



COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 11.6.2003
COM (2003) 338 final

**COMMUNICATION FROM THE COMMISSION
TO THE COUNCIL, THE EUROPEAN PARLIAMENT
AND THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE**

A European Environment and Health Strategy

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1. INTRODUCTION

The World Health Organisation (WHO) defines “environment and health” as including “both the direct pathological effects of chemicals, radiation and some biological agents, and the effects (often indirect) on health and well-being of the broad physical, psychological, social and aesthetic environment, which includes housing, urban development, land use and transport.”¹ This is a wide definition which requires a comprehensive approach if we are to understand the issue and develop relevant policies.

From its very beginning EU environmental policy has been driven primarily by health considerations. Many environment and health related problems have been solved, but much remains to be done, in particular with respect to the health implications of chronic exposures, such as those reported by the European Environmental Agency, WHO, and a number of national organisations. They indicate that the interaction between environment and health is far more intimate and complex than is commonly understood. In particular, little attention has been paid to the interaction of different pollutants in the human body as well as in the environment. Even low level exposure over decades to a complex cocktail of pollutants in air, water, food, consumer products and buildings can have a significant effect on the health status of European citizens.

In its Article 152 and 174 the Amsterdam Treaty provides legal provisions for Community action in the field of Environment and Health, and the EU has already begun to respond to these concerns. In the Sixth Environmental Action Programme it has set itself the goal of contributing “*to a high level of quality of life and social well-being for citizens by providing an environment where the level of pollution does not give rise to harmful effects on human health and the environment.*” The Community Action Programme on public health (2003-2008) takes the environment as a major health determinant, while the EU Research Framework Programmes have included specific actions on this issue.

Given the size and complexity of environment and health issues, it is time for a new approach. This Communication therefore presents a European Environment and Health Strategy, to be launched as the « **SCALE initiative** ». We need to scale up our efforts so that, in line with the objectives of sustainable development, we protect both the most vulnerable groups in our society and those that will form tomorrow’s society: children. The initiative will develop a policy framework to ensure the protection of society as a whole. But SCALE also stands for a comprehensive, long-term approach :

- based on **Science**, drawing together knowledge from a wide range of networks of stakeholders, including environment and health experts from present and acceding countries, international, non-governmental and consumer organisations.

¹ *Environment and health. The European Charter and commentary.* Copenhagen, WHO Regional Office for Europe, 1990 (WHO Regional Publications, European Series, No 35).

- focusing on **Children**, because investing in children’s health is essential to ensure human and economic development. Children are particularly vulnerable to environmental hazards and they cannot be considered as « little adults » since their physiology, metabolism, diet and behaviour are different compared to adults. Furthermore, it is important to focus on children because children’s health is a basic human right : the UN Convention on Children’s Rights requires children’s « best achievable health ».
- that **raises Awareness** on the interconnection between environment and health and removes the scales from the eyes of society so that everyone can see how environmental degradation harms everyone's health, in particular children’s health.
- that uses the **Legal instruments** provided by the Treaty to add value to the actions undertaken at international and national level, by requiring actions at EU level that target environment-related health problems in an integrated way.
- including constant and continuous **Evaluation** to verify the efficacy and cost-effectiveness of the actions in terms of the reduction of the environment-related health problems. This evaluation will provide further scientific knowledge, the basis for new or corrective actions and further awareness raising.

2. RATIONALE

Until now environmental assessments and policy actions have focused on *single pollutants* in *single environmental compartments* (air, water, soil, ...) and many related environmental health problems have indeed been solved. However, by doing so some health impacts are underestimated, because in reality the situation is much more complicated: pollutants are *transferred* between different environmental compartments (air to soil, to water, ...); people are exposed to a *combination* of pollutants that *interact* in the environment and in the human body ; These facts are not sufficiently taken into account in the actual policy responses. Furthermore, the present policy responses are not sufficiently integrated (e.g air monitoring data are not linked to water monitoring data, to soil monitoring data, and to health monitoring data) and therefore do not always effectively address the specific “environment and health” interface. Such integration is essential to further develop environmental legislation and measures to protect human health.

The added value of the proposed “European Environment and Health Strategy” is therefore the development of a Community System *integrating* information on the state of the environment, the ecosystem and human health. This will render the assessment of the *overall* environmental impact on human health more efficient by taking into account effects such as: cocktail effects, combined exposure, cumulative effects, etc... as described in Annex A under “Complexity of the problem”. The ultimate goal of the proposed strategy is to develop an environment and health “*cause-effect framework*” that will provide the necessary information for the development of Community policy dealing with sources and the impact pathway of health stressors. To achieve this goal an integrated approach is needed within the framework of the Community’s sustainable development policy.

3. OBJECTIVES OF THE STRATEGY

A range of health effects are suspected to be related to environmental factors, notably respiratory diseases, asthma and allergies are associated with indoor and outdoor air pollution; neurodevelopmental disorders can be caused by heavy metals, POPs², such as dioxins & PCBs, pesticides; childhood cancer could be related to a number of physical, chemical and biological agents (e.g. parental tobacco smoke, parental occupational exposure to solvents). Furthermore, environmental exposures are associated with multiple health effects: exposure to tobacco smoke during pregnancy increases the risk of sudden infant death syndrome, low birth weight, reduced lung function, asthma, lower respiratory illness and middle ear infection. Pesticides are possibly related to immunological effects, endocrine-disrupting effects, neurotoxic disorders and cancer. Ultraviolet radiation may suppress immunological responses and is a major risk factor for the development of skin cancer. Research has shown that exposure to elevated and/or persistent noise levels near and around schools is statistically likely to impair the learning abilities of school children.

While it has been possible to establish links between the health effects and some individual environmental factors, no clear overall picture of health impacts resulting from complex, real life exposure is available. The proposed strategy aims to achieve a better understanding of the environmental threats to human health to identify the disease burden caused by environmental factors in the EU and to plan policy responses to the challenges that emerge.

The ultimate objectives of the proposed strategy are :

- to reduce the disease burden caused by environmental factors in the EU
- to identify and to prevent new health threats caused by environmental factors
- to strengthen EU capacity for policymaking in this area

The main thrust of the strategy is to fill the knowledge gap on the link between environment and health, in a first phase focusing on a number of priority adverse health effects.

The Commission will act as a catalyst and clearing house for a stronger European focus on environment and health, particularly for children.

4. WHAT IS ALREADY BEING DONE ?

4.1. EU chemicals and environment policies

Health has always been a major driver for environmental policy development. The Community's environment legislation is based on safety standards, monitoring systems and controls covering many of the known health hazardous agents. The main areas are chemicals, including dioxins & PCBs, endocrine disrupters and pesticides, air pollution, water protection and management, noise, waste, major industrial accidents, ionising radiation (for details see Annex B).

² Persistent Organic Pollutants

Despite the positive impact on human health of all this existing legislation, measures have generally tended to be developed either with limited knowledge of overall exposure to one particular substance, or with inadequate knowledge of the synergistic effects of several substances, either on humans or on the environment. Furthermore, the need for on-going education of the public on the links between environmental risks and health is even more pronounced as it would contribute significantly to increasing public awareness and facilitating prevention of environment related diseases.

4.2. EU action programmes and legislation on health

Several actions took place under the Community Action Programme on pollution-related diseases³ and on health promotion and health monitoring⁴. The new programme of Community action in the field of public health (2003-2008)⁵ replacing them and adopted by the European Parliament and the Council on 23 September 2002, is the new key instrument underpinning the development of the Community's health strategy⁶.

These are coupled with other EU health activities in the area of tobacco control, food safety legislation, recommendation on electromagnetic fields, health impact assessment guidelines, radiation protection legislation (see Annex B).

4.3. EU research on environment and health

The primary EU research objective is to establish the European Research Area (ERA) which will contribute to the creation of better overall framework conditions for research in Europe, utilising the RTD Framework Programme as an instrument through which this will be achieved. Research on 'environment and health' has been included within this framework :

- The European Framework Programmes for Research and Technological Development started to tackle the issue of "Environment & Health" in earnest by financing a number of research projects during the 4th Framework Programme (1995-1998) both from the aspect of health impacts (under Programmes such as BIOMED) and tackling the issue of safer, more environmentally friendly production methods (e.g. under the Brite/Euram Programmes).
- The 5th Framework Programme (1999-2002) gave greater visibility and financial means to address this issue by introducing a focused "key action" on environment and health with a budget of 160 million Euro to finance research actions. Further research support was made available through the Energy, Environment and Sustainable Development Programme, particularly through the Water key action and under the Competitive and Sustainable growth Programme, which placed emphasis on clean production and on the avoidance of health hazards arising from industrial processes. Research on environment undertaken at the EU's own research facility, the Joint Research Center (JRC) also started under the 5th Framework Programme.

³ Decision 1296/1999 of the European Parliament and the Council

⁴ Decisions 645/96/EC and 1400/97/EC of the European Parliament and of the Council

⁵ Decision 1786/2002/CE (OJ L 271/1 of 9.10.2002).

⁶ as set out in the Commission's May 2000 Communication (COM (2000) 285 final of 16.5.2000).

- In the 6th Framework Programme, research on environment and health can be financed by several thematic priorities (Food Quality & Safety; Sustainable Development, Global Change and Ecosystems; Policy-orientated Research; Genomics & Biotechnology for Health, nanotechnologies and nanosciences). For the first time, the JRC work programme includes one Integrated Scientific Area on environment and health; in addition, several direct JRC actions contribute to this issue.

As a result of these efforts at European level a “critical mass” of European research on environment and health is being established, which will help to ensure dissemination and exchange of research results.

4.4. Occupational health

As there is an impact of work environment policies on health, the European Environment and Health Strategy will develop synergies with the Community Strategy on Health and Safety at Work.

4.5. International action

The main activities in this area linked to the EU’s work include :

- Adoption of the European Charter on Environment and Health (Frankfurt 1989) by the Environment and Health Ministers of the European Region of WHO, followed by the Helsinki (1994) and London (1999) declarations. Within this context, most Member States and Acceding countries have developed National Environmental Health Action Plans (NEHAPs).
- Commission’s contributing to the preparation of the next pan-European Ministerial Conference on Environment and Health to be held in Budapest in June 2004, with the theme "The future for our children".
- Effective follow-up to the Plan of Implementation agreed in Johannesburg, September 2002 at the World Summit on Sustainable Development (WSSD).
- Launch of a world partnership project "Healthy Environment for Children – Call for a Global Alliance" at the World Summit for Sustainable Development in Johannesburg in 2002 by WHO with the support of the EU.
- The implementation of the UN/ECE Protocol on Persistent Organic Pollutants (POPs), which reflect an international commitment to deal with chemicals which are persistent, highly toxic and accumulative.

4.6. Environment and health in the present and acceding Member States and world-wide

The interaction between environment and health is receiving more and more attention in the Member States and in the Acceding Countries. Several Member States and Acceding Countries have prepared or are preparing “National Environmental Health Action Plans” (NEHAPs) and have presented environmental health reports and/or strategies.

Environmental health problems differ in Europe, e.g. the prevalence of waterborne diseases is higher in Acceding Countries. Given the geographical discrepancies in Europe, this strategy will be developed for the enlarged Union, fully involving the Acceding Countries from the outset.

Environment and health is also high on the global agenda. A number of the goals set by the Johannesburg World Summit on Sustainable Development (WSSD) and/or by e.g. the United Nations Millennium Development Goals deal with human health and sanitation and are related to environmental degradation. These goals acknowledge that the majority of the burden of environment related disease falls on developing countries.

5. THE KEY ELEMENTS OF AN EU ENVIRONMENT AND HEALTH STRATEGY

5.1. An integrated approach

In order to establish a better understanding of the cause-effect relationships between environmental threats and adverse health effects and to enable policy makers to take due account of the effects of combined exposure, interactions between environmental pollutants, etc... an integrated approach is required.

This integrated approach implies :

- the “*integration of information*”, i.e. to pool and to link available knowledge and experience across the Community, providing a strategic overview of environmental threats to health, irrespective of the type of burden involved or the environmental compartment through which that burden is transmitted.

Such a Community approach entails the collection and linking of data on environmental pollutants in all the different environmental compartments (including the cycle of pollutants) and in the whole ecosystem (bio-indicators) to health data (epidemiological, toxicological, morbidity)⁷.

- *Integrating research*: successive EU Research Framework Programmes have brought together research teams across Europe to collaborate on environment and health topics and importantly to develop common understanding and trust. The European Research Area (ERA) will deepen this integration by fostering collaboration and the development of a common vision and objectives for research at the level of research institutes and research programmes. This approach will equally apply to policy development, with research providing the necessary scientific underpinning.
- *Further integration of environment and health concerns into other Community policies and activities*: a number of policies have a direct or indirect effect on health and the environment. Albeit efforts have been made to address environment and health concerns, further consideration should be given to these concerns when developing sectoral policies to maximise prevention (e.g. through clean production systems) rather than curative aspects.

⁷

without prejudice of the Council and Parliament Decision requiring the establishment of a Public Health Monitoring System under the framework of the new Public Health Programme (Decision 1786/2002/CE)

- *An integrated understanding of the cycle of pollutants:* once released into the environment, pollutants can be transferred between different environmental compartments e.g. dioxins are released and transported through the atmosphere, deposited in soil, vegetation and water and continue to move between them (e.g. air to soil, water to sediment). A better knowledge of the cycle of the pollutant will make it possible to identify the most efficient way of preventing human contamination, in particular, in cases where specific environmental legislation is insufficient.

The thematic strategies foreseen under the 6th Environment Action Programme will provide environmental data and knowledge on pollutants in the different media whatever their sources and nature. Linking this information will show the cycle of a pollutant thereby permitting better assessment of global exposure and identification of the main sources of production. The new public health programme will provide inter alia health data and health impact assessment for environmental threats while the 6th EU RTD Framework Programme and the Joint Research Centre's Multi-Annual Work Programme for 2003-2006 will explore contamination and exposure pathways and causality links for the pollutants and the application of research to the development of novel and improved production systems to reduce potential health hazards. Linking all this environment, health and research information will enable an integrated approach showing the cycle of a pollutant, assessing global exposure and associated health effects and identifying the most productive action routes.

- *Integrated intervention:* to eliminate, reduce or avoid negative health effects of environmental factors, questions of feasibility (technical, economic and practical), cost-effectiveness and ethics must be considered. Responses can then focus either on exposure by reduction or elimination of the pollutant or on health effects by prevention, early identification or stopping the progression of disease. The responses may also be concentrated on the individual encouraging a behavioural change or medical intervention.
- *Integration of stakeholders:* to ensure efficient implementation of this strategy, it is important to develop a close co-operation with all stakeholders and to promote co-ordination between the health and the environment sectors. This should include national, local and regional authorities, the public, industry, academia, as well as international and non-governmental organisations.

5.2. An incremental strategy

Given the complexity and breadth of the scope of this exercise, the integrated approach will be implemented in successive *cycles* and *will be incremental* in scope. The first cycle (2004-2010) will focus on well identified priorities and will create the basis for the next cycle. It will make it possible to set up a Community system that will provide the necessary information for assessing the *overall* environmental impact on human health and the cause-effect link, for identifying and monitoring health threats caused by environmental factors and for preparing and reviewing policy related to environment and health.

5.3. A focus on children

Of all vulnerable populations, children are a unique section of the population with a particular susceptibility to environmental agents. Starting at the foetal stage, the close physiological relationship between a pregnant woman and the foetus she carries makes the foetus vulnerable to dangerous agents the mother has been exposed, especially those affecting development. Many toxic or allergenic agents present in maternal blood may also be present in mother's milk and a number are capable of crossing the placental barrier. This potential for transfer of environmental contaminants from the mother to the foetus and the neonate, further reinforces the need to protect pregnant and breastfeeding women from environmental contamination as a way to ensure a healthy start in children's life.

Children have a unique vulnerability. They go through a succession of distinct developmental and learning phases e.g. the foetal, neonatal, school-age and pubertal phases. At each of these stages, a child is vulnerable and exposed to different agents: an adolescent may be more vulnerable to attacks on the reproductive system, while a baby is more vulnerable to dust at ground level. Children also face a potentially longer exposure to toxicants. In view of their life expectancy, children are the section of the population likeliest to endure exposure for the longest time.

Their higher vulnerability is an important reason to take specific action for this population group when both assessing and managing risks. Furthermore, the economic impacts of environment-related childhood illnesses highlight the need to pay particular attention to children. This vulnerability and related economic impact has guided the focus on children throughout the Strategy and the choice of the specific pollutants to be addressed.

5.4. Acceding Countries

Environmental health problems differ in Europe, e.g. the prevalence of waterborne diseases and exposure to outdoor pollution are higher in the Acceding Countries while the prevalence of asthma is higher in some of the current EU Member States. Given the geographical discrepancies in Europe, this strategy will be developed, from the outset, for the enlarged Union. This will not only allow better understanding of the environmental health discrepancies in Europe, but it will also provide a better basis to correlate *long-term* health effects and environmental factors by especially target socio-economic aspects of environmental health.

Full implementation of the environmental "acquis" will bring significant health improvements in the Acceding Countries as a result of efforts to ensure cleaner air, water and better waste management. Fully implementing the EU Directives on air quality can lead to at least 15 000 fewer cases of premature deaths from exposure to air pollution and between 43 000 and 180 000 fewer cases of chronic bronchitis.⁸

An EU-funded Project being carried out by the WHO is currently assessing the environmental health situation in the countries of the European Union, the Acceding Countries and the countries in the Western Balkans. The results will contribute to the overall pan-European assessment for the Budapest 2004 Conference.

⁸ "The benefits of compliance with the environmental acquis for the Acceding countries" (ECOTEC et al 2001)

The results of the EU funded projects “*Dioxin emissions in Acceding Countries*” (end of 2004) and “*Dioxins & PCBs : environmental levels and human exposure*” (end of 2003) will provide a first insight into the dioxin-health situation in the Acceding countries, which may be different from the prevailing EU situation.

Special attention will be given to the Acceding Countries in all the actions announced in the Strategy. The Consultative Group and the Technical Working Groups will include experts from the Acceding Countries. The three Regional Conferences (Baltic, Central Europe, Mediterranean) will ensure a broad involvement of the different Acceding Countries. The Baseline Report 2004 and the Action Plan 2004-2010 will include the situation in Acceding Countries for the different items.

6. A EUROPEAN ENVIRONMENT AND HEALTH STRATEGY

This Strategy will be *incremental* in scope and will be implemented *in cycles*. The first cycle will focus on a set of well-identified priorities and will set the basis for further work. The Strategy is based on the *participation of all stakeholders* and on the *best available scientific knowledge*, as stated in the 6th Environmental Action Programme and will complement existing legislation.

6.1. Finding Common Ground : a European Integrated Environment and Health Monitoring and Response System

In order to achieve the long-term objectives of this strategy, it is necessary to set up an integrated environment and health monitoring system for the systematic and comprehensive collection of data over time. Member States are already involved in data collection on a national basis. The value added at European level is to generate synergies and facilitate the sharing of data and methodologies in order to increase the understanding of the environment and health relationship. Health data will be linked to the full range of environmental data, including all the different environmental compartments and the whole ecosystem, in order to obtain a picture of the exposure of populations to environmental contaminants and their adverse health effects. Taking advantage of the future Health Monitoring and Information System, such systematic and integrated monitoring, helped by the Global Monitoring for Environment and Security (GMES)⁹ initiative, will facilitate the creation of a solid EU knowledge base from which to formulate health and environment policy. It will also allow the identification of new and/or emerging issues.

In order to set up such a system, a mechanism for data sharing, improved data availability, accessibility, comparability and enhanced exchange of information must be established.

Data sharing: agreement on the type of data which will be shared at European level is needed. This should include :

- toxicological data demonstrating that specific factors can induce biological and physical changes

⁹ GMES is a key initiative for the provision of integrated services on monitoring environmental health stressors from space, which paved the way to the INSPIRE initiative.

- epidemiological data demonstrating a connection between certain diseases and exposure to a given environmental factor
- environmental data relevant for demonstration of the impact of environmental factors on the pathways leading to adverse health effects.

Effort will also need to be devoted to the development of standardised protocols for data collection to facilitate future data sharing.

Improving data availability, accessibility and comparability: data for which there is a Community obligation to notify (e.g. atmospheric pollution, water quality monitoring data) is *available* but often not in a format that allows for evaluating potential health impacts. Other monitoring data is less standardised and is dependent on national or local priorities, such as indoor pollution and drinking water distribution networks.

The Global Monitoring for Environment and Security (GMES) initiative of the Commission, will bring to bear a comprehensive understanding of environmental stressors on the global scale exploiting the potential of Earth observation. Gaining *access* to health data is a particular problem. The necessary information on morbidity and mortality is not always accessible, for instance for reasons of confidentiality. Another problem is that in some important areas there is no standardised medical nomenclature.

Apart from data availability and accessibility problems, there are often problems with the *comparability* of information because of data being scattered in time, inappropriate geographic or temporal resolution, application of different standards, etc...

Improving accessibility and comparability of data on diseases that may be attributable to environmental factors will be a major undertaking in the strategy. First steps have already been taken to establish a common long-term database. The European Environment Agency, which has extensive experience in gathering and assessing environmental data, and WHO-Europe are, with the support of the Commission, involved in developing a health and environment information exchange platform. This database will be fed by and be accessible to Member States and will provide appropriate tools for policy makers. Information to be shared covers indicators, monitoring results, assessment of the environmental health burden of disease, elements for analysis of cost-effectiveness of environmental health intervention and information on environment and health initiatives launched at international, national, regional and local level.

The INSPIRE initiative, currently being prepared by the Commission, is a multi-thematic and multi-sectoral system which will co-ordinate the collection and dissemination of spatial data for the support of environment policies. This spatial dimension will support our understanding of the interaction between environment and health. Co-ordination is needed with the newly created information platform within the new Community public health programme, called European Public Health Informatic Network (EUPHIN) which will be storing the Environmental Health Indicators.

Assessing available knowledge and experience: with a view to making best use of existing information and expertise, the exchange of scientific and technical information, the validation of results, and the identification of knowledge and data gaps will be promoted. Such exchanges will be facilitated through the progressive adoption and putting into practice of the collaboration provided under the European Research Area.

Reviewing current policies and existing early warning systems: current policies often tend to regulate potentially hazardous substances separately. Some substances may be covered by more than one policy which may in turn be based on different risk assessments, which may not take account of human and/or environmental exposure to other uses of the same substance. The integrated approach will, in combination with the new Chemicals policy, improve knowledge of environment and health impacts. This information will allow better cost and benefit calculations. The resulting information is therefore likely to lead to policy recommendations in the form of reviews of existing standards and limit values (e.g. thresholds for substances in the environment). Similarly, the development of new Community policies will benefit from improved information related to a health and environment impact assessment.

Several Community early warning systems are established. An appropriate response to environment and health threats would require a coordinated reaction of all those existing systems. The interrelations between them should be reviewed to maximise an efficient Community response.

Furthermore, with the significant amount, and quality of, scientific knowledge generated with the Union, the EU is well placed to contribute to the development of safer products with a diminished impact on human health and the environment in developing countries. Non confidential information and data can also be disseminated to and shared with public authorities and stakeholders in third countries. Technology and research capacities can play a role assisting public authorities in health and environment monitoring systems, including early warning mechanisms.

6.2. Scope of the first cycle (2004-2010)

The first cycle aims to establish a good understanding of the link between environmental factors and :

- (1) childhood respiratory diseases, asthma, allergies,
- (2) neurodevelopmental disorders
- (3) childhood cancer
- (4) endocrine disrupting effects

and it aims to identify and to prevent new health threats caused by environmental factors. It also aims at reinforcing the institutional structure needed to strengthen policy-making and to integrate environment and health into other policy areas.

The first cycle will therefore focus on a set of environmental pollutants that are suspected to be associated with these health effects. It will generate the necessary

information for establishing the cause-effect link, for identifying and monitoring environmental health threats and for preparing and reviewing policy related to environment and health, taking into account cost benefit analysis. This first cycle will also identify new environmental health threats to be addressed in the next cycle.

The items selected for the first cycle relate to the following three main pillars :

- European Integrated Environment & Health Monitoring and Response System, in order to assess the overall environmental impact on human health
- Research, in order to achieve a better fundamental understanding on environment and health issues
- Reducing exposure

6.2.1. *European Integrated Environment & Health Monitoring and Response System*

a) Children - Establishing an EU Bio-monitoring Framework

In order to assess environment and health linkages relative to children and to generate appropriate policy responses, the gap in knowledge has to be closed. Several Member States and some Acceding Countries have set up « environment and health » bio-monitoring campaigns and related initiatives to explore environmental factors that influence human health. Some joint initiatives including several European countries are ongoing, but the work should be better co-ordinated. Different Member States are using different parameters. The intention is to work with the Member States to see how far it will be possible to establish common indicators and a common monitoring framework.

The Commission will facilitate and actively encourage the exchange of information and experience in this area. In the long-term the Commission will consider together with Member States the development of a permanent harmonised European bio-monitoring system. Such a system will allow better understanding of environment and health linkages and long-term health effects and will be used as a tool for the development of further environmental policy.

This approach, which will be built around ongoing monitoring - with special attention to priority pollutants and urban areas - in the Member States and the Acceding Countries would, in addition to gathering additional data for national purposes, have the advantage of providing harmonised data on a much larger sample population. This would improve the validity of results and also allow for a wider variety of factors and influences to be studied.

b) Pilot projects on Dioxins, Heavy Metals and Endocrine Disrupters,

The Commission considers to launch three pilot projects to monitor priority pollutants with the aim of developing a methodology for integrated environment and health monitoring and to review related legislation. This will be undertaken in close co-operation with the Member States. The results will be used to develop a “European Integrated Environment and Health Monitoring and Response System” that will be extended to other substances. Particular attention will be paid to the link between the data collected and their geographical distribution at local, regional,

national and Community level. This will lead to a Community-wide geographical representation of environmental factors having an impact on health.

The selected pilot projects focus on particularly hazardous substances for which data collection and monitoring is already well underway. The vulnerability of children has also guided the choice of the specific pollutants, because these pollutants affect children in a significant way so special attention will be given to these substances. The three pilot project that have been selected are :

- **dioxins and PCBs:** in the framework of the implementation of the “Community Strategy for Dioxins, Furans and Polychlorinated Biphenyls”¹⁰ and of the “Community Marine Strategy”¹¹ a pilot project on « Integrated dioxin and PCB Monitoring in the Baltic Region » is been developed. In close co-operation with HELCOM¹² the Commission will examine the possibility of linking current environment, fish and human health monitoring data and programmes for dioxins and PCBs in the Baltic Area and identify ways of developing integrated environment and health monitoring for dioxins and PCBs in the Baltic Area. This will provide the necessary information to assess the link between dioxins and PCBs released into the environment, their transport through different environmental compartments, their accumulation in the environment, the ecosystem and food, and their effects on health. The integrated information will be used as a basis for further policy development.
- **heavy metals:** in order to assess the overall exposure and the different routes of exposure to heavy metals different monitoring programmes will be proposed and will be linked together. The Commission will propose that Member States monitor ambient *air* quality for Arsenic, Nickel and Cadmium in areas where the population is exposed to concentrations above certain thresholds, e.g. in the vicinity of industrial sites. The Commission will also propose harmonised *soil* monitoring of heavy metals in the vicinity of industrial sites and traffic as part of the EU Thematic Strategy on Soil. This monitoring on heavy metals could be extended to *other environmental media* to understand the full cycle and to ensure an integrated monitoring.
- **endocrine disrupters:** as part of the “Community Strategy for Endocrine Disrupters”¹³ a priority list of substances for further evaluation has been established. Substances with evidence and/or potential evidence of endocrine disruption were identified, including pesticides, industrial chemicals, by-products and metals. In a second step, definitive testing for their endocrine disrupting potential will be performed once OECD agreed test methods are available. The final objective is to manage the induced risk by adapting the relevant legislative instruments, supported by on-going and future research efforts. The Commission will, in close co-operation with the Member States, establish monitoring programmes in water to estimate exposure to and effects of the substances on the priority list of endocrine disrupters in order to gather evidence that could be used

¹⁰ COM(2001)593

¹¹ COM(2002)539

¹² Helsinki Commission for the Protection of the Baltic Marine Environment

¹³ COM(1999)706

in future revisions of different legislative instruments, such as the drinking water directive and the water framework directive.

c) Developing harmonised Environment and Health Indicators

The development of environment and health indicators within the new public health programme will be conducted in the context of the European Community Health Indicators Project (ECHI project) of which environmental indicators form a part. A project to develop these environmental indicators has been financed by the Community Health Monitoring Programme (“Development of Environmental Health Indicators for EU Countries”). When this project is concluded, it will provide an input to the Health Monitoring and Information System to be established under the Community Public Health Programme (2003-2008).

6.2.2. *Research*

a) Application of research results

Research results arising from activities funded under the EU RTD Framework Programmes have played a part in the development and implementation of European environment and health related policies. By way of an example, as an integral part of the ‘Community Strategy on Endocrine Disrupters’, a call for research proposals was launched in 2001 with a dedicated budget of 20 million euros, this in addition to a budget of 40 million euro already dedicated to endocrine disrupter research projects. The results of the research commissioned will be available as planned as an input to the further development of the Community Strategy over the next 2–5 years. This direct research support to policy will be further encouraged through the establishment of mechanisms to focus and direct research outputs at policy objectives. Already specific focussed initiatives have been initiated in areas such as the health impacts of air pollution, electro-magnetic fields, water, etc.

Recent progress in genomics research is promising new and more comprehensive insights on the interaction between environment and the human genome. While very promising, this area of research is very large and calls for a structured approach at European level. The Joint Research Centre will analyse opportunities and ways for developing a pan-European research approach in priority areas such as children’s health. A preliminary example of a co-ordinated approach can be found in the EU-funded research network on children’s susceptibility and exposure to environmental genotoxicants. The European Science Foundation networks on genetic susceptibility to environmental toxicants and their impacts on human health with particular attention to the interaction between nutritional, environmental and genetic factors in early human development will also provide scientific input to this investigation.

b) Annual research meetings and reports on Children’s Health and the Environment

Within the context of the European Health Forum (see Section 7.1 below), a “Policy Interpretation Network on Children’s Health and the Environment” has been established. This will provide a focus for the co-ordination and interpretation of research results from a number of EU funded projects on children’s environmental health and genetic susceptibility to environmental toxicants in relation to the development of policy.

The Commission will organise annual research meetings and reports on children's health and environment, the first one in Summer 2003 with subsequent conferences planned for 2004 and 2005. The Commission will also establish a database of research projects on children's environmental health by the end of 2003.

c) Combined exposure

As part of its research activities the Commission will develop methodologies to help to identify exposures and to perform combined exposure analysis of environmental factors connected to particular diseases (e.g. development of specific cancers) and risk assessment taking into account individual susceptibilities and genetic predisposition. Under Thematic Priority 1 of the 6th Framework Programme for research "Genomics & Biotechnology for Health", funding possibilities exist within the sub-area "Combating cancer" which is part of the section addressing major diseases.

In this context, the Commission will strengthen the research base for the development of integrated exposure models to estimate the human intake of mixtures of chemicals through all environmental compartments, including air and water intake, food and consumer products. Such models could be used to articulate scenarios for total exposure assessment and suggestions for policy action leading to exposure reduction.

d) Economic valuation of health

The Commission will strengthen the research base for the economic valuation of health impact of policies, measures and technologies, with particular focus on environment and children's health.

6.2.3. *Reducing exposure*

a) Air quality (indoors and outdoors)

The Commission will further contribute to the improvement of air quality by developing a thematic strategy based on the results of the ongoing Clean Air for Europe programme (CAFE), addressing in particular particulate matter, nitrogen dioxide and ozone. As part of this programme it will review directive 1999/30/EC, which sets limit values for the concentration of SO₂, NO₂, NO_x, lead and particulate matter in ambient air quality for airborne particles, by the end of 2003. A proposal for a new directive relating to heavy metals and polycyclic aromatic hydrocarbons (PAH) in ambient air is due to be adopted. Specific research actions are also under way as part of the 5th EU RTD Framework Programme and planned in the 6th Framework Programme, to draw together in a policy context, the latest EU funded research results related to the impact of air quality on health with the objective to further improve the scientific underpinning of policy actions. These results will be integrated into the thematic strategy.

Giving the existing evidence showing that exposure to environmental smoke causes increased risks of several illnesses in children and that this exposure of non-smoking women during pregnancy also causes reductions in foetal growth, the Commission fully supports tobacco control policies including measures to protect people from passive smoking like the banning of smoking in public places. However the

Commission cannot propose binding legislation in this area. Therefore, the Tobacco Recommendation adopted by the Council at the end of 2002, following a Commission proposal calls upon Member States to implement legislation and/or other effective measures that provide protection from exposure to environmental tobacco smoke in indoor workplaces, enclosed public places, and public transport. Priority considerations should be given to, *inter alia*, educational establishments, health care facilities and places providing services to children.

In addition, specifically to protect pregnant workers and workers who have recently given birth or are breast feeding, Directive 92/85/EEC of 19/10/92 on measures to improve safety and health of pregnant workers states that employers must inform these workers of the potential risks and take appropriate measures when the employee is exposed to carbon monoxide.

b) Heavy metals

In the field of heavy metals, the Commission :

- will develop a Strategy on Mercury in 2004 to protect human health and the environment from the release of mercury based on a life-cycle approach, taking into account production, use, waste treatment and emissions from the burning of fossil fuels.
- intends to develop legislative proposals in 2003 on setting environmental quality standards and emission controls measures for priority substances under the Water Framework Directive (Directive 2000/60/EC). Mercury and cadmium and their respective compounds are among those defined as priority hazardous substances.

c) Electro-magnetic fields

The Commission will support the WHO Health Risk Assessment of electro-magnetic fields to be completed by 2005 and will take all necessary actions to study any possible health effects of exposure to electro-magnetic fields and will pay particular attention to the protection of children and teenagers as specially exposed vulnerable group. The Commission will review the 12 July 1999 Council Recommendation on limiting the exposure of the general public to electro-magnetic fields by 2004.

d) A healthy urban environment

By mid-2005 the Commission will propose a thematic strategy on the urban environment that will aim to contribute to improvement of the environmental efficiency of urban areas and to secure a healthy living environment for urban citizens. The package of measures proposed in this strategy will, among other things, focus on sustainable urban transport, thereby contributing to reducing morbidity and mortality related to air pollution, noise and traffic accidents. Results of related EU sponsored research projects (on noise, air pollution, water quality, etc..) will similarly provide an input to policy actions in this area. To accompany this strategy, the Commission will, within the framework of the new Public Health Programme, launch by 2005 a series of projects to promote a healthy urban environment, including reducing traffic accidents. The bio-monitoring of children will focus on children in an urban environment, where, a series of stress factors combine to have a negative combined impact on health. This will, in the long-term, allow us to see if

progress in improving the urban environment is reflected in the improvement of children's health, and in which towns and cities extra effort is required.

7. IMPLEMENTATION

7.1. Full Stakeholder Involvement

Broad stakeholder involvement is essential for strengthening dialogue and exchange of information between all stakeholders from the different sectors (health/environment, public/private, air/water...). The Commission therefore intends in 2003 to set up :

- ***A Consultative Group on « Environment & Health »*** consisting of environment and health experts from Member States and Acceding Countries, Community entities such as the Commission's Joint Research Centre, the European Environment Agency and the European Food Safety Authority, representatives from international organisations, such as WHO, and the medical community (including paediatric medicine), academic, research, NGO's, consumer organisations and certain industrial sectors. The Group will analyse scientific environment and health data, identify environment and health risk management measures, analyse their cost efficiency, and regularly review relevant policies related to environment and health and advise on appropriate adjustments. This Group will rely in large part on the work of the SCTEE¹⁴ and will be part of a broad Community system on Environment and Health. The group will in particular coordinate and explore synergies with the SCTEE and identify missing links in existing monitoring systems in order to develop the European Integrated Environment and Health Monitoring and Response System.
- ***Technical Working Groups*** on *inter alia* biomonitoring of children, dioxins, endocrine disrupters, heavy metals, indicators, consisting of relevant experts. Existing working groups on air quality, urban environment, electro-magnetic fields will be linked to the Consultative Group. In a later stage, new working groups will be created when the need has been identified. The working groups will provide the best available scientific knowledge and assist the Commission with the implementation of the Strategy.

To ensure added value and policy coherence, the Commission will ensure that these new groups will not impinge on the work of established scientific committees and other advisory fora set up to advise the Commission.

- The development of this strategy will be regularly presented during the annual "***Green Week***" and in the "***European Health Forum***", established by the Commission in 2001 and consisting of representatives of NGO's, health providers, patients, industry and health professionals and will also be presented on "***European Health Day***" to be organised from 2004 onwards.

¹⁴ Scientific Committee on Toxicity, Ecotoxicity and the Environment established by Commission Decision N° 97/579/EC of 23 July 1997

7.2. Preparing the “Action Plan 2004-2010”

Three Regional Conferences to prepare a “Baseline Report 2004”

In autumn 2003 the Commission will organise three conferences to discuss with the Consultative Group and the Working Groups the efficient implementation of the first cycle of the strategy, to define a baseline and to identify elements for the next cycle. In order to fully involve all parts of the enlarged EU the conferences will be held in different regions: the Baltic region, Central Europe, Mediterranean.

All three Conferences will address the general items, such as integrated environment and health monitoring, biomonitoring of children, knowledge of regional partners, baseline identification. Furthermore, each conference will be devoted to specific items in order to cover the full scope of the first cycle. For example, the pilot projects on dioxins and endocrine disrupters will be addressed in the Baltic Conference.

The final outcome of the three conferences will be a “Baseline Report 2004” providing a picture of the situation in 2004 and a draft implementation plan for all the items of the first cycle: biomonitoring of children, pilot projects on integrated monitoring of dioxins, heavy metals, endocrine disrupters, indicators, research on children’s environment and health and on combined exposure, air quality, EMF, and urban environment.

A Major Stakeholder Conference to prepare an “Action Plan 2004-2010 »

In spring 2004 the Commission will organise a Major Stakeholder Conference involving the Consultative Group and all the Working Groups, with the aim of finalising a detailed action plan with defined goals and actions for the period 2004-2010.

Fourth Ministerial Conference on Environment and Health, Budapest 2004 “The future for our children”

The “Action Plan 2004-2010” will be the Commission’s contribution to the Ministerial Conference in Budapest 2004. As the Strategy is incremental, addressing priority issues in the *first cycle* and setting the basis for further work, the *second cycle* will focus on new items (e.g. noise, pesticides¹⁵, socio-economic determinants of environmental health, other risk groups such as elderly, poor and women of child-bearing age, etc.) and will also identify the elements for the *next cycle*.

This *incremental approach*, based on *participation* and *best available scientific knowledge* will gradually improve knowledge of the link between environment and health and will make it possible to further develop relevant policy on the sources.

8. CONCLUSIONS

This Communication underlines the Commission's commitment to provide "*an environment where the level of pollution does not give rise to harmful effects on*

¹⁵ Pesticides will also be specifically covered in the upcoming Thematic Strategy on the Sustainable Use of Pesticides.

human health and the environment", as stated in the Sixth Environment Action Programme. It proposes an *integrated Strategy* for Environment and Health, with a special focus on *children* and other vulnerable population groups. It helps policy makers at EU and national level to deal with the complex interactions between environment and health.

It aims to achieve a better understanding, to fill gaps and promote a better understanding of environmental threats to human health and take action to prevent and reduce these threats. The ultimate objectives will reduce the disease burden caused by environmental factors and strengthen the policymaking in this area.

The strategy will be implemented in cycles, will be *incremental in scope* and is to be known as the "*SCALE initiative*", since it is based on Science, focuses on Children, aims at Raising Awareness, uses Legal instruments and includes constant Evaluation.

9. ANNEX A : – THE PROBLEM

Some facts

Although many environmental health problems have been solved serious problems remain. The report on “*Children’s health and environment: a review of evidence*”¹⁶ highlights that :

- A significant increase in childhood asthma in “western affluent” countries over the last few decades, with a trend ranging from only a slight increase up to a three-fold increase.
- The occurrence of developmental disabilities, such as learning disabilities, intellectual retardation and attention deficit hyperactivity disorder (ADHD) is certainly large enough to constitute a significant public health problem.

It is estimated that around 20% of the total burden of disease in industrialised countries can be attributed to environmental factors¹⁷, with the bulk of this affecting children and vulnerable groups, such as poor and women in reproductive age. The magnitude of the problem is clearly perceived by the European public: in a recent Eurobarometer survey, some 89% of the respondents expressed concern about the potential impact of the environment on their health¹⁸. New technologies, changing lifestyles, work and life patterns, present new and sometimes unexpected impacts on the environment and its influence on health. A few examples are presented below.

An estimate of mortality due to long-term exposure in 124 European cities (for a total of 80 million inhabitants), showed that around 60 000 deaths per year may be associated with the long-term exposure to particulate air pollution exceeding the level¹⁹ in the 124 cities with particulate matter data.

Over the last few decades, *asthma and allergies* have increased throughout Europe. On average, 10% of children suffer from asthmatic symptoms. For 1995-1996, the International Study of Asthma and Allergies in Childhood (ISAAC) found an 11.5% annual average prevalence of self-reported asthma symptoms in children aged 13–14 years. In Western Europe, the symptom rate is up to ten times than in eastern countries. This suggests that a western lifestyle is associated with allergic diseases in childhood. Environmental tobacco smoke and air pollution are among the major threats to respiratory health, especially early in life, and are likely to worsen asthma. Environmental tobacco smoke increases the risk of lung cancer in non-smokers by 20-30 %.²⁰ Also women are particularly exposed to passive smoking. It is estimated

¹⁶ A joint report from the European Environment Agency, Copenhagen and the World Health Organisation, Regional Office for Europe (2002)

¹⁷ How Much Global Ill Health Is Attributable to Environmental Factors?, K.R. Smith *et al.*, Epidemiology 1999

¹⁸ Flash Eurobarometer EB123 "Perception du développement durable et préoccupations environnementales des européens" (*Europeans' perception of sustainable development and environmental concerns*) April 2002

¹⁹ equivalent to particulate matter 10 = 5mg/m³. “Europe’s environment: the third assessment” European Environment Agency, Copenhagen (2003)

²⁰ “Europe’s environment: the third assessment” European Environment Agency, Copenhagen (2003)

that the majority of the 1000 deaths/year from lung cancer in non-smokers in the 15 EU countries are females.

In European countries, 1 out of 5000 children is estimated to be diagnosed with **cancer** before the age of 15. Although the role of environmental exposure in childhood cancer is limited, children are more prone to biological events potentially related to the development of cancer because exposure to carcinogens during childhood can be reflected in cancer occurrence later in life (as in the case of excessive ultraviolet radiation exposure causing melanoma). A 10% decrease in stratospheric ozone is projected to cause an additional 300 000 non-melanoma skin cancers and 4 500 melanoma cases per year, world-wide. For each 1% decrease in stratospheric ozone, average annual percentage increase in the incidence of non-melanoma skin cancer ranges from 1 % to 6 %, and for squamous cell carcinoma and basal cell carcinoma ranges from 1,5-2.5%.²¹

The *developing nervous system* is particularly vulnerable very early in life to damaging effects of exposure to specific contaminants such as lead, methylmercury and polychlorinated biphenyls (PCBs). A child can absorb as much as 50% of the lead present in food, while an adult takes up only 10%²². Exposure to such substances has been associated with developmental disabilities in the form of physical, cognitive, sensory and speech impairments, including in particular learning disabilities and intellectual retardation. Prevalence rates are up to about 10% in certain populations. When incurred early in life such developmental effects are likely to be permanent.

Increased incidences of testicular cancer and breast cancer, as well as a decline in the quality of sperm, have been observed in several countries. The causes of these trends are largely unknown; exposure to chemicals may be responsible (the endocrine-disrupter hypothesis), but so may changes in lifestyle. In general, scientific evidence and information concerning actual exposures to chemical substances and their possible health effect is lacking in most European countries.²³

Socio-economic conditions throughout life clearly shape health and risk of disease. There is a strong scientific link between poverty and environment. In the example of the U.K., a recent study found that of the 11 400 tonnes of carcinogenic chemicals emitted to the air in 1992, 82% were from factories located in the most deprived 20% of local authority wards²⁴. Moreover, it has been found that respiratory problems are especially concentrated in poorer areas and they tend to correlate with high levels of traffic. However, the environmental responsibility is not equally worn, which is clearly demonstrated by the low degree of car ownership in the areas with the worse level of traffic.

The seriousness and complexity across Europe of the issues highlighted here, calls for the rapid establishment of a pan-European approach to mobilise expertise and resources on a sufficient scale to match this challenge. This strategy aims to build a

²¹ “Europe’s environment: the third assessment” European Environment Agency, Copenhagen (2003)

²² United States Environmental Protection Agency (US EPA) estimates in 1986

²³ “Europe’s environment: the third assessment” European Environment Agency (2003)

²⁴ Stephens, C., Bullock, S., Scott, A., 2001 *Environmental Justice, Rights and Means to a Healthy Environment for All*, ESRC Global Environmental Change Programme, Special Briefing No 7

European framework for policy development, the sharing of expertise and the pooling of resources.

The complexity of the problem

Establishing a causal link between environmental factors and adverse health effects poses many challenges. As a consequence, the relationship between environment and health has, to date, been insufficiently addressed. Previous environmental assessments and policy actions have concentrated on the effects of single pollutants. This has made them easier to address but may well have under-estimated the true health impacts. An integrated approach is therefore required since the links between environment and health are very complex, as illustrated by the following elements :

- There are many different environmental burdens²⁵ (e.g. from pesticides, noise, radiation) arising from human activities.
- There are four routes for human exposure (inhalation, ingestion, contact, irradiation) but the pathways leading to human and environmental exposure can be long and difficult to determine because of the mobility of pollutants in and across environmental compartments.
- The types of health impacts incurred are diverse and each pollutant may have more than one effect (e.g. some chemicals can have carcinogenic effects and endocrine disrupting effects).
- Adverse health impacts of environmental factors result from varying combinations of genetic predisposition, lifestyle, culture, socio-economic factors, geographical location, climate and exposure to environmental stresses.
- Once released in the environment, pollutants can be transferred between different environmental compartments (e.g. dioxins are released and transported through the atmosphere, deposited to soil, vegetation and water) and continue to move between them (e.g. air to soil, water to sediment) and the ecosystem.
- Beyond physical and chemical effects, biological mechanisms play an important part in the environmental distribution of contaminants. Some pollutants accumulate in the body of plants and animals at a higher concentration than encountered in the environment. Concentrations of some contaminants in living organisms increase along the natural food chains. Both phenomena can lead to concentrations in living organisms many thousands of times higher than in the surrounding environment.
- Everyone is individually exposed to a combination of environmental factors. This can be the simultaneous exposure to several factors (e.g. pesticide residues and noise) or the successive exposure to a range of factors in different periods of life (e.g. brominated flame retardants from breast milk, UV from beachgoing in childhood, tobacco smoke, occupational exposure to chemicals, exposure to extremely low frequency electromagnetic fields ...).

²⁵ Burden = any threat to health and the environment. It includes chemical, physical and microbiological pollution, the risk of physical accidents, ...

- Many diseases, such as cancers, are multifactorial, in other words might be caused by multiple environmental and genetic factors. Exposure to several of those factors will favour their development (cocktail effects).
- There is significant spatial and temporal variation in the importance of environmental burdens through geographical, economic and cultural factors as well as through the state of environmental regulation.
- Long time scales are needed to account properly for the effects of persistent organic and non-organic pollutants and heavy metals. Some are present in the environment in very low doses, but they accumulate in the environment, in the food chain and in human bodies and their effects will only become visible after many years (low dose-long term effects) (e.g. dioxins, PCBs).
- Indirect effects: nutrient releases to water bodies or increase of water temperature may have a profound effect on human health as a result of the increase of waterborne diseases.

All these factors contribute to make the job of epidemiologists and public health specialists difficult. However, our understanding of the complex links between environment and health, while still vastly insufficient, is growing.

10. ANNEX B : – EU POLICIES RELATED TO ENVIRONMENT AND HEALTH

Chemicals and environment policies

Industrial chemicals: In 2001 the Commission adopted a White Paper on the Strategy for a new Chemicals Policy²⁶. The need for a new strategy arose from wide acceptance that the existing legislation was not capable of responding adequately to public and political concern in Europe about the potential impact of chemicals on health and the environment. The proposed REACH system (Registration, Evaluation, Authorisation of Chemicals) provides for the stepwise collection of information on the estimated 30,000 chemical substances above 1 tonne/year/manufacturer (or importer) in the EU, including their toxicological properties and their uses, in order to provide for appropriate risk management measures. Registration will place the information submitted by industry in a central database. The information in the database will also be useful and validated for the establishment of a causal link between environmental factors and adverse health effects resulting from chemical production and use. For about 20 % of the substances an in-depth and tailor-made Evaluation will be required, including testing for long-term and chronic effects such as cancer. Authorisation will be required for substances of very high concern, namely those with CMR²⁷ (category 1 and 2) or POPs²⁸ characteristics, whenever identified and whatever their tonnage. Also PBT²⁹ and VPVB³⁰ substances as well as endocrine disrupters are considered. It is expected that not more than 5 % of all substances will be proposed for authorisation, and industry will have to provide the evidence for safe use. To ensure a sound technical-scientific implementation across the EU a chemicals Agency will be proposed. It is expected that the Commission will present its legal proposal to the European Parliament and the Council in autumn 2003.

Dioxins and PCBs: in its Community Strategy for Dioxins, Furans and Polychlorinated Biphenyls³¹, adopted in October 2001, the Commission set out a strategy for controlling contamination in the environment which, linked to a tighter control of the food chain, will contribute to a reduction in human exposure. As dioxins and PCBs are “multi-media pollutants” the strategy encompasses an integrated approach.

Endocrine disrupters: as part of the Community Strategy for Endocrine Disrupters³² adopted by the Commission in December 1999, a priority list of substances for further evaluation has been established. This list includes substances with evidence and/or potential evidence of endocrine disruption, including pesticides, industrial chemicals, by-products and metals. The strategy also encourages increased research efforts and international co-operation.

Air pollution: One of the main thrusts of policy on air pollution is to reduce the amount of material deleterious to health that reaches the human body, whether

²⁶ COM(2001) 88 Final

²⁷ Carcinogenic, mutagenic, toxic to reproduction

²⁸ Persistent Organic Pollutants

²⁹ Persistent, Bio-accumulative and Toxic

³⁰ Very Persistent, Very Bio-accumulative

³¹ COM(2001)593

³² COM(1999)706

directly or indirectly. EU air quality standards have been set since 1996, requiring Member States to set up and maintain a system for assessing air quality, identifying areas where limit values are likely to be exceeded, and drawing up action plans to reduce the risk of exceedance as well as meeting the objectives of the EC directives. Limit values have been adopted for air concentrations of sulphur dioxide, nitrogen dioxide, particulate matter, lead, carbon monoxide and benzene. In 2001, the Commission launched a new air quality programme - "Clean Air for Europe"- that will lead to a long term, integrated thematic strategy on air pollution.

Water protection and management: the aim of EU water policy is to guarantee high safety standards for drinking water and to reduce adverse environmental effects of certain agricultural and industrial practices. The new Water Framework Directive highlights the need for protective measures for all water uses and aquatic ecosystems at the point where pollution occurs. It introduces a priority list of substances that are dangerous for the environment, to be phased out in the future. It also has provisions for monitoring and assessment measures to be applied in case of accidental water pollution.

Noise: Public concern about exposure to noise pollution remains high in spite of EU policies at EU and Member State level. EU legislation sets noise emission limits for products (cars, trucks, aircraft and industrial equipment) and harmonises the assessment and management of environmental noise. However, the situation is not satisfactory: 25% of the European population report noise-induced annoyance and between 5 and 15% of the population suffer serious noise-induced sleep disturbance.

Major industrial accidents: the Seveso Directives were adopted following major industrial accidents with serious consequences for both man and the environment to reduce the risks arising from the production, transportation and storage of dangerous chemicals. A revision of the Seveso Directives is currently being planned. In particular it will aim at studying the complementary measures likely to be adopted for sectors which are currently excluded from the scope of the Seveso Directive such as ports, marshalling yards or pipelines.

Ionising radiation: The protection of the health of workers and members of the public against ionising radiation is assured by an important body of Community legislation set up under Chapter III of the Euratom Treaty (1957). The European Union radiation protection Basic Safety Standards Council Directive 96/29 Euratom, include specific provisions for the protection of the general public from enhanced levels of radioactivity in the environment. Other important complementary Community radiation protection legislation includes provisions on natural radiation sources (including radon gas), radioactive substances in the environment as a result of discharges of nuclear installations in normal operation, and as a result of accidents. In addition Articles 35 to 38 of the Euratom Treaty confer direct responsibilities to the European Commission with regard to environmental radioactivity.

Health policies

The past Community Action Programme on pollution-related diseases has identified two main objectives: to improve information on pollution-related diseases and to enhance knowledge and understanding of the assessment and management of pollution-related diseases. The programme launched interesting initiatives such as

the development of geographic information systems allowing for a better health impact assessment of environmental living conditions such as the proximity to radioactive landfill sites, or a better prevention of asthma and respiratory allergies depending on regional climatic and housing conditions.

The ended Community Action Programmes on health promotion and health monitoring aimed at improving awareness of the benefits of healthy lifestyles and behaviour and have led to a broader approach to environmental health determinants. The health-monitoring programme has led to the development of harmonised environmental health indicators. In particular the European Community Health Indicators Project (ECHI) has provided a framework for the development of these Community public health indicators. It covers outdoor air quality, housing, drinking water supply, sewage system, ionising radiation, noise, physical and mental workplace exposures, accidents related to work and occupational diseases. The ECHI project also includes indicators on the social and cultural environment, such as social support, social isolation, life events and violence.

The new programme of Community action in the field of public health (2003-2008) adopted by the European Parliament and the Council on 23 September 2002 sets three main objectives :

- to improve information and knowledge for the development of public health policy;
- to enhance the capability of responding rapidly and in a co-ordinated fashion to health threats;
- to promote health and prevent disease through addressing health determinants across all policies and activities.

In the field of health and the environment the programme will thereby contribute to :

- ensuring a high level of human health protection in the definition and implementation of all Community policies and activities, through the promotion of an integrated and intersectoral health strategy;
- tackling inequalities in health even those linked with environmental factors such as housing conditions;
- encouraging co-operation between Member States.

As such this programme is a key instrument underpinning the development of the **Community's health strategy**³³. Actions under the programme will inform, support and advance policy development in priority areas of the strategy.

Tobacco: The Community tobacco legislation has an overall positive impact on health and the environment. While aiming at reducing the prevalence of smoking, it also reduces the exposure to environmental tobacco smoke. Two instruments in particular address directly the issue of the protection from exposure to environmental tobacco smoke: the Resolution of the Council of 18 July 1989 on banning smoking in

³³ as set out in the Commission's May 2000 Communication (COM (2000) 285 final of 16.5.2000)

places open to the public³⁴, and the Council Recommendation of 2 December 2002 on the prevention of smoking and on initiatives to improve tobacco control³⁵, which recommends that Member States implement legislation and/or other effective measures to provide protection from exposure to environmental tobacco smoke in indoor workplaces, enclosed public places, and public transport. Further, environmental tobacco smoke and the protection of children and foetus from tobacco smoke are also briefly addressed in Directive 2001/37/EC on the manufacture, presentation and sale of tobacco products³⁶. Moreover, the Community played an important part in the negotiations for the WHO Framework Convention on Tobacco Control, which was adopted by the World Health Assembly on 21 May 2003. This first ever international treaty for public health aims at protecting present and future generations from the consequences of tobacco consumption and exposure to tobacco smoke. For this purpose, it provides a framework for tobacco control measures to be implemented by the Parties at national, regional and international levels. All the major provisions of the Community's tobacco control legislation are reflected in the Convention, which will be signed by the Community on 16 June 2003.

Food safety: In the White Paper on Food Safety, the Commission identified environmental sources as the origin of the presence of contaminants in the food chain. The paper called for mechanisms to control and enforce limits of contaminants and residues in foodstuffs. It also identifies surveillance, information gathering and analysis as essential elements of food safety policy. There is ample opportunity for synergies.

Pesticides: Plant Protection Directive (91/414/EEC), Biocides Directive (98/8/EEC), Pesticide residue directives (76/895/EEC, 86/362/EEC, 86/363/EEC, 90/642/EEC).

Health impact assessment: In January 2003 the Commission launched an Integrated Impact Assessment tool³⁷ which will identify health impacts, amongst others, of projects, policy proposals and strategies *not* primarily meant to affect health and how these can be assessed. This will aid policy makers to assess trade-offs and compare different scenarios when deciding on a specific course of action. Impact assessment will be applied to the major initiatives presented by the Commission in its annual Policy Strategy or its Work Programme. More over, there is considerable international experience in integrating health aspects into environmental impact assessments. This experience as well as the experience of health impact assessments should be drawn from when looking at potential health impacts of policy proposals in other areas than health - particularly when conducting extended impact assessments in the fields of health and environment. The new procedure, i.e. implementing the new integrated impact assessment tool, provides an excellent opportunity for reviewing policy proposals in other areas and their potential impacts on health.

Electromagnetic fields: the Council adopted in July 1999 a Recommendation limiting the exposure of the general public to non-ionising radiation in a view of protecting human health against well-known acute health effects by introducing safety margins in the exposure limits. These limits also protect against long-term health effects, even though no such effects have as yet been demonstrated.

³⁴ OJ C 189, 26/07/1989, p. 1.

³⁵ OJ L 022 , 25/01/2003 p. 31.

³⁶ OJ L 194, 18/07/2001, p.26

³⁷ Communication from the Commission on Impact Assessment COM (2002) 276 final of 5.06.2002

Ionising radiation: Health protection of the general public and of workers against dangers arising from ionising radiation is assured by Community radiation protection legislation under Chapter III of the Euratom Treaty. The European Union radiation protection Basic Safety Standards have been regularly updated in the light of emerging scientific evidence on low level radiation exposure health effects. Other Community radiation protection legislation includes medical applications, outside workers, as well as foodstuffs. Radiation protection requirements are also included in EU legislation on cosmetics, toys and on specific consumer products.

Development and health: The issue is covered in the Communication on Health and Poverty reduction in developing countries (COM(2002) 129) and the Communication 'Update on the EC programme of action; accelerated action on HIV/AIDS, malaria and tuberculosis in the context of poverty reduction' (COM(2003) 93).

11. ANNEX C : – EU RESEARCH ON ENVIRONMENT AND HEALTH

Since the 4th EU RTD Framework Programme for Research and Technological Development, environment and health have been part of the EU research funding mechanisms. Under **the 5th EU RTD Framework Programme**, 160 M€ were dedicated “Environment and Health” of the Quality of Life and Management of Living Resources programme. More than 90 projects were launched considering potential health impacts of environmental factors in fields as varied as air pollution, asthma and allergies, fibres and dust, chemicals, endocrine disrupters, water, electromagnetic fields, noise and combined exposures. Some particular emphasis has been placed on the health threats to vulnerable groups, including children. In this respect the Commission has funded a specific network - ‘Policy Interpretation Network on Children’s Health and Environment’ (PINCHE) - which aims to improve understanding of research results and their implications on children’s environmental health. It will provide a common structure to pull together and to interpret results from EU and nationally funded research on exposure assessment, epidemiology and toxicity to risk and health impact assessment and socio-economic impact in a policy relevant context.

Still under the 5th EU RTD Framework Programme, the Environment and Sustainable Development Programme (EESD) of FP5 the areas relative to the issue of environment and health were mainly implemented in the key action “Water management and quality”. Projects were supported dealing with quality and safety of drinking water, environmental and health effects of endocrine disrupters and residues of pharmaceuticals including development of related environmental technologies. In addition, in the key action “City of Tomorrow” research projects are supported addressing the improvement of the quality of urban life in the field of air pollution, noise reduction, population health and waste management.

Similarly, under the Competitive and Sustainable Growth Programme, research on industrial technologies has integrated the dimensions of environmental and social impacts [e.g. cleaner and safer production systems and solutions, waste management, life-cycle product approach, adapted materials to minimize environment impact, avoidance of hazardous materials, use of materials protecting from electromagnetic (EM) radiation (mobile phones, personal computers, etc.), new organizational approaches at the industry improving health and the environment, etc.

For its part, during the 5th Framework Programme, the JRC carried out a research project on “environmental integrity and human health”, working on the development of methodologies to evaluate the impact of hazardous chemicals on the environment and human health.

In the 6th EU RTD Framework Programme, research relevant for environment and health will be funded and integrated across various priorities, primarily in the Food Quality and Safety thematic priority; the Sustainable development, global change and ecosystems thematic priority; the section dealing with Policy-orientated Research and the Genomics and Biotechnology for Health thematic priority. More specifically in the *Food Quality and Safety thematic priority* a specific actions on ‘*Environmental health risks*’ is included. The objectives of this part of the Programme are to identify the environmental factors that are detrimental to health, understand the mechanisms involved and determine how to prevent or minimise

these effects and risks. This will focus on: (a) Risks linked to the food-chain (chemical, biological and physical); (b) Combined exposures of authorised substances, including impact of local environmental disasters and pollution on the safety of foodstuffs, with emphasis being placed on cumulative risks and health impacts of environmental pollutants, transmission routes to human beings, long-term effects and exposure to small doses, prevention strategies, as well as the impact on particularly sensitive groups, and especially children.

In the Thematic Priority *Global Change and Ecosystems* a specific action on Complementary Research is included. The research will specifically focus on risk assessment, appraisal of environmental quality including reliable indicators of population health and environmental conditions and risk evaluation in relation to outdoor and indoor exposure. In addition, under the area of Cross-cutting issues the aim is to assess monetary valuation of environmental and health externalities relative to activities and technologies linked to the EU Sustainable Development strategy covering topics like energy, transport, land use, agriculture, forest and water.

Under Thematic Priority *Genomics and Biotechnology for Health*, there may be possibilities under the various sub-areas such as "Studying human development and the ageing process", where the understanding of human development from conception to adolescence is expected to have application as regards child health. Two other possibilities include the sub-area "Combating cancer" which is part of the section addressing major diseases and "Confronting the major communicable diseases linked to poverty" which is likely to include clinical trials for children who are victims of these diseases.

In the *Nanotechnologies and nano-sciences, knowledge-based multifunctional materials and new production processes and devices* Thematic Priority, research on industrial technologies will continue to focus upstream and by contributing research solutions, preventing pollution and negative health impact within the most common sources of potential pollution and work and life places: the industry and the use of products in everyday life. In the section on Policy-orientated Research thematic priority, several sub-areas address research required to support policy related to environment and health :

i) Sub-area Environmental assessment (soil, water, air, noise including the effects of chemical substances).

ii) Sub-area Assessment of environmental technologies for support of policy decisions in particular concerning effective but low-cost technologies in the context of fulfilling environmental legislation.

iii) Sub-area Public health issues including disease prevention and responses to emerging, rare and communicable diseases, allergies, procedures for secure blood and organ donations.

iv) Sub-area *'The impact of environmental issues on health (including safety at work and methods for risk assessment and the mitigation of risks of natural disasters to people)*. Since these are also areas in which research is ongoing in the national and other contexts, one of the principal objectives of research activities under this heading will therefore be to bring together existing and future research results in the

most important domains, interpret them and assemble coherent inputs to the relevant community policies.

In its new Multi-Annual Work Programme (2003-2006), the Joint Research Centre addresses human health and its interrelation with environmental risk factors. One of the main objectives is to develop the concept of human envirogenomics in the context of total human exposure and to introduce this concept in risk assessment and risk reduction practices in relation to environmental risk factors. Another objective is to build knowledge and expertise as well as to share know-how in the validation and harmonisation of methodologies and models for assessing human exposure to, and health impact of, chemicals released from consumer products and articles. The efforts of the JRC in this area will focus on filling the exposure data gaps in a systematic and coherent manner, integrating current knowledge with novel methodologies in order to develop a total human exposure approach (products, articles, environment, food) and will be performed in close collaboration with Environment and Health specialists internationally.

12. ANNEX D : – INTERNATIONAL ACTIONS ON ENVIRONMENT AND HEALTH

The European Charter on Environment and Health (Frankfurt 1989) adopted by the Environment and Health Ministers of the European Region of WHO marked the beginning of a process that led to the Helsinki (1994) and London (1999) declarations which identified further avenues for action.

As a result, some Member States and most Acceding countries have developed National Environmental Health Action Plans (NEHAPs). A recent pilot evaluation of NEHAPs has underlined their importance in bringing together the environment, health and other sectors on a common project and giving environmental factors more prominence in the health sector. This process has stimulated the development of environmental legislation in Central and Eastern Europe. The implementation of the “*acquis*” in the environmental field and the improvement of the health of the population in the Acceding countries underlines the role of efficient legislation in dealing with the health impact of environmental threats.

Aside from NEHAP, specific national initiatives have also been developed independently in areas such as indoor air quality, living conditions, prevention of legionnaires' disease, using tools like information and public awareness campaigns, staff training, environmental health monitoring and surveys.

Regional co-operation initiatives have been set up around the Baltic Sea and in the Balkan countries.

In 1997, the G8 countries signed the Miami Declaration on children's environmental health, which seeks to reduce the impact on children's health of a number of priority contaminants, such as lead and endocrine disrupters. The G8 countries have been particularly active in developing appropriate policy and have paid special attention to children's health issues.

At the World Summit for Sustainable Development in Johannesburg in 2002 a world partnership project "Healthy Environment for Children – Call for a Global Alliance", was launched by WHO with the support of the EU.

The Commission is helping to prepare the pan-European Ministerial Conference on Environment and Health to be held in Budapest in 2004, which has as its theme "*The future for our children*". This conference will be attended by environment and health ministers from the 52 member countries of WHO Europe.