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**"EUROPE AGAINST CANCER" PROGRAMME:**

**REPORT ON THE IMPLEMENTATION OF THE FIRST PLAN OF ACTION, 1987-1989**

**Communication from the European Commission to the Council,  
the European Parliament and the Economic and Social Committee**

*Concise*

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**"EUROPE AGAINST CANCER" PROGRAMME:  
REPORT ON THE IMPLEMENTATION OF THE FIRST PLAN OF ACTION, 1987-1989**

The "Europe against cancer" programme was launched on the initiative of the Heads of State and Government of the European Community meeting in Milan in June 1985. Acting on proposals from the European Commission, and following favourable opinions from the European Parliament, the Council adopted three basic texts defining the overall framework and financial provisions for the programme:

- a) Resolution of 7 July 1986 (OJ No C 184, 23.7.1986), which concentrated on prevention and health education;
- b) Decision of 7 November 1986 (OJ No L 334, 24.11.1987) on medical research;
- c) Decision of 17 May 1988 (OJ No L 160, 28.6.88) on informing the public and training medical personnel.

Also in 1986, the Commission prepared a detailed plan of action for the period 1987-1989. This 75-point plan was published in the Official Journal (C 50, 26.2.1987, pp. 1-55). It constitutes the first stage of the programme, the objective of which is to reduce the expected number of deaths due to cancer by 15% (from 1 000 000 to 850 000) by the year 2000. To achieve this ambitious goal, the European Commission adopted a "partnership approach" aimed at involving everyone concerned with the fight against cancer at national level:

- the Committee of Cancer Experts, the scientific soul of the programme;
- the cancer associations and leagues and anti-smoking organizations in the European Community, the spearheads of the programme;
- the producers of television medical programmes, who have helped to spread the message of cancer prevention;
- the representatives of general practitioners, who play a central role in early detection and systematic screening for cancer;
- senior officials in the health, education and research ministries.

Of course, it is much too early to identify any possible fall-off in the growing number of cancer deaths in the European Community. It is, however, no problem at all to take stock of achievements under each of the 75 Actions announced at the beginning of 1987. An overall assessment is contained in the conclusion on page 31.

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## CHAPTER 1: CANCER PREVENTION

### 1. CAMPAIGN AGAINST TABACCO

#### Action 1: Upward alignment of taxation on tobacco manufactured in the European Community

a) On 7 August 1987, as part of the process towards completing the Internal market, the Commission presented two proposals for Directives (COM(87)325 and COM(87)326) on the approximation of taxes on cigarettes and on manufactured tobacco other than cigarettes.

The proposal on cigarettes required the tax burden in the European Community to be increased by more than 30 % before 1 January 1993. In at least nine of the twelve Member States this meant very sharp increases in taxes and prices (more than 150 % in some cases), but in three countries prices would have fallen.

The price and tax increases for manufactured tobacco other than cigarettes (cigars, cigarillos, pipe tobacco, snuff and chewing tobacco) would, generally speaking, have affected the countries with the highest consumption.

The 1987 proposals, which required the unanimous approval of the Member States if they were to become law, gave rise to fervent discussions within the Council and European Parliament, but were not adopted. The Member States and the European Parliament took the view that the introduction of an element of flexibility in the rates proposed was the only way of progressing towards harmonization.

b) Consequently, on 19 December 1989, the Commission officially presented its amended proposal for a Council Directive on the approximation of taxes on cigarettes and manufactured tobacco other than cigarettes (COM (89)525 final). According to the amended proposal:

- on 1 January 1993 each Member State will be required to apply rates higher than, or equal to, minimum rates set for each product category (in the Member States as a whole, this approach will allow the maintenance or the increase of the fiscal burden to a level more compatible with the requirements of public health). This flexibility must under no circumstances jeopardize the fundamental principle of abolition of customs and tax frontiers by 1 January 1993;
- after 1 January 1993, this initial flexibility must gradually give way to a movement towards target rates compatible with essential public health requirements. To this end, the target rates have been significantly increased compared to those proposed in 1987.

Action 2: Financing of preventive actions at national level by the use of increased fiscal measures on tobacco

No action of this type was taken by the Member States under the first plan of action 1987-89. However, discussions have started in some countries, e.g. France, between the authorities and both sides of industry, with a view to removing tobacco from the price index (cf. action 3) in return for an increased effort by the authorities in the field of cancer screening. Exemplary measures have been taken in certain non-Community countries such as Australia, where the State of South Australia increased tax on tobacco products to finance health promotion publicity - thus helping to compensate for the loss to advertising agencies caused by the total ban on tobacco advertising.

Action 3: Publication of indices excluding tobacco by the Statistical Office of the European Communities

Since July 1989 a price index excluding tobacco has been published monthly by the Statistical Office of the European Communities. Comparing price index trends with and without tobacco reveals that the price of tobacco in real terms - calculated on the general consumption price index - fell during the period covered by the first plan of action (December 1989 compared with December 1986) in four countries, namely the United Kingdom (- 9.4%), Denmark (- 8.9%), Spain (- 5.2%) and Netherlands (- 0.2%). This contrasts with an increase in real terms in the other eight countries: Federal Republic of Germany (+ 0.6%), Ireland (+ 1.3%), Luxembourg (+ 2.6%), Portugal (+ 4%), France (+ 6.9%), Italy (+ 7.5%), Belgium (+ 10.3%) and Greece (+ 27.1%).

Action 4: Harmonization of cigarette labelling in the European Communities

On 4 February 1988 the Commission submitted a proposal for a Council Directive, on the basis of Article 100A of the EEC Treaty (qualified majority), concerning harmonization of the labelling of tobacco products (O.J. C48, 20.2.1988). The opinion of the Economic and Social Committee was delivered on 7 July 1988 (O.L. C237, 12.9.1988), followed by the first reading of the European Parliament on 14 December 1988 (O.J. C12, 16.1.1989). The Commission generally took account of both institutions' opinions in its amended proposal (O.J. C62, 11.3.1989), which served as a basis for the Council's common position of 16 May 1989. Following a favourable vote at the second reading by the European Parliament, the Council adopted this Directive on 13 November 1989 (O.J. L359, 8.12.1989). Article 4 states that:

- All unit packets of tobacco products shall carry, on the most visible surface, the following general warning in the official language or languages of the country of final marketing: "Tobacco seriously damages health" (Article 4 (1));

- With regard to cigarette packets (Article 4 (2), (3) and (4) and Annex), the other large surface shall carry alternating specific warnings. For this purpose each Member State shall draw up a list of warnings taken exclusively from those listed in the Annex to the Directive.

The following warnings must be included in each Member State's list:

- . "Smoking causes cancer";
- . "Smoking causes heart disease".

- The tar and nicotine contents of cigarettes must also be printed on the side of packets (Article 2).

The Member States must bring into force the laws, regulations and administrative provisions needed to comply with this Directive before 31 December 1991.

#### **Action 5: Prohibition of cigarettes with a high tar content**

On 1 February 1988 the Commission presented a proposal for a Council Directive (O.J. C48, 20.2.1988), on the basis of Article 100A of the EEC Treaty, to limit the maximum tar content of cigarettes to 15 mg by 31 December 1992 and 12 mg by 31 December 1995. On 7 July 1988 the Economic and Social Committee adopted a favourable opinion (O.J. C237, 12.9.1988). The European Parliament expressed its opinion on 25 May 1989 (O.J. C158, 26.6.1989), diverging considerably from the Commission's proposal by recommending an initial limit of 20 mg tar by 31 December 1989, with the possibility of a further reduction to 15 mg by a second, unspecified date, after approval of a report on the socio-economic repercussions of these limits. The Commission did not see fit to amend its initial timetable in its amended proposal (O.J. C228, 5.9.1989, and O.J. 237, 15.9.1989 - corrigendum).

On 13 November 1989 the Council of Health Ministers adopted a common position maintaining the date of 31 December 1992 for the 15 mg limit and differing the date of application for the 12 mg limit until 31 December 1997. A special temporary exemption was granted to Greece (20 mg by 31 December 1992, 18 mg by 31 December 1998, 15 mg by 31.12.2000 and 12 mg by 31 December 2006).

On 14 March 1990 the European Parliament adopted the common position of the Council at its second reading, which meant that the Directive should be adopted finally by the Council of Health Ministers on 17 May 1990.

#### **Action 6: Harmonization of the standards for measuring the components of tobacco smoke**

The Council Directives on the labelling of tobacco products and the maximum tar content of cigarettes require the nicotine and tar contents of cigarettes to be measured on the basis of standards ISO 4387 and ISO 3400 and verified in accordance with ISO 8243.

The national and European standardization institutes are currently working on ISO standards for measuring the tar and nicotine yields of tobacco products other than cigarettes (rolling tobacco, cigars, etc).

Action 7: Prohibition of tax-free sales of tobacco in the European Community

Proposals will be drawn up under the second plan of action, 1990-94.

Action 8: Protection of children from tobacco sales

After consulting experts, the European Commission decided not to draw up a proposal for a Directive prohibiting the selling of tobacco products to minors. In several countries, particularly in southern Europe, such a ban could encourage young people to smoke for the sheer thrill of breaking the law.

The European Commission felt that it was better to increase protection of young people through a campaign against tobacco. Its proposal on limiting advertising for tobacco products in youth magazines therefore provides for a total ban on tobacco advertising (cf. action 12).

Action 9: Reorientation of tobacco production towards less toxic varieties and study of the possibilities of reconversion

The Common Agricultural Policy has taken account of concern about public health by encouraging the reorientation of tobacco production towards less toxic varieties (which are also the most popular) and promoting conversion to other products. The following measures have been implemented:

a) The prices and premiums paid in 1987-1989 for the most toxic varieties were reduced by 8-18%. The maximum quantities for which the guaranteed prices and premiums were payable, introduced in 1988, has been reduced by 25% for the period 1988-1990.

b) The structural funds set up in connection with the CAP have been used to finance investments, e.g. irrigation, necessary for conversion to less toxic varieties or other crops. The technological research and development programme for agriculture has also financed research into the creation of tobacco varieties which are less toxic as a result of a lower tar content or, by way of diversification, tobacco plants containing proteins which can be used for pharmaceutical purposes. The Integrated Mediterranean Programmes budget has also been used, to the amount of 2.33 million ECU over the period 1986-1992, to finance changes to less toxic varieties and for conversion of 4030 ha of land used for tobacco growing in Greece.

Action 10: Information and public awareness campaign in the struggle against tobacco

The Commission has subsidized a large number of activities in the campaign against tobacco, most of them carried out by anti-cancer associations and leagues and anti-smoking organizations in the twelve Member States. A special effort was made during the European Cancer Information Year to promote the first commandment of the European Code against Cancer: "Do not smoke. Smokers, stop as quickly as possible and do not smoke in the presence of others." (cf. report, published separately, on the European Cancer Information Year).

The table, next page, shows that encouraging results have been achieved during the first action plan in seven of the twelve Member States.

The "Europe against Cancer" programme also financed an assessment of the effectiveness of legislation and the anti-smoking campaigns in the European Community over the past 40 years. The results of this study were published in 1990 in the journal "Scandinavian Oncology".

**Action 11: Study of national provisions, and development of proposed Community regulations on tobacco smoking in public places**

On 16 May 1989 the Council and the Health Ministers of the Member States adopted a Resolution based on a proposal from the Commission (OJ C32, 8.2.1989), to ban smoking in places open to the public (OJ C189, 26.7.1989). The Member States have to inform the European Commission every two years of action taken in response to this Resolution.

**Action 12: Study of national provisions, and development of proposed Community regulations on the limitation of tobacco publicity**

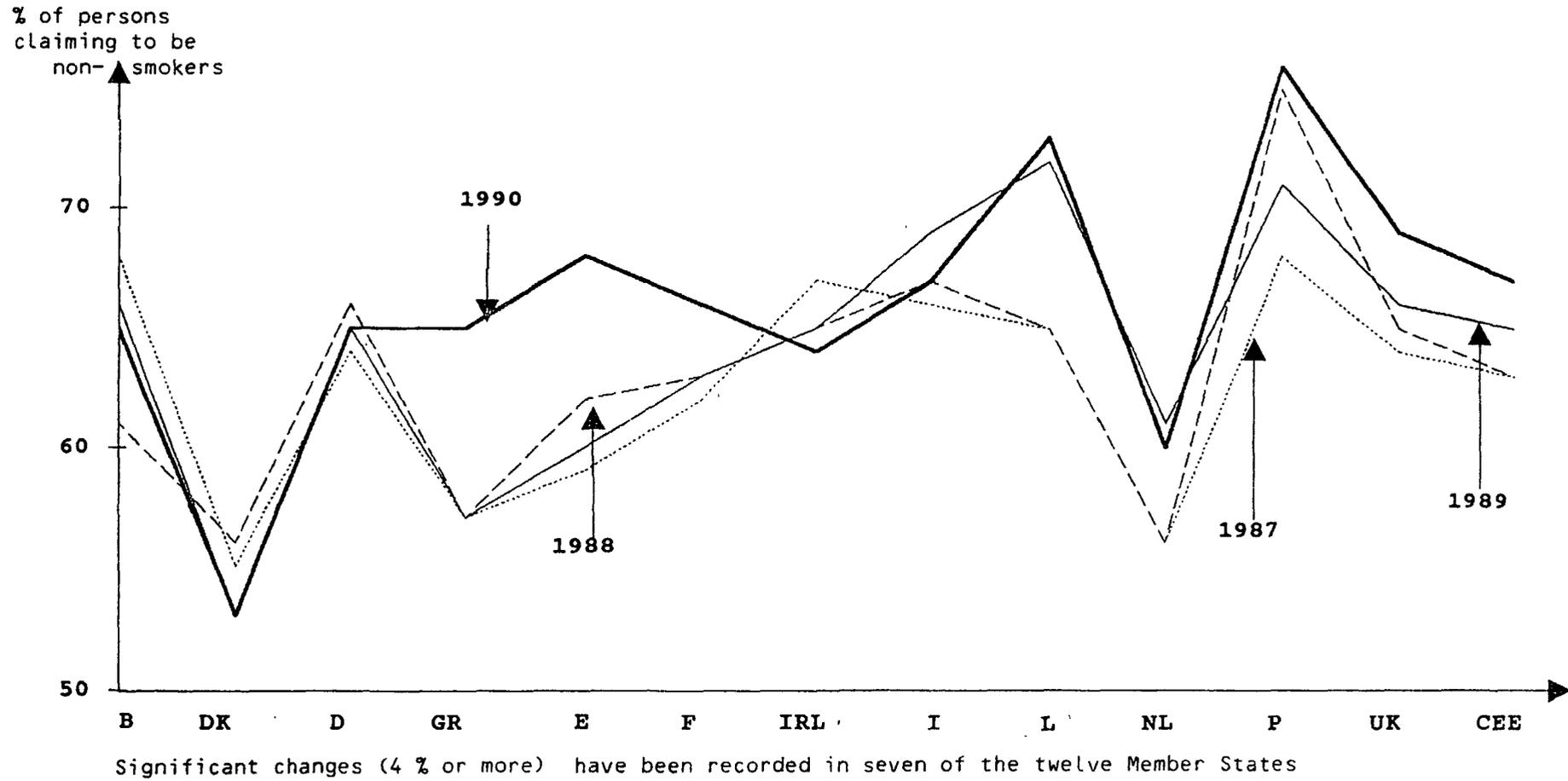
In September 1989 the Council (Internal Market Ministers) adopted the proposal for a Directive on the pursuit of television broadcasting activities (OJ No L 298, 17.10.1989). Article 13 of this Directive states that "All forms of television advertising for cigarettes and other tobacco products shall be prohibited". This ban must be effective by 3.10.1991 at the latest and covers both direct and indirect advertising, the latter being defined in the 29th recital as "forms of advertising which, whilst not directly mentioning the tobacco product, seek to circumvent the ban on advertising by using brand names, symbols or other distinctive features of tobacco products or of undertakings whose known or main activities include the production or sale of such products".

On 30 March 1989 the European Commission presented a proposal for a Council Directive on the advertising of tobacco products in the press and by means of bills and posters (OJ No C 124, 18.5.1989). This proposal places strict controls on direct advertising, for example by imposing compulsory health warnings identical to those annexed to the Directive on labelling. Indirect advertising is totally banned, and both direct and indirect advertising are prohibited in publications mainly intended for young people. Finally, the proposal does not prevent the Member States from placing a total ban on the advertising of tobacco products should they so wish.

**Action 13: Comparative analysis of anti-smoking campaigns**

In cooperation with the World Health Organization and the British Medical Association, the European Commission has helped to finance a report on helping smokers to give up smoking (available in French, English and Spanish).

CHANGES IN THE PERCENTAGE OF NON-SMOKERS DURING THE ACTION PLAN 1987-1989



**Action 14: Information exchange in the struggle against smoking**

In the course of the first plan of action 1987-1989, the European Commission set up the following three information exchange structures:

- a European group of non-governmental organizations against tobacco, which met four times between 1987 and 1989;
- a group of senior officials responsible for the campaign against tobacco, which also met four times;
- the European Bureau for Action on Smoking Prevention (BASP), which was established in 1988 and published six information brochures in 1988 and 1989.

Finally, the European Commission joined forces with the World Health Organization and the Spanish Health Ministry to organize the first European conference on anti-tobacco policy, held in Madrid on 7-11 November 1988 and marked by the publication in French, English and Spanish of a set of ten brochures which were then widely distributed in 1989, in particular to the 300 participants in the "Europe against cancer" programme in the twelve Member States.

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**II. IMPROVEMENT IN NUTRITION**

**Action 15: Analysis of existing information on "Nutrition and cancer"**

Several studies aimed at improving knowledge on the possible links between nutrition and cancer were subsidized under the first plan of action 1987-1989:

- a) **Feasibility phase of prospective studies of the links between nutrition, health and cancer.** Seven studies were launched in the Federal Republic of Germany, United Kingdom, Netherlands, France, Italy, Spain and Greece in order to explore the possibility of undertaking a very wide study of these links in the seven countries mentioned as from 1990. This would involve monitoring a group of around 350.000 persons over a period of several years, through nutrition surveys carried out every two or three years and correlated with the subjects' state of health. The European Commission and the WHO's International Agency for Research on Cancer are jointly responsible for overall coordination.
- b) **Prospective study of the anti-promoting role of selenium.** Conducted by the University of Limburg between 1986 and 1989, this study monitored 120 000 subjects aged between 55 and 69 to assess the possible protective role of selenium, a mineral salt present in foodstuffs. The results will be published in October 1990.

- c) **Feasibility phase of a case control study relating to the links between nutrition, lifestyle and the incidence of breast and colon cancer in the European Community.** The separate studies carried out in nine Member States, namely the United Kingdom, Netherlands, Federal Republic of Germany, Ireland, Belgium, Luxembourg, Greece, Italy and Spain, were coordinated by the IARC, and the results should be available in mid-1990.
- d) **Case control study of patients with adenomatous polyps or cancer of the colon.** 450 persons from Belgium, France, the United Kingdom, Federal Republic of Germany, Italy and Portugal were monitored for three years to evaluate the possible role of diet on the development of the polyps and their degeneration into cancer of the colon. The study was coordinated by the European Organization for Cooperation in Cancer Prevention Studies (ECP), and the results will be published towards the end of 1990.
- e) **Case control study of the link between lifestyle, especially diet, and cancers of the pancreas and bile ducts.** This study was undertaken in the Netherlands, between 1984 and 1989, by the Institute for Health, and involved a group comprising 189 persons with cancer of the pancreas, 127 persons with cancer of the bile ducts and 487 persons not suffering from either. All subjects were interviewed twice to establish their lifestyles and dietary habits. The results will be published in 1990.
- f) **Case control study of nutrition, alcohol consumption and breast cancer.** Carried out under the auspices of the Nutrition Department at the Athens School of Public Health, this study, which began in 1988, is monitoring 600 women with breast cancer and a 1200-strong control group. It will be completed by the end of 1990.
- g) **Case control study of nutrition and precancerous intestinal lesions.** This was carried out in five Member States, covering 180 persons with precancerous intestinal lesions and a control group of 500 persons. The aim was to identify possible links between dietary habits and the appearance of precancerous lesions. The work was coordinated by the ECP, and the preliminary results will be published towards the end of 1990.
- h) **Intervention study of the anti-promoting role of calcium.** Launched in 1989 by the University of Nottingham (United Kingdom), this study will monitor a group of 200 persons with colorectal adenomas and a 200-strong control group for a period of five years. Each group is divided into two subgroups, one of which receives a daily supplement of 1.5 g of calcium, whilst the other does not. The results will be available in 1994.

Action 16: Development of nutritional recommendations against cancer adapted to each of the categories of participants concerned

Despite the numerous uncertainties affecting current knowledge of the links between nutrition and cancer, the European Committee of Cancer Experts has formulated two recommendations on nutrition, introduced by a general warning:

"Your general health will benefit from the following two commandments which may also reduce the risks of some cancers:

"Frequently eat fresh fruits and vegetables and cereals with a high fibre content.

"Avoid becoming overweight and limit your intake of fatty foods."

These two rules have been publicized by the governmental and non-governmental programme participants in each Member State, in most cases with financial support from the European Commission.

Action 17: Harmonization of nutritional labelling of foodstuffs in the European Community

The European Commission's proposal dated 5 October 1988 (COM (88) 489 final) was revised following consultation of the European Parliament (COM (89) 420 final), resulting in a common position dated 21 December 1989. Article 2 of this common position states that "Nutrition labelling shall be compulsory when a nutrition claim is made in labelling or advertising. Nutrition labelling is optional in all other cases." (OJ No C 66, 16.3.1990).

Action 18: Consumer protection against certain agents in foodstuffs

In 1988 the European Commission drew up a new proposal for a Directive on pesticide residues in fruit and vegetables (OJ No C 46, 25.2.1989), on the basis of Article 43 of the EEC Treaty. This consolidates existing legislation and in addition makes it compulsory to provide clear information for the consumer. The Council will reach a decision on this proposal once the European Parliament has delivered its opinion at the May 1990 part-session.

Action 19: Improvement of existing information campaigns concerning nutrition

All the participants in the "Europe against cancer" programme in the twelve Member States realigned their information campaigns aimed at the general public to take account of the two European cancer prevention rules on nutrition and the results of epidemiological studies which had become available. New brochures were published with financial assistance from the European Commission, including "Diet and cancer" from the UK Health Education Authority, "Eet wijzer" from the Nederlandse Kanker Bestrijding, and "100 recettes santé" from the Association contre le Cancer (Belgium).

**Action 20: Initiation of information campaigns for recommended foodstuffs**

Numerous campaigns were conducted, particularly during European Cancer Information Year, including the free distribution of fresh fruit and vegetables through non-governmental associations - in Italy during the European Cancer Prevention Week in May 1988, and in Luxembourg and Denmark during the European Week in October 1989.

**Action 21: Promotion of appropriate foodstuffs and techniques**

Community-level activities of this nature may be included in the second plan of action, 1990-1994.

**Action 22: Evaluation of pilot experiments in nutrition**

An assessment of the strategies used to provide the general public with nutrition information and education was started in 1989, and the results will be published in 1990.

**Action 23: Exchange of information on "nutrition and cancer"**

In 1988 and 1989 several symposia were organized, with the financial support of the "Europe against cancer" programme.

a) European seminar on "Fighting cancer with prevention, education and research" for 60 scientific journalists. (Organized by the European School of Oncology, Venice, 11-12 May 1989).

Two of the papers dealt with nutrition, namely "Ingestion of fats and the risk of cancer" and "Vegetable fibres and the risk of cancer". All the papers presented are available in a booklet, and the most important ones will be published in French and English by Springer Verlag in mid-1990.

b) EEC workshop on the important components of food and nutrition policy in the EEC. (Organized by the Athens School of Public Health in Corfu, 6-8 October 1988).

This workshop looked at current knowledge of links between nutrition and health and examined existing legislation on foodstuffs, especially nutritional labelling. The proceedings have been summarized in a brochure (in English), several thousand of which have been distributed.

c) EEC workshop on recommended dietary intakes. (Organized by the Athens School of Public Health, 23-25 November 1989).

This workshop examined the similarities and differences between the dietary intakes recommended in the European Community Member States and Scandinavia. The objective was to study the possibility of harmonizing the nutritional standards recommended in Europe. The proceedings have been summarized in a brochure and will be published as a supplement to the European Journal of Clinical Nutrition in 1990.

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### III. PROTECTION AGAINST CARCINOGENIC AGENTS

#### Action 24: Protection against ionizing radiations and follow-up to Chernobyl

On 14 December 1987 the Council adopted Regulation (Euratom) No 2218/89 laying down maximum permitted levels of radioactive contamination of foodstuffs and of feedingstuffs following a nuclear accident or any other case of radiological emergency (OJ No L 371, 30.12.1987), Regulation (EEC) No 2219/89 on the conditions governing exports of foodstuffs and of feedingstuffs following a nuclear accident or any other case of radiological emergency (OJ No L 371, 30.12.1987), and Directive (Euratom) No 618/89 on informing the population of health protection measures and behaviour in the case of a radiological emergency (OJ No L 371, 30.12.1987).

#### Action 25: Creation of an observation antenna and establishment of a list of chemical substances suspected of being carcinogenic

Owing to a shortage of staff, it was not possible to create such an antenna within the European Commission. However, the following studies have been financed under the "Europe against cancer" programme:

- a) Study of occupational cancers among workers involved in the manufacture of certain types of herbicides. The purpose of this study, by the National Institute for Public Health and Protection of the Environment in the Netherlands, is to compare the frequency of deaths caused by the various types of cancer among persons exposed and persons not exposed to the suspected substances (phenoxy acids and chlorophenols). The results should be available towards the end of 1990.
- b) Study of the carcinogenic risks of certain pesticides used in agriculture. The objective of this case control study is to identify the possible links between cancers observed among certain farmers and chemicals used in farming. This study was launched in 1989 by the Italian Health Institute.
- c) Preliminary study of the cancer risk among biology laboratory workers in Europe. The need for such a study became apparent in 1986 when several cases of rare cancers occurred at the Institut Pasteur in Paris. The feasibility study, carried out in 1988 and 1989 by the International Agency for Research on Cancer, recommends a large-scale European study.
- d) Preliminary study of the prevention of secondary cancers caused by chemotherapy. This study is currently being carried out by the International Agency for Research on Cancer and aims to identify the possibilities of improving certain types of chemotherapy treatment in order to reduce the long-term risks of secondary cancer.
- e) Study of the role played in lung cancer by exposure to radon in houses and flats. This study is currently being carried out by the Department of Hygiene and Medicine at the University of Gent. It may be extended to France and the Federal Republic of Germany.

**Action 26: Speeding up of the work at Community level, and creation of a special group on classification and labelling of carcinogenic substances**

In 1987 a working party on carcinogenic substances was created within the "classification and labelling of carcinogenic substances" group created by Directive 67/548/EEC. Several suspected substances have been examined during the past three years. 80 carcinogenic substances or groups of substances have already been classified, and at the beginning of 1990 a further 150 substances were being examined.

**Action 27: Adoption of Directives currently being discussed by the Council for the protection of workers**

On 9 June 1988 the Council adopted Directive 88/364/EEC on the protection of workers by the banning of certain specified agents (OJ No L 179, 9.7.1988). Apart from a number of exemptions which may be granted by the Member States for clearly specified purposes under clearly established conditions, the production and use of the following substances, responsible for cancers of the bladder, are banned: 2-naphthylamine and its salts, 4-aminobiphenyl and its salts, benzidine and its salts, and 4-nitrodiphenyl. The Directive also states that the Council, acting by a qualified majority on a proposal from the Commission, in cooperation with the European Parliament and after consulting the Economic and Social Committee, may amend the Annex, in particular to include further agents or activities.

**Action 28: New Directives for the protection of workers against carcinogenic substances**

On 21 December 1987 the Commission, acting on the basis of Article 118 A of the EEC Treaty, presented a proposal for a Council Directive on the protection of workers from the risks related to exposure to carcinogens at work (OJ No C 34, 8.2.1988). Where exposure of workers is inevitable, the proposal calls on employers to take various supplementary measures, including the design of work processes, early detection of abnormal exposures, information for workers, surveillance of workers' health, emergency measures, and arrangements for safe storage of substances and safe disposal of waste. The Economic and Social Committee delivered its opinion on 2 June 1988 (OJ No C 208, 8.8.1988), followed on 24 May 1989 by the European Parliament (OJ No C 158, 26.6.1989). On 31 July 1989 the European Commission transmitted to the Council a revised proposal taking account of most of the European Parliament's amendments (OJ No C 229, 6.9.1989).

On 30 November 1989 the Council of Social Affairs adopted a common position including most of the amendments contained in this latter proposal. The proposal covers 52 chemical agents already classified as carcinogenic and will automatically be extended to cover any substances classified as such in the future (cf. Action 26). The Directive should be adopted finally in 1990, after the European Parliament has given its opinion on the Council's common position at the part-session in May 1990.

Action 29: Prevention of occupational cancers by improving the practical organization in undertakings, including information to employers and workers

On 18 March 1988 the Commission presented a proposal for a Council Directive on the introduction of measures to encourage improvements in the safety and health of workers at work (COM (87) 73 final). It requires employers to assess the health risks to their workers, decide on the protective measures to be taken, and make information accessible to workers and their representatives. The Directive (EEC/89/391) was adopted in June 1989 (OJ No L 183, 29.6.1989).

Action 30: New measures for public protection against carcinogenic substances

On 28 January 1988 the European Commission, acting on the basis of Article 100 A of the EEC Treaty, presented to the Council a proposal for Directive amending Directive 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations. The substances covered include the four product families mentioned under Action 27, plus benzene. The Directive was adopted by the Council on 21 December 1989 (OJ No L 398, 30.12.1989).

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IV. SYSTEMATIC SCREENING AND EARLY DIAGNOSIS

Action 31: Promotion of a policy for systematic screening and early diagnosis of cancer of the uterine cervix and cancer of the breast

In 1988 the Committee of Cancer Experts set up under the "Europe against cancer" programme created two sub-committees on screening for breast cancer and cervical cancer respectively. Each of these sub-committees drew up a strict protocol to be respected by all projects to be taken under the wing of and receive financial support from the "Europe against cancer" programme. For example, systematic screening for breast cancer is recommended between the ages of 50 and 65 (every 2-3 years) and for cervical cancer every 3-5 years from the age of 25.

A European network of pilot projects for breast cancer screening was established in 1989. Every project must monitor a group of at least 10 000 women, each of whom must be invited by a personal letter, with an automatic reminder if necessary, in order to achieve high rates of participation. In four regions - Pirgos (Greece), Navarra (Spain), Porto (Portugal) and Limburg (Belgium) - mobile units are used for screening. In the Dublin area screening takes place in a mobile unit and at a permanent centre (Mater Hospital). In the Department of Bas-Rhin (France), it is done by approved radiologists. In 1990 the network will be extended to the Florence region and to Luxembourg. The staff involved in pilot operations are being invited for further training at one of the most advanced screening centres, that in Utrecht (Netherlands).

Finally, the "Europe against cancer" programme budget permitting, a start could be made in 1991 on setting up a European network of pilot projects for cervical cancer screening.

Action 32: Evaluation and improvement of the policy for the systematic screening and early diagnosis of other common cancers

There are still many uncertainties about the usefulness of policies for systematic screening for colorectal cancers by detection of blood in the faeces, which is why the "Europe against cancer" programme has not given financial support to the many projects submitted. On the other hand, three studies on the subject have been financed under the first plan of action 1987-1989:

- a) A report on the efficiency of hemoculture for early detection of colorectal cancers. Carried out by experts of international standing under Professor Hardcastle (United Kingdom), this study was described at the European Conference in Venice on 11-12 May 1989. Publication in French and English by Springer Verlag will follow in 1990 (cf. Action 23).
- b) A study to assess the efficiency of colorectal cancer screening in the Federal Republic of Germany. Conducted in the Saarland by the University of Heidelberg, it will provide an assessment of the effectiveness of colorectal cancer screening, which was introduced on a large scale in 1977. The results should be available early in 1991.
- c) A controlled experiment on the efficiency of colorectal cancer screening in the Dijon region (France). This experiment, comparable in principle with those carried out in the United Kingdom and Denmark, covers 45 000 persons aged between 47 and 55. Initial results should be available as from 1991.

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V. "EUROPEAN CODE AGAINST CANCER"

Action 33: Transformation into layman's language of the European Code Against Cancer

The European Code Against Cancer was adopted by the Committee of Cancer Experts set up under the "Europe against cancer" programme in May 1987 following wide consultation of the health ministries and non-governmental organizations involved in the fight against cancer.

## CHAPTER 2: INFORMATION AND HEALTH EDUCATION

### 1. INFORMING THE GENERAL PUBLIC

#### Action 34: Establishment of a directory of the private organizations against cancer in Europe

This directory was prepared in 1987 and is available in French, English and German. It will be updated in 1990.

#### Action 35: Comparative survey of private and public cancer prevention information campaigns

At the start of the plan of action 1987-1989, a general study was undertaken to establish what had been accomplished in the various Member States. The creation of the group of organizations against cancer led to a broad exchange of experience and permitted continuous assessment of actions (dissemination of the European Code through various channels, organization of open days, travelling exhibitions, etc.) On 25 January 1990 a symposium was held in Athens to assess the efficiency of actions (cf. special report on the European Cancer Information Year).

#### Action 36: Bringing cancer prevention and the "Europe against cancer" programme to the attention of the media

Following an invitation to tender, a public relations agency network was set up at the beginning of 1987, and as from 1989 a "Europe against cancer" programme correspondent was assigned to each of the European Commission's offices in the Member States. Every year two press conferences are organized simultaneously in the twelve Member States, and three or four press releases are sent out. In some countries (e.g. Denmark) the press releases have, since 1989, been backed up by a bimonthly newsletter. This will be practised in all countries as from 1990.

#### Action 37: Eurobarometer survey of Europeans' attitudes to cancer and its prevention

Between 1987 and 1989 several surveys were carried out simultaneously in the twelve Member States of the European Community to assess the extent of knowledge and application of the European Code Against Cancer by the general public, doctors and teachers. The survey reports are available in French and English, and a book containing the full results will be published in French, English and German towards the end of 1990.

#### Action 38: Financial contribution to television cancer prevention broadcasts for the general public

Ten television programmes on cancer prevention and treatment were financed in 1988 and 1989 by the "Europe against cancer" programme. Two of them received international awards. The European Cancer Information Year ended on 9 January 1990 with a major Eurovision broadcast (cf. special report on the European Year).

Action 39: Dissemination of the European Code Against Cancer at sports and cultural events sponsored by the European Community

Two of these events deserve special mention. First of all the special concerts given in 1987 to mark the 30th anniversary of the Treaty of Rome, when around 100 000 ECU was collected and donated to the European Organization for Research on Treatment of Cancer. Secondly, the 1989 Tour de France across Luxembourg, Belgium and France, when the "Europe against cancer" programme was represented in the accompanying convoy by two vehicles in the programme colours, which distributed information in several languages on the European Code Against Cancer. This action was coordinated by a Netherlands anti-cancer association, the LOK.

Action 40: Public meeting to mark the end of the first year of the "Europe against cancer" programme

During the European Council in Copenhagen on 5 December 1987, a brief official ceremony was held, and a prestige version of the European Code Against Cancer was presented to the Danish Prime Minister, the President-in-Office of the Council. Each Head of State and Government received a similar copy in his or her own language.

Action 41: Preparation of the actions to be carried out in 1989: "European Cancer Information Year"

This involved the various networks of partners set up since the end of 1986: cancer prevention, anti-smoking and general practitioners' organizations; producers of medical programmes for the European television stations; public relations agencies; senior health and education ministry officials. A total of nearly 100 non-governmental organizations took part.

Action 42: Organization of a European week against cancer as a test for the 1989 campaign (European Cancer Information Year)

The purpose of this week (1-8 May 1988) was to prepare for the European Cancer Information Year. Three European television broadcasts were produced by the European Commission, and numerous activities were organized by the programme participants.

Action 43: Increase in 1988 of the campaigns carried out in 1987 to inform the public and increase public awareness of the campaign against cancer

The objective was achieved despite a very limited budget, thanks above all to the non-governmental organizations, which invested substantial human and financial resources in the dissemination of the European Code Against Cancer. Polls in the twelve Member States measured changes in the degree of awareness of this Code, and the excellent results recorded in certain southern European countries show that it is possible to increase Europeans' awareness on matters of such paramount importance as their health.

Action 44: Interesting teachers and the health professions in dissemination of the European cancer prevention commandments

The European Commission was able to involve these vital groups despite a lack of financial resources, thanks to the representatives of general practitioners and senior health education officials whom it met twice a year in Brussels. In many countries the European Code Against Cancer was displayed in general practitioners' waiting-rooms, and there were numerous campaigns aimed at schools (cf. special report on the European Year).

Action 45: Organization in 1989 of a media campaign aimed at the general public: "12 nations, 12 days of action against cancer"

This action was not carried out owing to a lack of funds.

Action 46: Intensification in 1989 of the campaigns carried out in 1987 and 1988 to inform the public and increase public awareness of the fight against cancer

See special report on the European Cancer Information Year. The table next page illustrates the encouraging results reached in most of the Member States.

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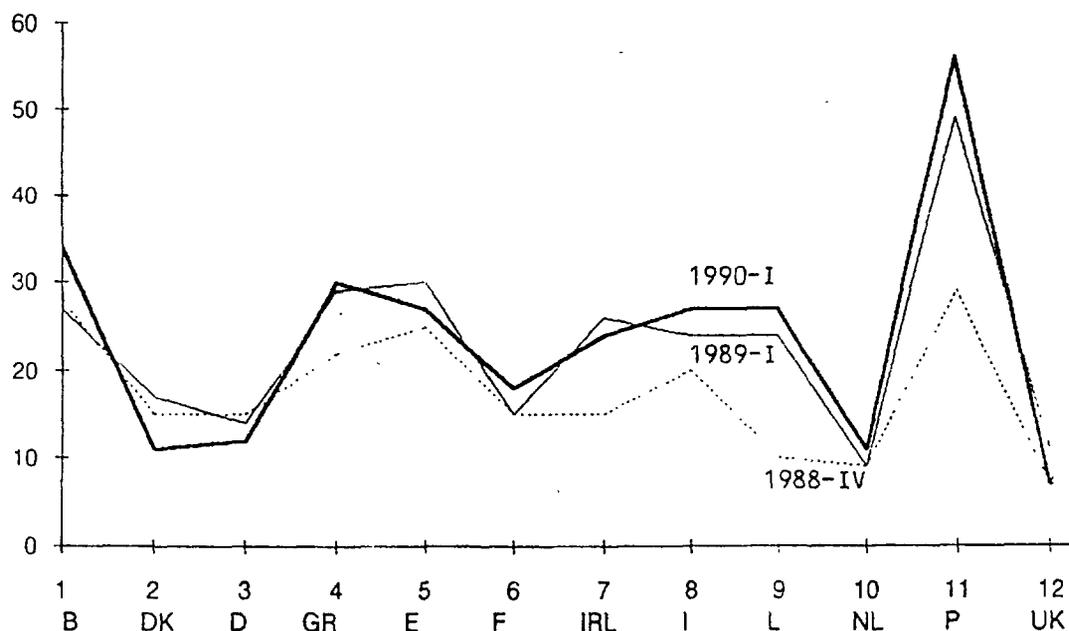
## 11. HEALTH EDUCATION

Action 47: Establishment of a comparative survey of health education programmes in European schools

Two comparative studies of health education in the twelve Member States of the European Community were carried out in 1988 and 1989. The first, by Professor Trevor William (Head of the Health Education Department at the University of Southampton and consultant to the "Europe against cancer" programme) looked at the existing situation. The second took the form of a survey of 2 750 teachers in the European Community. Both studies, together with other reports, were presented at the first European conference on "Health education and cancer prevention in schools", held in Dublin on 7-9 February 1990, the proceedings of which will be published in the nine official languages of the European Community in mid-1990.

EVOLUTION OF THE NOTORIETY OF THE EUROPEAN CODE DURING THE EUROPEAN YEAR OF INFORMATION ON CANCER

Have heard about the "European Code against cancer"



The objective of the "European Year of Information on Cancer" was to increase the notoriety of the "European Code against Cancer". This objective was attained in nine of the twelve countries, and most spectacularly in Portugal (from 29% to 56%). On the contrary, in the Netherlands and the United Kingdom the level of notoriety remained stationary and fell slightly in Germany (from 15% to 12%) and in Denmark (from 15% to 11%).

Action 48: Drawing-up of proposals to improve health education programmes in schools

On 31 May 1988 the Council and Health Ministers, meeting within the Council, adopted a Decision on a plan of action for 1988-1989 on information and health education in the context of the "Europe against cancer" programme (OJ No L 160, 26.6.1988). On 23 November 1988 the Council and Education Ministers, meeting within the Council, adopted a general resolution on health education in schools. Finally, on 13 November 1989, the Council and Health Ministers, meeting within the Council, adopted in principle - whilst awaiting the opinion of the European Parliament - a Decision on the second plan of action 1990-1994 under the "Europe against cancer" programme. The planned health education campaigns aimed at preventing cancer will benefit from a budget averaging close to 2 million ECU per annum.

Action 49: Provision of teaching material relating to health education

Three types of European audio-visual material were produced by the European Commission in the nine official languages of the European Community and distributed free of charge via the governmental and non-governmental programme participants:

- a booklet aimed at the general public about the "Europe against cancer" programme;
- a set of six posters containing the European Code Against Cancer and five maps showing cancer deaths in Europe (lung-tobacco; oesophagus-alcohol; melanomas-sun; stomach-fruit and vegetables; breast-fats);
- a cartoon video for children ("Euro-Jim against Crab Cancer"), illustrating the European commandments relating to tobacco, alcohol, sun, fruit and vegetables, and fats) and two films for older teenagers and adults ("Man and cancer" and "Lifestyle and cancer in Europe").

Action 50: Contribution to the financing of television health education broadcasts on the prevention and treatment of cancer

In addition to the television programmes aimed at the general public and mentioned under Action 38, the European Commission produced a special health education film entitled "Prevention and early detection of cancer", which was awarded the first prize for films on cancer at the International medical film festival in Parma (Italy) in 1989. This film is particularly suitable for health education teachers and will be available on video to programme participants free of charge as from mid-1990.

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### CHAPTER 3: TRAINING OF THE HEALTH PROFESSIONS

#### Action 51: Comparative study of the systems of university training for health care workers

On the basis of the general recommendations drawn up in 1986 by the Committee of Cancer Experts set up under the "Europe against cancer" programme and specific reports by four European experts in 1987, the three Advisory Committees on the training of nurses, dentists and doctors delivered their opinions and recommendations in 1988 and 1989 (documents III/D/248/3/88 of 20 December 1988, III/D/886/3/88 of 22 November 1988, III/D/890/3/89 of 20 April 1989). These opinions and recommendations were sent officially to the Member States' Ambassadors (Permanent Representatives) in 1989 to ensure maximum publicity.

On 8 November 1989 the European Commission formally adopted a Recommendation concerning the training of health personnel in the matter of cancer. It "recommends that the Member States, their competent authorities and their establishments responsible for professional training make every effort to ensure, in accordance with their respective competence, that [the recommendations of the three Advisory Committees on the training of health personnel] are widely distributed, discussed and implemented". (OJ No L 346, 27.11.1989).

#### Action 52: Formulation of proposals for improving the organization of studies in the cancer field

In May 1988 a first European conference on cancer training as part of basic medical studies was held in Bonn. Organized jointly by the European Commission and the European Organization for Research on Treatment of Cancer, it was attended by around 40 faculty of medicine deans and cancer experts. Consensus was reached on the minimum amount of cancer training in basic medical studies and on the procedures for implementation. Three further "consensus" conferences of this type were prepared in 1989, covering cancer training for dentists, nurses and general practitioners.

#### Action 53: Stimulation of mobility of medical and nursing students

50 grants were awarded in 1989 to doctors and nurses wishing to undergo further training in cancer at the European School of Oncology in Venice. Another 20 grants were awarded in 1989 to persons involved in the European network of pilot projects for breast cancer screening to allow them to receive further training at the Prevention Centre in Utrecht. Grants were also awarded to medical students and student nurses under the ERASMUS programme.

#### Action 54: Joint preparation and exchange of teaching materials and testing of this during the European Cancer Information Year

Teams of international experts prepared handbooks for the European School of Oncology on lung cancer (1988) and breast cancer (1989) to be used for initial or further training of general practitioners. These were distributed to a sample of general practitioners for trial use and will be published as from September 1990 in the nine official languages of the European Community, by Springer Verlag.

Action 55: Exchange of experience on continuous training

The European Commission has limited its activity in this field to further training for general practitioners, given their central role in a policy of cancer prevention and screening. Apart from the handbooks mentioned above, an ad-hoc working party was set up to prepare the consensus conference on the training of general practitioners, which should take place early in 1991.

Action 56: Development of common computer programs for expert medical systems for cancer

This action was not carried out owing to lack of funds.

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#### CHAPTER 4 : CANCER RESEARCH

##### Action 57 : European grants to encourage mobility of cancer research workers

The cancer research training scheme became fully operational in 1988. More than one hundred fellowships were allocated to young scientists wanting to spend up to two years in another Member State, or in Switzerland or Austria (countries participating in the cancer target). In 1988 25 post-doctoral and 21 post-graduate long-term fellowships were allocated (for one year and, in exceptional cases, two years). Moreover, 10 short-term fellowships were allocated (up to four months). In 1989 21 post-doctoral and 17 post-graduate long-term fellowships as well as 18 short-term fellowships were allocated.

##### Action 58 : Comparison of existing cancer registers and recommendation for their minimum contents and conditions of access to them

During the first action plan a study was carried out by the International Agency for Research on Cancer (IARC) in Lyon on the existing cancer registries in Europe. This study shows several different approaches towards data collection and data management.

In 1989 the first phase of a feasibility study for setting up a European Network of Cancer Registries was carried out, coordinated by the IARC and the Danish Cancer Registry. The aim of the study is to fix a minimum of data collection in order to enhance comparability. During the second action plan 1990-1994, this network will be set up and gradually be extended to permit the implementation of a monitoring system on cancer incidence in the EC.

##### Action 59 : Launching European coordination of medical research on food and cancer

This action, which is partially under way within the framework of the Joint EURONUT-ECP (European Organization for Cooperation in Cancer Prevention Studies) project, has seen the launching of a pilot study on the role of dietary factors in the development of type B atrophic gastritis, a pre-cancerous stomach lesion. Data are collected in seven countries and in a few months the centres will stop collecting cases and controls. The next step is the data set analysis. The total number of cases and controls will be around 450 instead of the planned 600.

A collaborative research project on the geographic correlation between biological risk factors for gastritis and gastric cancer has been financed by the Commission from January 1989 for a period of two years. A first meeting, organized in collaboration with the International Agency for Research on Cancer (IARC) in Lyon, permitted the finalization of the study protocol.

**Action 60 : Stepping-up of European Research on occupational cancers**

Following up a seminar held in Paris in December 1987 on methodologies for evaluating the links between occupational exposure and the risk of developing cancer, a workshop was organized in 1988 to prepare a joint action on this subject within the framework of the fourth Medical and Health Research Programme (1987-1991). A proposal for a concerted action was approved in June 1989 and will be financed by the Commission from January 1990 onwards for a duration of 2 1/2 years.

The objectives of the concerted action are :

1. to improve the ways of measuring occupational exposures in epidemiological investigation of cancer;
2. to compare the performance of different methods on a large number of epidemiological surveys in a standardized way, to make conclusions and recommendations.

**Action 61 : Continuation of the co-financing by the European Community of research on the prevention of radiation-induced cancers**

The current (1985-1989) and future (1990-1991) Radiation Protection Research Programmes support, on a cost-shared basis, projects designed to improve the understanding of how radiation induces cancer and what is the dependence on dose and exposure conditions.

1. Cell transformation and molecular biology studies investigate the mechanisms by which radiation converts a normal cell to malignancy.
2. Animal studies investigate the effect of dose, dose rate and radiation quality on the induction of cancer.
3. Epidemiological studies on human populations exposed to Radium and Thorotrast in previous medical treatments and to Radon in homes attempt to determine the risk of cancer induction from these sources of radiation.

A meeting on "Cell transformation systems relevant to radiation-induced cancer in man" was jointly organized by the Commission, the US Department of Energy and the Nuclear Energy Board of Ireland, and the proceedings of the meeting have been published. A report "Feasibility of Studies on Health Effects in Western Europe due to the Reactor Accident at Chernobyl and Recommendations for Research" has been finalized. The report concludes that it will be virtually impossible to detect the relatively few cancers resulting from the accident but recommends that an epidemiological study of childhood leukemia incidence be made using existing cancer registries.

Action 62 : Continuation of co-financing by the European Community of research on environmental factors and cancer

The coordinated projects in this area are intended to provide a scientific basis for early identification and assessment of cancer risks to the general population from environmental factors. There are a number of substantial projects currently under way :

1. Genetic effects of environmental chemicals, which include the following research topics :
  - Mechanisms of mutagenesis;
  - Quantitative mutagenesis (molecular dosimetry);
  - Development and validation of predictive tests for chromosome non-disjunction;
  - Development and validation of tests for detection of epigenetic (promoter) substances.
2. Biomonitoring of human populations exposed to genotoxic environmental chemicals : the aim of this project is to develop monitoring techniques for the determination of chemically-induced DNA damage in man.
3. The EC environmental R & D Programme has been requested by the OECD to prepare a review of the OECD guidelines for Genetic Toxicity tests.

Action 63 : Continuation of European coordination of medical research on cancer and reproduction

In 1988 two studies were carried out as a part of the EUROCAT Project for birth surveillance in order to assess the mutagenic and teratogenic consequences of the Chernobyl accident. The preliminary results do not suggest an increase in frequency of chromosomal syndromes or of central nervous system anomalies among conceptuses in women exposed to radiation in May-August 1986. The results have been published (De Wals P. et al., Int. J. Epidemiol. 17: 230-231, 1988; EUROCAT Working Group, Paed. Perinat. Epidemiol. 45:369-382, 1988). A re-analysis of the data collected in 1988 and 1989 is foreseen.

Other studies are needed to assess the long-term carcinogenic effect of the contamination.

Action 64 : Launching of European coordination of medical research on passive smoking

A seminar on "Passive smoking and health" was held from 30 November to 1 December 1987. On the basis of the participants' recommendations, a proposal for a project on the effects of passive smoking on health was submitted to the Commission for examination.

The objectives of the concerted action are :

- to estimate the overall impact of passive smoking on the EC population;
- to substantiate and quantify the effects of exposure to environmental tobacco smoke on the occurrence of lung cancer.

This proposal has been approved, and has been financed from January 1989 by the EC for a duration of 2 1/2 years.

Action 65 : Continuation of European coordination of medical research on automated tissue analysis

1. The first project relates to clinically-applied analytical cytometry. A new proposal has been approved in November 1988, with two main lines. The first one is the further development, adaptation to the users, and clinical and technical evaluation of devices for automated, quantitative and analytical cytology and histology; the second one is directly relevant to cancer, in particular breast cancer, with multicentre clinical studies on the use of cytometric analysis on cytological and histological specimens for early detection, diagnosis, prognosis, and treatment management.

Several instruments have been developed by industries, in collaboration with participants in the previous concerted action; they are in the phase of prototype development for clinical testing. It is now planned to participate, in particular, in screening programmes for cervical cancer using automated pre-screening systems.

2. the second project relates to automation of cytogenetics. The progress achieved so far is presented in a publication entitled "Automation of Cytogenetics - Advances in Systems and Techniques" (Springer, 1989). This includes the evaluation of complete image-based chromosome analysis, the development of new image techniques and of systems for chromosome aberration scoring, automatic specimen preparation, and the use of flow systems for chromosome measurement and analysis.

Action 66 : Continued European coordination of research on imaging in medicine

A new project on Tissue Characterization by Magnetic Resonance Spectroscopy (MRS) and Imaging (MRI) was approved in June 1988. Its main objectives are, on the one hand, to extend the scope and usage of standardized methods in the fields of MRS tissue characterization by Nuclear Magnetic Resonance (NMR) and of performance assessment of MRS and MRI; and, on the other hand, to gather more complete and reliable data on Magnetic Resonance properties of tissues.

It follows a project on identification and characterization of biological tissues by NMR which included works on NMR standardization, methodology for in vitro measurement of relaxation times, test substances for calibration, test procedures and test objects, etc. The activities and results are reported in a series of six papers in Magnetic Resonance Imaging, vol. 6, n°2, 1988, pp 173-222. List of the activities held in 1989 :

1. Workshop on "The uses of an in-vivo NMR relaxation time data bank - Acquisition and accumulation", Dundee, 13-15 March 1989;
2. Workshop on "Quantitation in NMR spectroscopy and its medical implications", Rome, 16-17 June 1988.

Another project was approved in November 1988 on Positron Emission Tomography (PET) in Investigation of Cellular Regeneration and Degeneration. Its main objective is to improve the understanding of major diseases and the follow-up of treatment, PET being the only method allowing non-traumatic estimation of cell degeneration, regeneration and proliferation, and special attention is envisaged to be given to pharmacology since PET allows pharmacokinetic studies, estimation of interaction of drugs with their specific receptors, and consequently improvement in drug design and administration. List of activities in 1989 :

1. First modelling expert panel meeting, London, 13-14 April 1989;
2. First radiochemistry workshop, Jülich, 11-12 May 1989;
3. First cardiology workshop, Pisa, 22-23 May 1989;
4. Oncology symposium & workshop, London, 6-7 July 1989.

Action 67 : Strengthening of European coordination of research on clinical treatment and of control of multi-centre therapeutic trials

1. Under the fourth Medical and Health Research Programme, support for the EORTC, as well as for its data centre, has been reinforced. Moreover, the improvement of the Eurocode Informatics network, which facilitates direct communication between oncologists and their participation in the EORTC's clinical trials, has been achieved by installing peripheral nodes in Britain, France and the Netherlands.
2. It was agreed to make use of the High Flux Reactor at Petten (EC Joint Research Centre, Netherlands) to establish a centre for treatment of malignant brain tumours by Boron Neutron Capture Therapy. For reasons not yet fully understood, boron compounds are selectively accumulated in tumour cells. Subsequent irradiation with neutrons results in the capture of neutrons by the boron atoms, giving rise to alpha-particles. These have a high cell-destructing capacity and do not leave the tumour since they move only 5 micrometres in tissue. The results obtained in Japan with this treatment are promising. A concerted action was approved and started in July 1989. About 30 institutes will assure the scientific backing of the treatment facility under construction at Petten. It is expected that the first patients can be treated in early 1992.
3. There are both biological as well as physical reasons to assume a potential value of light ion beam therapy for cancer. Light ion beam treatment allows a more accurate irradiation of the tumours, thereby preserving the surrounding healthy tissue. The clinical trials performed in the U.S.A. so far indicate that there is a clear value for this type of treatment for certain tumour types. A feasibility study to investigate the possibility of installing a light ion medical accelerator in Europe started in 1988. A final report is expected at the end of 1991.
4. A concerted action on the role of cell surface properties and tumour specific antigens in metastasis and host immune response was approved and started in July 1989.

The general aim is to improve knowledge of the tumour cell properties that influence the specific immune response of the host and the ability of tumour cells to invade surrounding tissues and to metastasize, in order to develop new forms of cancer treatment by increasing the specific host immune response and by inhibiting the invasive potential of tumour cells.

5. A concerted action on treatment of haematological malignancies by bone marrow transplantation from volunteer donors was approved in 1989 and will start in early 1990.

The general aim of the project is to create in the respective areas of donor pool and search coordination, the necessary conditions to increase the number of patients with haematological malignancies who can be treated by unrelated volunteer bone marrow transplantation and therefore be cured of their cancer of the bone marrow.

If successful, unrelated bone marrow transplantation will have a major impact. Until now the vast majority of patients who could be cured by bone marrow transplantation lack a donor. Bone marrow transplantation would then become a possibility available for all patients with haematological diseases which cannot be cured by means other than transplantation of healthy normal bone marrow. It is estimated that this would quadruple the number of leukaemic patients being cured within the next decade.

6. A concerted action on the pathogenesis, diagnosis and therapy of tumour progression in human melanoma and precursor lesions was approved in 1989 and will start in early 1990.

The objectives are :

- to identify the organization and function of the genes coding for progression antigens and their products, and to prepare (monoclonal) antibodies recognizing these progression antigens;
- to identify antigens that predict the susceptibility and effect of immunotherapy in melanoma patients and to study the mechanisms of escape from immune response as a manifestation of tumour progression in melanoma patients;
- to prepare vaccines, useful for immunotherapy;
- to perform dose-response studies on the induction of cutaneous melanoma in the opossum (*Monodelphis domestica*) by UV radiation.

7. A concerted action on the molecular and cellular strategies for immunotherapy of cancer was approved in 1989 and will start in early 1990. The purpose of the project is to elucidate the complex immunologic interrelationship between the host and the tumour, and to manipulate this relationship for the purpose of diagnosis, prevention and treatment of cancer.

8. A concerted action on the molecular genetics of human thyroid cancer was approved in 1989 and will start in early 1990.

The objectives are :

- to increase our understanding of the causes of cancer through a cooperative project on an uncommon group of tumours with well-defined inherited and environmental causative factors;
- to identify the somatic and hereditary genetic abnormalities which occur at each stage in the development of sporadic (follicular cell) and familial (C cell) thyroid cancer;
- to use results on thyroid as a simple model for understanding the basic mechanisms of tumourigenesis in human epithelia in general, and hence to provide insight into cancers of more complex epithelia such as breast.

9. A concerted action on genetics in cancer families with primary regard to Familial Adenomatous Polyposis (FAP) was approved in 1989 and will start in early 1990.

The aim of this concerted action is to optimize the possibilities of prevention and management of the disease (or diseases) in the EC. This requires efficient identification and registration of FAP-cases.

For those families who choose to make use of efficient diagnostic methods under further development in this programme, such cases could be prevented if this were in accordance with the wishes and norms of the families involved. A successful implementation of such measures for polyposis could eventually serve as a model for other hereditary cancers.

- 10 A concerted action on the relation between DNA repair and cancer was approved in 1989 and will start in early 1990.

It aims at a better understanding of mechanisms of DNA repair and their relationship to cancer, in particular (i) mechanisms of action of carcinogens, (ii) variation in response to carcinogens in the population, (iii) basis of cancer-prone DNA repair disorders, (iv) interaction of carcinogens with DNA and short-term tests, (v) mechanisms of chemotherapeutic drugs.

- 11 A concerted action on molecular cytogenetics of solid tumours was approved in 1989 and will start in early 1990.

It aims at : development of totally new diagnostic protocols and reagents to type reliably and easily the major forms of solid tumours. The diagnostic protocols will be based upon molecular cytogenetics.

- 12 A concerted action on optimization of hyperthermia technology and the assessment of its clinical efficacy was approved in 1989 and it will start in early 1990.

The objectives are :

- to improve hyperthermia technologies and determine guidelines for improving the quality of treatment;
- to assess the efficacy of hyperthermia in combination with radiotherapy in cancer treatment.

- 13 The Commission finances a concerted action on development of medical laser applications. The aims are to improve and to standardize the knowledge and practice of the use of lasers in medicine and surgery. It concentrates on safety and tumour therapy.

Action 68 : Co-financing of a European network of data banks for hybridomas (cells producing monoclonal antibodies)

The Community has co-financed, from November 1985 to date, the development of the European centre of the hybridoma and immunoclonal data bank of CODATA (the International Council of Scientific Unions' Committee on Data for Science and Technology). CODATA relies on three centres, located in Europe (Centre de R&D in Immunoclonal in the Faculty of Medicine in Nice), the United States (American Type Culture Collection, Rockville, Md.) and Japan (Tokyo). The data collected by each centre are made available to all three.

The present European centre is extending its dissemination/collection/publication activities through other forms of European collaboration, in particular electronic networks, starting with an experiment using France's Minitel network. The database is also now mounted on DIMDI, Köln, the German Institute for Medical Documentation and Information. For further details, contact Dr. Louis Réchaussat, CERDIC, Nice (tel. 33/93.20.01.80).

Action 69 : Co-financing by the European Community of research into genetic engineering and protein engineering, techniques potentially useful for the development of anti-cancer drugs

A number of projects under the Biotechnology Action Programme (1985-1989) aimed at achieving a better understanding of the relationship between structure and function of cellular proteins. This fundamental approach will eventually allow the study of proteins specific for tumour cells (such as mutated receptors for growth hormones) and their function in the oncogenic process. In one particular project the elongation factor Tu (EF-Tu) was studied, a protein closely related to oncogene products such as p21. The work done by the three laboratories involved has given much more insight into the structure/function relationship of EF-Tu. The Biotechnology Action Programme will be followed by the BRIDGE programme (1990-1993) in which these areas of research will continue to be covered.

Action 70 : Co-financing by the European Community of research on the targeting of cancer-killing drugs

The project on cancer treatment by drug targeting with neocarzinostatin, which was started in 1988, has now developed into a concerted action entitled : Drug targeting : immunoconjugates for cancer therapy. It is the intention to develop monoclonal antibody-neocarzinostatin conjugates and to test them for their tumour specificity both in vitro and in vivo.

A second concerted action on drug targeting was also started in 1989 : Targeting Systems in Cancer Chemotherapy : Drug Carrier Systems.

During the period of funding, it is expected that candidate carrier systems containing mitomycin C or biological response modifiers for each of three target areas (liver, lymph nodes and bone marrow) will have been evaluated in animal models. Limited clinical studies with promising systems will either have been planned or even conducted before the end of 1992.

Action 71 : Co-financing by the European Community of research on the pharmacology of anti-tumour substances

The Biotechnology Action Programme (1985-1989) has included a pharmacotoxicology research project in the area of cancer. Many of the results are already published (a list of publications is available from DG XII/F/2; furthermore, some of the newly developed systems are already used for pharmacotoxicological studies by industry.

Action 72 : Harmonisation of testing standards for anti-cancer drugs

The EEC Committee for Proprietary Medicinal Products (CPMP) has, in accordance with the concerted procedure for the authorisation before marketing of a medicinal product foreseen in directive 87/22/EEC, given a favourable opinion for an Interleukin-2, indicated in treatment of renal cancer. The CPMP has also pursued its work in the field of harmonisation by elaborating explanatory notes for applicants for marketing authorisation. These explanatory notes deal in particular with good clinical practice for trials with medicinal products, with clinical trials for anti-cancer drugs, and with radiolabelled monoclonal antibodies. The drafts of these explanatory notes were circulated for consultation and will be finalised in 1990.

Proposed action 73 : Co-financing by the European Community of research into the human genome

This project may be carried out under the Human Genome Analysis Programme proposal. Final discussions of this proposal will take place in 1990 in the European Parliament and in the Council of Ministers.

Proposed action 74 : Co-financing by the European Community of research on nuclear acid probes

This project may be carried out under the Human Genome Analysis Programme proposal. Final discussions of this proposal will take place in 1990 in the European Parliament and in the Council of Ministers.

Action 75 : Co-financing by the European Community of research on cancer in developing countries

In tropical areas there is a relatively high incidence of cancers for which viral infections are suspected of playing a role in their aetiology.

Liver cancer is frequent in tropical areas, probably due to the high prevalence of hepatitis. The Commission currently finances four research projects on liver cancer. The aim of two of these projects is to study the role at the molecular level of the hepatitis B virus on hepatic oncogenesis. The goals of the third projects are : (a) to detect and characterize hepatitis B virus variants and to analyse their role in primary liver cancer in Senegal; (b) to identify and analyse chromosomal deletions in liver cancer, as well as genetic predisposition to this type of cancer.

The basis objective of the fourth project is to develop the analysis of the control mechanisms of the alpha-foetoprotein gene expression, so as to understand how and why this gene is only expressed in hepatoma cells. The applied objective of this study is to create the basis of a new approach to hepatoma therapy.

Other studies indicate a high percentage of spumaretrovirus (HSRV) infections among nasopharyngeal carcinoma patients from East Africa. The Commission finances a study which plans to develop a reliable, rapid HSRV-specific test system (ELISA) in order to screen for the presence of HSRV in African patients suffering from degenerative or lymphoproliferative diseases such as nasopharyngeal carcinoma. The results of this study are expected to make it possible to correlate and study the prevalence of an HSRV infection in certain human diseases.

The Commission is also financing a project whose aim is to identify putative tumour viruses in AIDS-associated malignancies such as Kaposi's sarcoma and non-Hodgkin lymphoma and to analyse an association of further specific tumours with human immunodeficiency virus (HIV) infection.

**CONCLUSION**

Over the past three years the European Community has demonstrated its ability to make its own major contribution to the fight against cancer, by no longer restricting itself to its conventional activities—measures to combat carcinogenic chemicals (ECSC and EEC Treaties) or ionizing radiation (Euratom Treaty) – but by extending its sphere of action to new areas such as discouraging the use of tobacco, improving nutrition, cancer screening, training of medical personnel, health information and education, and medical research. On the whole, the results have been most satisfactory.

- a) Legislation: Several pieces of Community legislation were announced, concerning the discouragement of tobacco use (6), improvement of nutrition (1), and measures to combat carcinogenic chemicals (3) and ionizing radiation (3). Out of 13 proposals, only one (on the prohibition of tax-free tobacco sales) was not drawn up on schedule. Seven out of the other twelve have already been adopted by the Council (labelling of tobacco products, ban on smoking in public places, protection against ionizing radiation (3), protection against carcinogenic chemicals (2)). The Council has adopted common positions on three others (prohibition of cigarettes with a high tar content, nutritional labelling, protection of workers). The other two are still being discussed by the Council (tax burden on tobacco, limitation of advertising of tobacco products in the press and by means of bills and posters).
  
- b) Actions financed by the Community budget: An average of around 9 million ECU was available from 1987 to 1989 to help finance actions in the fields of research, prevention, training, information and health education. Although on the low side, this budget still enabled progress to be made in each of the four sections of the programme. However, as far as information is concerned, the European Year would not have been possible without the much larger amounts invested by the non-governmental cancer organizations and the active cooperation of major television stations in most Member States of the European Community.

This European-scale action will be continued and extended under the second plan of action 1990-1994, which the Council will adopt on 17 May 1990. A complete assessment of the programme, particularly its scientific components, will be made public early in 1992.

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