-1960s	Food was available, but not accessible to disadvantaged group causing malnutrition among them. Faulty dietary habits existed in the country	Food production increased; creation of awareness about healthful diets; applied nutrition programme; National Nutrition Council was established in 1937 to improve the nutritional status of Norwegians
1970s	Global food crisis inspired the country to grow more food to become self-sufficient; malnutrition, faulty eating habits, and major nutritional disorders were prevalent in the country	Nutrition-education programme and media campaign on healthful food. Change in lifestyle, buying patterns, and eating habits was possible due to working women. Implementation of the approved national nutrition and food policy begun in 1975 by setting goals for 1990. Health and diet, agricultural self-sufficiency, rural development, world food security, etc. were the objectives of the policy
1980s	Nutritional status of Norwegians was not good due to overnutrition, obesity, and nutritional disorders. Consumption of adequate animal fat created problems. Nutrition was an inter-disciplinary subject, and concerned sectors were involved in nutrition activities	The national nutrition and food policy was revised in 1981. Information and education on diet and health aspects of the New Nutrition were initiated for Norwegians. Media campaigns helped disseminate nutrition information. Several sectors involved in nutrition-related activities. Public campaigns, in-service training, textbook revision, and widespread selling of popular food and nutrition books. Nutrition research programmes were initiated in the country
1990s	Overnutrition, obesity, nutritional disorders, and chronic degenerative diseases were prevalent in the country. Nutritional improvement through a healthful diet was tried. Self-sufficiency in food for world food security was emphasized	Government support provides half the income for Norwegian farmers. Involvement of consumers, producers, and food processors in nutrition activities was a good step in the country. Nutritional awareness through media campaigns continued. National nutrition and food policy reflected in the national plan of action for nutrition and sectoral plans and programmes. Nutrition programmes being undertaken centrally

Council, chaired officially by the high-ranking Deputy Minister for Social Affairs (Health). NNC had major responsibilities but it had no executive power and a minimally supportive base. Having all these difficulties, the Council contributed significantly to national changes that were in line with policy goals. The role and interplay of NNC with other stakeholders are important and can reveal useful strategies for similar contexts and contests. The Council has played an excellent role with its supporters in a more implicit than explicit, and more trial-and-error process than planned.

Among the successes of the nutrition and food policy of Norway, less-costly and politically-sound information and education emphasizing the diet and health aspects of the New Nutrition and favouring the most powerful stakeholders' farm income and production subsidies are the two different types of policy activities. Despite resource constraints, NNC has taken effective and sustained initiatives, including public campaigns, in-service training programmes for a wide variety of personnel, revision of textbooks, and best-selling popular food and nutrition books. The long-cherished policy-oriented research programme of nutrition proponents was begun in 1985, and some innovative community nutrition demonstrations were started. According to the nutrition policy, in the agriculture sector, regional shifts in wheat production occurred, meat and milk production was controlled by disincentives, and encouragement was given to potato growing and fish consumption through subsidies. New nutritionally good foods were introduced into the market, and the quality of bread was improved. Changes in consumer food subsidies continued to favour foods that were less desirable according to the policy guidelines. The regulatory actions improved food labelling, restricted misleading food advertisement, and expanded retail food store hours in Norway.

Among the failures, the task of integrating nutrition issues into the ongoing institutional arrangements and procedures were quite difficult. The priority nutrition issues were less important or less concerned with national economic and resource planning, in the deliberations of the Cabinet, or in parliamentary oversight of agriculture or health.

The Norwegian policy had mixed success. By 1987, the goals concerning regional development and self-sufficiency in food were largely met, but some nutritional goals proved more elusive. The mixed suc-

cess of the Norwegian policies in meeting the nutrition and health goals has been attributed to the multiple objectives.

Milio also analyzed the implementation of the food and nutrition policies of Finland and Norway, which are intended to address both supply and demand aspects of the food and dietary issues (39). Considering the onsite studies conducted in 1990, 1987, and 1980, she stated that mixed progress was achieved due in part to problems in implementation (39). Quasi-governmental sectors, such as research organizations, had given some attention to nutrition periodically. Few corporations and societies came forward to popularize nutrition and health information. Again within the context of wider political, economic and bureaucratic changes, a decision was taken to develop 'a new nutrition policy assessment', a third white paper, for parliamentary action in 1989.

The progress of Norwegian nutrition policy's 1990 goals was directly tied to the priorities for implementation and the size of resource allocations. By 1987, the food self-sufficiency and regional developmental goals were closest to being met in some ways. The third goal, i.e. Norway's contribution to world food security, was assessed due to its scattered evidence and lack of coordination by policy-makers. Efforts to reach that goal were sometimes in conflict with the imperatives of self-sufficiency. Although changes in dietary habits were continuing, they were not all in the expected direction. More research on these issues would be required to come to positive conclusions on policy progress. However, the Norwegian nutrition and food policy may still be used as a model for other developed and developing countries as it has experienced many conflicts and compromises during its formulation, reformulation, implementation, monitoring, and evaluation. The government support provides half the income of Norwegian farmers. The Norwegian policy presumed that commodities, which were sold on the international market, were too difficult to manipulate in terms of prices, even domestically because world prices were the main determinant (40). Nutritional objectives are most successfully integrated with agricultural policy in Norway, where the outcome involves incentives for producers.

DISCUSSION

This study has identified several features of successful policy formulation and implementation, some of

which may also be useful in developing countries, but others may not. For example, one concerns the inclusion of all relevant sectors of the government and population. This was demonstrated in Australia where public and private stakeholders in health, agriculture, food processing, consumers, and the media were involved in policy formulation from the start. It was less apparent in Norway where initially either agriculture or health dominated the discussions, although this conflict was quickly resolved. Including all the concerned sectors/stakeholders means that there will be broad-based support for the policy and its implementation and that groups will not be working against each other. It is known from the study that since food and nutrition is a multisectoral issue, policy formulation and implementation should be done through a multisectoral approach, i.e. involving the sectors/stakeholders concerned. All policy processes face conflicts of interest of stakeholders. To avoid conflicts among the lead sectors, involvement of them from the very beginning of its formulation is important.

In a federal system made up of many states, national or federal policies should include broad-based objectives, strategies, and programmes for nutrition improvements and healthy lifestyles, while the state or local level must interpret and implement these policies or strategies in the light of cultural differences but consistent with the national or federal policies. This is more important in the United States and Australia than in Norway. Each country will consider how heterogeneous its population is and implement policy accordingly.

The policies should simultaneously address the double burden of malnutrition: undernutrition and overnutrition, where it exists as a public-health problem.

Overnutrition has become a problem in the USA and Australia but not in Norway where promotion of a lean diet and physical activity was begun on time to prevent a large-scale problem. Of course, most developing countries focus on the problem of undernutrition and try to tackle this problem with special activities for vulnerable populations, such as underprivileged mothers and children. The extent of the problem should determine whether activities are targeted at the whole community or at vulnerable groups only.

Another difference highlighted in this review of three countries concerns approaches to implementation of policy. Norway has a more central approach in

which it provides subsidies to farmers to control the supply of certain foods and disincentives to reduce the production of other products. Controlling advertising, such as for baby formula, is another approach. At the other end of the spectrum are activities, such as giving food stamps to those whose income does not allow them to purchase sufficient high-quality food for their families. Some use positive advertising to promote healthful foods, such as milk, or leave it up to the food industry associations to do their own advertising. Most countries recognize that nutrition education needs to begin with youngsters and their families in schools and communities. Nutrition education by itself works very slowly.

Research is an important aspect of policy formulation and reformulation which both developing and developed countries now depend on. Research can inform policy-makers and planners about new nutritional problems, such as the prevalence of overweight and malnutrition in certain segments of the population. It can also inform the population about the effectiveness of implementation strategies. Research also continues to identify nutritious foods that may be more acceptable to different cultural groups. In this way, dietary guidelines and other programmes can be revised to better meet the needs of a population.

Finally, total commitment of the government is necessary in terms of resource allocation for the improvement of nutritional status on a priority basis and enactment and implementation of allied laws and regulations in favour of health and nutrition.

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