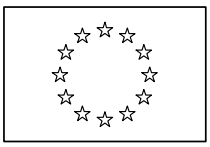

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"The European Environment & Health Action Plan 2004-2010"

EXTENDED IMPACT ASSESSMENT

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"The European Environment & Health Action Plan 2004-2010"

EXTENDED IMPACT ASSESSMENT

1. INTRODUCTION

This report by DGs SANCO, RTD, JRC and ENV of the European Commission is designed to explain the rationale for the Environment and Health Action Plan, the policy choices made, and the impacts of the policy choices.

It is difficult to produce an Impact Assessment of the Action Plan in the normal sense of the term, because much of the action concerned will happen downstream. Accordingly, this document focuses on the rationale for the policy as a whole, and for the concrete approach to implementation chosen. The most significant of the downstream elements will be subject to an in-depth impact assessment when they are brought forward, and this paper identifies these and sets out the issues to be considered in those further assessments. The impact assessments will of course be public documents subject to the usual consultation and will be communicated to Council and Parliament.

2. WHAT ISSUE IS THE POLICY EXPECTED TO TACKLE?

2.1. What is the issue expressed in economic, social and environmental terms?

The issue to be tackled is the adverse impact of environmental degradation on human health, which is significant but difficult to quantify. The difficulty in quantification is partly a practical difficulty in comparing different estimates, since different definitions of 'environment' are used in different studies. But it is mainly a difficulty in principle: the complicated pattern of causation of the diseases in question makes it hard to isolate the contribution of any particular factor. As we shall see, one of the main aims of this policy is to improve the information base in order to help make sounder judgements. But a recent estimate of the proportion of global ill health attributable to environmental factors puts the rate at 25-33%, with the figure for Established Market Economies of the order of 15%[1].

The main issue dealt with by the policy is therefore a **social** issue. The social cost of disease burden is clearly the loss of wellbeing on the part of those suffering from disease and the distress caused to their friends and relations. There are, however, **economic** aspects, as there are significant costs to society also. To give only a rough indication, if we take total health expenditure in Europe[2], and multiply by the proportion of ill health attributable to environmental factors of 15%, the expenditure on remediation of environment-related disease amounts to around 2-3% of GDP. In addition, there is the cost to society in lost productivity over the lifetime of the affected individual. This is particularly significant for child health

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1 Smith, K. et al. 'How much global ill health is attributable to environmental factors ?', *Epidemiology* 1999, pp573-584.

2 Figures taken from OECD database on health expenditure.

problems[3], where disease can make the difference between a productive lifetime and a lifetime of remedial medication. However, health expenditure costs and losses in productivity are only part of the picture, and do not fully reflect the social preference for good health.

As there is an impact of work environment policies on health, synergies should be developed between this initiative and the Community Strategy on Health and Safety at Work. In this connection, the Health and Safety at Work Directives have a clear benefit for health and the environment, not only in the workplace but beyond.

The policy aims primarily to improve human health via the environment, and is not focused on protection of ecosystems per se. But the measures taken to reduce human risk can have a purely **environmental** benefit, in the sense of improving the protection of terrestrial and aquatic ecosystems. These synergies should be exploited to the full.

2.2. What are the risks inherent in the current situation?

The central risk is simple. It is that, through lack of knowledge of the relations between environment and health, our policy to reduce risk and prevent adverse healthy effects is less well-targeted and less effective than it could and should be, and thus that public money is less well spent than it should be. This has economic, social and environmental implications.

The **economic** cost of remediating the disease burden attributable to environmental factors is very high. One of the main economic rationales for preventive action is that money spent on prevention may save money on remediation, as well as increasing the productivity of the affected individuals (again, this is particularly significant for children).

As said above, the **social** rationale, to improve well-being, is however paramount. The economic and social rationales often go together, in the sense that the significant amount spent on preventive action is useful both socially, in the increase in wellbeing it brings about, and perhaps also in purely economic terms. But even for diseases where remediation is not a significant issue, and so the economic aspect is less evident, the social rationale of improving well-being is still a clear motivation for taking action. In particular, the framework Directive 89/391/EEC makes clear that measures to improve health and safety at work should not be subordinated to purely economic considerations. And there may also be purely **environmental** benefits associated with the improvement in environment to improve health.

To achieve these environmental, social and economic benefits, however, the preventive policy in question must be well-targeted. It must focus on what are in fact the main drivers of the disease in question, and there should be a way of identifying whether the costs of risk reduction are proportionate to the economic and social benefits of the reduction in negative health impacts that the measures produce. If the measures are not well-targeted, then instead of improving health, and reducing health care costs, the money spent is simply an additional expenditure with no real benefit.

To ensure that policy is well-targeted, information is needed. The relation between information, on the one hand, and preventive and remedial policy, on the other, is shown in Figure 1. The expenditure associated with actions to improve information is in a sense a kind of ‘spending to save’. The money that is spent on information (the small box in figure 1)

[3] Alongside children, it is often the elderly who are most at risk

ensures that the much larger amount of money spent on risk reduction is well-targeted, which in turn ensures that increase in wellbeing, and any corresponding reduction in health care expenditure and increase in productivity, are achieved as far as possible.

The information we need is the connection between sources of pollution and health effects, so that we can optimise action so as to produce the maximum health benefit. The intermediate stage between pollution and health effects is human exposure: by connecting sources to exposure, and exposure to health effects, we get the information we need. With this information, we can target the sources of pollution responsible for the exposures that produce the most significant health effects.

The development of environment policy to date shows clearly that additional information can result in policy that directly improves the environment and health outcomes. An RTD project called GREENSENSE analysed the impact of air policy on the damage caused by air pollution for 3 countries (Germany, Spain and UK)[4]. It showed that from 1990 to 1998 health and environmental damage caused by pollution decreased for all three countries (from 3.2 to 1.3% of GDP for the UK, from 5.1% to 1.9% for Germany and from 3.9 to 3.1% for Spain) due to the introduction of well-targeted environmental standards reflecting a better understanding of the impact of pollution. The role of the Action Plan is to improve the knowledge base still further to allow future actions to be even better-targeted. The GREENSENSE project also suggested that there is scope for further exposure reduction measures that are justified in cost-benefit terms.

The potential problems with information are of various kinds. First, the necessary information may simply not be available. For instance, monitoring may not be optimised to provide the information needed for designing measures; or the relation between exposure and effect may not be well-characterised by current research. Second, the information needed may in fact be available, but not properly integrated into policy development. For instance, there may be research results (on susceptibility, or on the exposure-effect relations between stressors and health outcomes) that are not fully taken into account in policy. A third potential difficulty is that the information is available, and comparable, but not accessible. This is particularly true of health monitoring information, where patient confidentiality is an issue. In implementing the Action Plan the Commission will identify the information needs and which problems obtain in each area, and set about solving them.

2.3. What would happen under a 'no policy change' scenario?

Linking human exposure to environmental stressors, on the one hand, and adverse health effects on the other, is already the focus across health, environment and research policy. Examples in environmental policy are work on clean air and water, and on safe release of chemicals. The European Union thematic strategies currently under development (marine environment, sustainable use of pesticides, air quality (CAFE), urban environment, soil protection, waste prevention and recycling) will add to the existing health focus. Likewise, in the health policy context, there is work on health information, and on pollution-related

[4] The methodology used in GREENSENSE (contract EVG1-CT-2000-00022 – Webpage: http://staff.bath.ac.uk/hssam/greensense/) is the "Impact Pathway Analysis" developed within the series of ExternE projects, funded by the Framework Programme for Research. Please note that these figures include also damages to buildings and crops, however health damages account for approximately 90%, according to the GREENSENSE results.

diseases and environmental determinants, and in the Occupational Health and Safety policy there is ongoing work on Occupational Exposure Limit Values. At the same time, the EU contributes to the work under the Ministerial Conferences on Environment and Health co-ordinated by WHO, as well as the WHO's International Programme of Chemical Safety (IPCS).

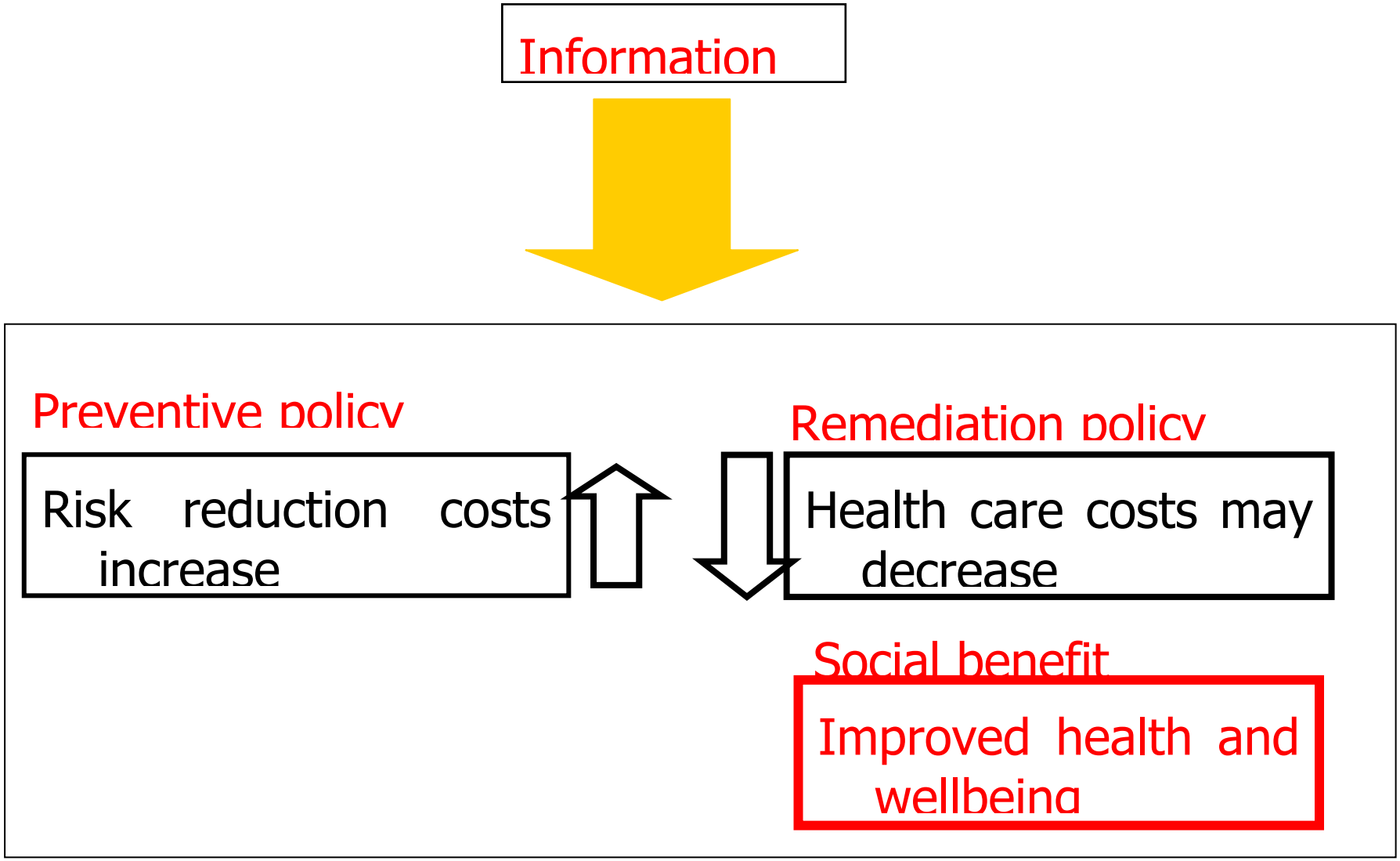

Figure 1: The relation between expenditure on information, on the one hand, and expenditure on preventive policy and remediation, on the other.

This work, though of good quality, is often fragmented and incomplete, and the environmental side in particular targets exposure to single pollutants in single media. Without an assessment of their effectiveness in improving health outcomes, we can't be confident that the expenditure in question is having the maximum positive impact. To focus policy on the genuine priorities with regard to health impact, we need to make continuing efforts to determine the relative contributions of different factors to disease outcomes.

The aim of the Strategy and Action Plan is to provide a framework for addressing the overall exposure relevant to the incidence of health problems. By doing so, we can improve the focus and effectiveness of our preventive measures, and identify new risks more effectively.

It might be useful to have a rough comparison of the cost of monitoring and the cost of environmental expenditure, on the one hand, and healthcare remediation, on the other. A rough estimate of the costs of monitoring and assessment of the environment is € 1 bn[5]. statistical data based on OECD/EUROSTAT joint survey[6] for the EU 15 for the year 1999 (or 1998) show that expenditure on environmental protection[7] amounts to around €100bn corresponding to approximately 1.2% of GDP. However, other sources suggest that this expenditure might be even higher (a rough estimate from a DG Environment study indicates that this is in the range of Euro 180 bn[8] and a similarly rough estimate based on EUROSTAT extrapolated from the actual data for three EU countries indicates around 275 bn Euro[9]). As we saw above, the figure for healthcare costs is in the region of 2-3% of GDP. Thus there is a difference of two orders of magnitude between the expenditure on information, and the other two expenditures.

The information measures on which the Action Plan initially focuses are unlikely to mean more than a relatively small increase in expenditure on information. (This will be considered in more detail later.) The justification for any such increase would be as stated above: that is, the better information will allow better preventive action on the causes of ill-health, and so increase well-being. This is the **social** benefit. There will also be a purely **economic** benefit, in reduced health care costs and increased productivity, and an **environmental** benefit in terms of improved ecosystem functioning as a result of the measures taken to improve human health.

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5 Obtained by taking the relevant expenditure in the UK (€160 million) and grossing up for EU-15 pro rata to GDP.

6 Source: OECD (2003) Pollution Abatement and Control Expenditure in OECD countries, ENV/EPOC/SE(2003)1.

7 Annual expenditure on environmental goods and services whose purpose is to measure, prevent, limit, minimise or currect environmental damage to water, air and soil, as well as problems related to waste, noise and eco-systems

8 Source: ECOTEC Research and Consulting Ltd., Analysis of the EU Eco-Industries, their Employment and Export Potential, 2002, final report to DG Environment, on http://europa.eu.int/comm/environment/enveco/studies2.htm#Analysis%20of%20the%20EU%20Eco-Industries,%20%20their%20Employment%20and%20Export%20Potential). The figure is particularly rough because it is not possible to disaggregate the proportion of expenditure relevant to health.

9 Source : EUROSTAT (2002) Environmental Protection Expenditure Accounts – Results of Pilot Applications. Research in Official Statistics. ISSN 92-894-4528, OPOCE, Luxembourg. Detailed data are only provided for Germany, the Netherlands and the UK and then an average expenditure per inhabitant is calculated and multiplied by the total number of inhabitants in the EU (available at: ww.europa.eu.int/comm/eurostat, under theme 'Economy and finance').

2.4. Who is affected?

Different actors are involved in different 'phases' of the implementation of the Action Plan, and the various roles are considered in more detail in Section 3. This section identifies the main actors and summarises the relevant effects.

Policy-makers at EU, Member State, local and international level

Information is gathered for a reason: to enable us to develop better policy. By identifying our information needs, at each level, and co-ordinating them, we can ensure better policy design at all levels. Identifying these needs is a complex task in itself, and the costs of this will fall initially on the Commission and on the Member States.

Public authorities

Public authorities are responsible for carrying out information-gathering activities. At present, information-gathering is less well-focused on the information really needed to develop sound policy than it might be. There is also a proliferation of different information-gathering requirements under different international bodies. By working to identify the core information needed for developing policy, and by trying to co-ordinate information requirements with international organisations, we should be able to ensure a coherent set of information-gathering requirements on national authorities focused on information that is genuinely useful for policy development and assessment. This will improve the cost-effectiveness of the information gathering activities even if there is no reduction in overall expenditure, because the money spent will be more effective in steering policy. Our aim will be to avoid where possible an increase in the burden on public authorities, but any modifications that are made will be fully justified in terms of the added value of the information provided.

The European citizen

By making more effective preventive policy, we can maximise the benefit of preventive policy for European citizens, including the benefit of improvements in the working environment for workers. The citizen is also the ultimate source of all spending on information, risk reduction and health care, and so the financial savings that result from better-targeted policy accrue ultimately to the citizen.

Industry

The aim of the Action Plan is to provide the information we need to ensure that current and future regulation of industry is well-targeted and proportionate in terms of the improvements in public health and workers' health achieved. The best way to ensure the continued competitiveness of EU industry while maintaining a high level of health protection is to improve the knowledge-base on which preventive policy is designed. By getting the information we need to identify the key priorities for future action, and to decide where action on a given problem is most cost-effective, we can improve the quality of industrial regulation. Revision of preventive policy, and the development of new risk reduction initiatives, may well impose costs on industry, but only where the costs in question are proportionate to the benefit gained.

The research community

Obtaining the information required to review policy will involve a significant research effort, in applying existing research to policy, in developing methodologies, and in developing concrete research results. Interaction between EU and national research projects will be key here.

3. WHAT MAIN OBJECTIVE IS THE POLICY EXPECTED TO REACH?

3.1. What is the overall policy objective in terms of expected impacts?

The Action Plan on Environment and Health is a 'science based policy' initiative whose overall objective is to provide the information required to assess when, where and how to take preventive action on the environmental sources of health impacts, and to revise risk reduction policy accordingly. The expected impacts are:

- improved information on the links between environment and health
- a better assessment of the effectiveness of current risk reduction policy
- revision of risk reduction policy where necessary to make it more effective
- improved risk communication to the public, including workers
- improved professional and institutional capacity to deal with environment and health issues

The Action Plan identifies the information needed to develop targeted preventive policy, and indicates how it will be obtained. The information serves three main purposes: to document whether the desired improvement in health outcomes is achieved by current risk reduction policy, to identify better policy alternatives, and to act as the basis for communication of risk to affected parties. The Action Plan sets out how this will be done in practice, and the timeframe on which the activities will be carried out.

Thus, while much of the groundwork is procedural – gathering information and reviewing policy – the success of the Action Plan will ultimately be assessed in terms of its role in producing a documented reduction in the burden of disease due to environmental factors. All the activities under the Action Plan are means to this end.

3.2. Has account been taken of any previously established objectives?

Information-gathering objectives

There is a huge amount of information-gathering activity in the field of environment and health, and the Action Plan is very careful to build on what is there. More detail on this can be found in the explanations below. The first step, both in monitoring and reporting, is to work out which of our information needs are already satisfied by existing activities. Careful co-ordination with international organisations involved in the same field, and principally the WHO, is required in this context.

To this end, the Action Plan proposes that an initial assessment be carried out to identify the main information needs, and to assess what is in place, and what additional measures are required, in particular for integrating environmental and health monitoring and establishing mechanisms for assessing exposure. These reports will be subject to full consultation, and any recommendations for changes in monitoring obligations will be accompanied by a further impact assessment justifying them.

Risk reduction objectives

Again, there is a huge amount of work on risk reduction ongoing at Community and Member State level. As the above analysis makes clear, our aim is to provide a perspective from which to analyse the effectiveness of this policy with respect to the improvement of health outcomes. Where it is effective and well-targeted in reducing risk and so improving health, no change will be needed. Where we identify areas where the combination of measures is less well-targeted, the policies concerned would be reformed. Where there are issues identified which are not dealt with at the moment, new risk reduction strategies would be brought forward.

4. WHAT ARE THE MAIN POLICY OPTIONS AVAILABLE TO REACH THE OBJECTIVE?

4.1. What is the basic approach to reach the objective?

For the purpose of impact assessment it is easiest to sort the Action Plan into three main phases of action:

- *Analysis of the information needs for policy development:* to identify which health, environment and research information we need to combine so as to allow us to review the impact of our policy in terms of improved health outcomes

- *Changes to information requirements*: to implement any changes in monitoring obligations identified by the above review

- *Risk reduction*: to bring forward well-focused new initiatives on risk reduction, based on the information acquired.

In short, the action taken under phase 1 will not have any significant economic or social impacts (with one reservation), and the actions under phases 2 and 3 will be impact-assessed in more detail when they are brought forward. A detailed analysis follows.

In parallel, action will be taken to raise awareness of the nature and extent of environmental risks, and on training and education to improve professional and institutional capacity on environment and health.

4.1.1. Analysis of the information needs for policy development

This constitutes the first phase of action.

To be able to reduce risk and improve health outcomes, we need to be able to connect emissions from sources, on the one hand, with health effects on the other. The more completely this connection is understood, the better EU policy will be: priorities can be defined more accurately, and the proportionality of the measures we apply can be better assessed. The aim is to establish the best possible information base for taking action, but the

complexity of the issue and the difficulty in any given case of achieving complete certainty will inevitably entail that in certain cases the information will not be complete. In these cases, where full risk assessment can't be carried out, action will be taken where needed in accordance with the Commission's Communication on the Precautionary Principle COM(2000)1 final.

The information in question falls into two categories: information from monitoring, and information from research. The combination of information from the two sources allows for a sound risk-based assessment.

The three actions in section 6.1.1 on 'Integrated environment and health information and response', combine the first phase of action (a preliminary assessment of the information needs) and the second (modification of information requirements). Only the first phase aspects are considered in this section of the Impact Assessment.

Under Action 1, the aim is to identify those health outcomes that are the major public health problems for which the environment is a contributing factor. The appropriate data collection will then be developed in the context of the Public Health Programme, in collaboration with the Member States and using the expertise provided by EUROSTAT. Likewise, Action 2 is designed to produce an integrated exposure assessment for the environmental stressors mainly responsible for the identified health outcomes. The existing environmental and food monitoring would be reviewed to assess the extent to which it provides such an exposure assessment, and the appropriate links between food and environment monitoring will be established. For action 3, rather than go immediately for a European-level biomonitoring system, the Commission will first decide which purpose biomonitoring at EU level would most usefully serve, and then work out how it might be implemented and pilot the method chosen. This preliminary assessment is the focus of this section. Action 4 on promoting co-operation between environment and health bodies at all levels is an ongoing action building on existing activities.

The four actions in section 6.1.2, on 'Research', likewise have an initial phase which involves reviewing the current state of information. The main roles of research are to provide specific research where needed to establish the relation between sources of pollution, emissions and exposures, and between exposures and specific diseases; to develop methodologies for risk assessment, economic valuation and cost-benefit analysis, and to test and validate them; and to address emerging issues, including rapid analysis of new threats. The first step is again to identify the existing research that is relevant to the needs in question so that gaps can be identified. The second phase of the research actions is to launch new research to fill in knowledge gaps, where needed. At European level, this can be done within the existing Community research budget, under the Framework Programme for Research.

Likely impacts in the initial phase

Economic impacts: The reviews in question will be done at Commission level within existing resources, and hence will have no economic implications on other actors at this stage.

Social impacts: The main social implications in question are to do with governance, and involve making sure that the reviews in question are carried out in full consultation with all affected stakeholders. These will include, clearly, the member states themselves, economic sectors, experts on environment and health, and environment- and health-related NGOs.

Environmental impacts: information on the state of the environment must serve both the needs of policy to protect the ecosystem, and policy to protect human health. There is normally potential for synergies. In cases where the aims do conflict, some compromise is probably required. All such trade-off issues would be subject to full consultation.

Alternative options considered, and their likely impacts

In each case, the approach taken is to first of all work out information priorities, then examine existing information to assess the extent to which it meets them, eliminating redundancies in the process. There is no reasonable alternative to this approach, which is basic good practice.

In economic terms, it would be a waste of resources to monitor stressors without regard to their priority in terms of actual or potential contribution to environment-related health problems. Likewise, it is out of the question to impose new monitoring requirements without checking whether the existing regimes deliver the information required. Although monitoring is a relatively small cost when compared with expenditure on risk reduction, it is nonetheless significant, and those responsible for carrying out the monitoring – competent authorities in Member States, and industry – are rightly concerned that the information need in question is clear. Similar points hold for research.

Likewise, in environmental and social terms, if we were to launch a review of monitoring obligations without assessing possible synergies and tradeoffs with environmental monitoring objectives, the result would be a regime not optimised to provide either environment or health-relevant exposure information.

Secondly, we have chosen to co-ordinate existing activities better rather than to introduce a new layer of action. This also makes by far the best sense as an initial step. We are not starting from scratch: a great deal of activity is currently carried out in research, health monitoring and environmental monitoring, and any new requirements that are developed will naturally be implemented within these ongoing policies. The need is not for new structures of dubious usefulness, but rather to ensure that existing activities communicate better with each other, so as to identify related information needs, with wide consultation to make sure that relevant connections are not overlooked. The Commission will, however, review the success of the co-ordination in question and amend the administrative arrangements as and when needed.

4.1.2. Changes to the information requirements: likely impacts of the second phase

The second phase of the monitoring actions is to adapt monitoring requirements as needed. In economic terms, there may be financial implications for the Member States carrying out the monitoring, and possibly for industry. The aim of the review process, however, is to make sure that monitoring is (a) very closely tied to demonstrated information needs; and (b) that all available sources of information are properly taken into account. The review will include an assessment of the monitoring obligations of member states under relevant international fora also, with the aim of rationalising them with the EU requirements where possible. The result should then be modifications that produce a more streamlined set of information requirements, the need for which is clear. Any additional costs that are involved will be fully justified at that point in terms of the improved information delivered.

Again, the social aspect of this phase is a matter of governance: consultation on the modifications must be ensured, to make sure that the voice of those likely to be affected is

heard. The impacts on vulnerable groups of people, such as children and the elderly, will be assessed specifically.

In environmental terms, the task is to show that the monitoring system is optimised to deliver information not only on health-relevant contamination but also on ecological-relevant contamination.

Alternative options, and their impacts

As in all policy development, there will be a trade-off between perfect results for environment and health policy, and cost. This will produce a range of alternative scenarios for monitoring modifications, and these will be compared so as to select a practicable compromise that can be justified in terms of its information cost/benefit. Given that a major aim of the exercise is to rationalise obligations where possible, constraints on practicability are built in from the start.

The main point is that any revised information requirements brought forward in this second phase of action will be subject to a more in-depth impact assessment themselves, and any increased expenditure justified in terms of improved information.

4.1.3. Risk reduction: likely impacts of the third phase

The third phase of action is to revise risk reduction measures where appropriate. It is to be able to take this action that the Strategy and Action Plan are brought forward. The aim of the information gathered under the previous phases of implementation is to ensure that the measures concerned are fully justified in terms of their **social** benefits – in terms of the better focus of the policy in improving health outcomes. We shall also take into account any synergistic effects on pure **environment** protection.

The Action Plan includes two kinds of risk reduction actions. The first concern areas where the relevant information is already relatively complete and the Commission will soon be in a position to determine whether action is required. For Action 11 on indoor air quality, if the Commission does decide to come forward with legal action on Environmental Tobacco Smoke at European level, the impacts of the action will be assessed and justified in relation to the health benefit. Likewise, the approach taken to indoor air quality will be in the first instance to develop guidelines. Where any action is taken to make guidelines mandatory (e.g. for public buildings), or to impose controls on products contributing to air quality, these will be subject to separate impact assessments justifying action on the basis of the contribution to exposure and health effects. Action 12 on electromagnetic fields will keep the evidence on risk under review, and adapt the regulatory framework where necessary. Again, any adaptation would be justified in terms of the risk reduction obtained.

The second kind of risk reduction action is that which provides the policy response on the basis of the information collected in phases 1 and 2. As evidence becomes available, we will re-examine the priorities in health-related environment policy, assess the effectiveness of existing risk reduction policy, and come forward with new measures as necessary.

Alternative options, and likely impacts

The aim of the Action Plan is precisely to allow a better impact assessment of any risk reduction measures taken to improve health. With better links between health effects and

exposure, a better quantification of exposure, and a better understanding of the connection between exposure and the economic activities responsible for it, we can identify which areas to focus on and which activities should be controlled, to what extent, to produce a proportionate set of risk reduction measures.

At this point, there may be negative **economic** impacts for some sectors, but the measures will be justified in terms of the social benefit gained. The policy measures will of course have to ensure that negative sectoral impacts are minimised and countermeasures put in place where appropriate. But given that the analysis is better, the regulation will also be better. It is in the interests of the sectors subject to regulation that the requirements on them are as proportionate as possible, which is the rationale for the Action Plan. There will also be **positive economic implications** in terms of reduced health care costs.

The **social** impacts at this stage are the standard ones: first and foremost, improved well-being from prevention of adverse health effects; second, possible employment implications, both positive and negative, depending on the opportunities for clean technology production and the economic impact on the sectors responsible for the exposure; third, possible exclusion implications, where the susceptibility of marginal groups is taken into account in designing measures (for instance, possible differences in exposure between poor and rich strata of society); and fourthly, again governance, ensuring full consultation of interested parties on all the measures concerned.

The purely **environmental** implications are the synergies with ecosystem protection identified in the course of policy preparation.

The analysis on which the policy revision is based will identify and adjudicate between all the available options for achieving the risk reduction.

Example of the three stages of implementation of the Action Plan in practice: Ambient air quality.

Phase 1: Review. No economic implications, and the only social implication is governance (stakeholder consultation)

The Commission will launch a contract for review of existing air quality monitoring requirements to assess whether they are optimised for the assessment of exposure relevant to health outcomes. Any modifications to the air quality requirements will be consulted on.

In parallel, the indicators on health endpoints associated with ambient air pollution are being developed by a project under the Public Health Programme and by a number of projects under the Framework Programme for Research. For example, the ExternE series of projects and following applications, including GREENSENSE[10], identified a number of health adverse effects associated with individual air pollutants (e.g. PM10, SOx, ozone). However, more research is established to determine combined effects of different pollutants and via different pathways. These will be consulted on with experts and the Member States.

In research terms, the CASE intiative (Childhood Asthma Envirogenomics) will explore the possible difference in susceptibility to childhood asthma across Europe, and so may help us

[10] For a more detailed overview see chapter 5 of the GREENSENSE report. Web–site: http://staff.bath.ac.uk/hssam/greensense/

understand the geographical disparity in incidence, which is not consistent with the distribution of known risk factors. This in turn may lead to regionally-differentiated risk reduction requirements. Other research of relevance to respiratory disease will be reviewed, and the policy-relevant results identified.

Phase 2: Revision of information requirements. Economic implications for Member States, subject to more detailed justification. Again, governance implications.

Any adaptations resulting from the above review will be incorporated in the monitoring provisions of the Clean Air For Europe Thematic Strategy. The impact assessment of CAFÉ will include an assessment of the costs and benefits of any changes to the ambient air monitoring requirements.

The precise indicator of relevance for respiratory disease will be established (sample options are 'mortality from respiratory disease' and 'morbidity from chronic obstructive pulmonary disease'), and incorporated in the short list of European Community Health Indicators. The relevant data collection will then be developed within the Public Health programme, taking into account costs and benefits.

Any major gaps in research on the links between respiratory disease and ambient air quality could be fed into the research Work Programmes.

Phase 3: Revision of risk reduction requirements. Economic implications for polluting sectors, and potentially for health care costs; social implications for improved health, governance, and possibly exclusion and employment.

The information on trends in exposure, health outcomes, and improved research information on susceptibility and exposure-effect relations will be analysed to determine the effectiveness of current ambient air quality policy in improving health outcomes. The analysis will also provide better information on the impact of other policies, such as transport and energy, on respiratory disease incidence. This assessment will provide the basis for a full impact assessment of any additional measures brought forward.

4.1.4. Raising awareness, training and education

This has two main aspects:

- Development of public health strategies and network activities on behaviours linked to environmental risks for children, and to raise awareness on risks to enable people to develop well-informed risk perception.

- Promotion of training and education to improve professional and institutional capacity on environment and health issues.

Both kinds of activities will be funded within current budgets. The important dimension here is the social one: it makes pre-eminent sense to involve organisations representing the groups on which the risk communication is targeted in the design of the measures, to ensure that the message is conveyed effectively.

5. THE SUBSIDIARITY JUSTIFICATION

The many preventive measures at European level have been taken at that level because the problems are transboundary or Europe-wide. It is this EU policy that we are primarily concerned to review, and to improve in the future, and to do so we need information at a European level. The outcome of the review will allow a better subsidiarity assessment of future proposals, by clarifying the scale and nature of the European dimension of the problem addressed.

6. HOW WILL THE RESULTS AND IMPACTS OF THE PROPOSAL BE MONITORED AFTER IMPLEMENTATION?

The implementation of the Action Plan itself will be regularly monitored by the Commission, and discussed with the Member States and the Consultative Forum, which comprises all interested stakeholders. But the Commission will produce an interim review of the Action Plan in 2007, and a final evaluation of the first cycle in 2010.

The review should cover not only the extent to which the information system has been put in place, and has allowed the development of more targeted policy, but, to the extent possible, an indication of the extent of improvement of health outcomes resulting from the implementation of the first cycle. The purpose of the information provisions of the Action Plan is precisely to form the basis for assessment of this kind. Lessons learned from the first cycle will be incorporated into the launch of the second cycle.

Each individual initiative brought forward under the Action Plan will have its own arrangements for monitoring the results and impacts after implementation. And as made clear above, any significant change to information or risk reduction requirements will be subject to impact assessment when it is brought forward.

7. WHAT STAKEHOLDER CONSULTATION ARRAGEMENTS WERE MADE FOR THE IMPACT ASSESSMENT?

The proposed approach to the Impact Assessment of the Action Plan was presented to the Member States. It consisted of two elements: one, overall justification of the proposal as a whole, and two, an assessment of the impact of the individual actions. The overall justification of the proposal was presented to Member States and stakeholders. For assessment of the individual actions, the following approach was taken. Nine Technical Working Groups were established to elaborate aspects of the Environment and Health Strategy and recommend actions, and with a view to the impact assessment, the TWGs were asked to identify the extent to which the actions they proposed were essential for development of sound policy, and to give an indication where possible of their social and economic implications. The approach to the extended impact assessment, and the TWG recommendations for action and impact fiches, were then subject to extensive consultation with Member States, with the Consultative Forum, and with stakeholders more generally. The results are

presented in a set of fiches annexed to the final reports of the TWGs, all of which are available on the web[11]

It became obvious when the Action Plan was being elaborated that the actions proposed would fall into the three phases discussed above, and that hence that the Impact Assessment would have to take the form of a scoping exercise identifying the impacts to be expected at the various stages of implementation of the Action Plan, and identifying those points where future stages would be justified by more detailed impact assessment.

[11] http://europa.eu.int/comm/environment/health/index_en.htm