



FINAL PUBLISHABLE SUMMARY REPORT

ERA-ENVHEALTH

Coordination of national environment and health research programmes

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Environment and Health ERA-NET

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² The home page of the website should contain the generic European flag and the FP7 logo which are available in electronic format at the Europa website (logo of the European flag: http://europa.eu/abc/symbols/emblem/index_en.htm logo of the 7th FP: http://ec.europa.eu/research/fp7/index_en.cfm?pg=logos). The area of activity of the project should also be mentioned.



I. Executive summary

The negative impacts of environmental factors on human health are a matter of great concern to individuals and governments alike. According to the World Health Organization in 2004, more than 20% of diseases and illnesses, and millions of disabilities and deaths per year worldwide, are attributable to preventable environmental factors. European and national policies for reducing and preventing environmentally-caused ill health rely on scientifically-obtained evidence: the European Environment and Health Action Plan for 2004-10 pointed to a need to strengthen networks between researchers, policy makers and stakeholders. The ERA-ENVHEALTH project was therefore set up to bring together European organisations planning research in the Environment and Health (E&H) arena with the objective of providing policy support. Its aim was to mobilise scientific research in support of European and national policies on Environment and Health issues by proposing a coherent set of priorities, joint activities and common calls in order to aid the establishment of collaboration among the different funding organisations of environmental and public health research communities. Set up in September 2008, the project, through its research funding partners for the two calls for transnational research, has committed funding of just under €4 million to date to 3 research projects spanning different European countries.

The consortium comprises a wide range of institutions, both in terms of geography and complementary areas of work. For the various stakeholders, ERA-ENVHEALTH facilitates better communication and deeper understanding of the drivers and priorities for both scientists and policy-makers. The ERA-ENVHEALTH network has many links with decision-makers at the national level, namely through the participation of ministries in the network as well as other organisations such as national agencies. Reports from the project are disseminated to a wide audience.

Over four years of collaboration and cooperation, the network partners have joined forces and resources to increase the relevance and efficiency of Environment and Health research in Europe. The network identified key strategic topics as priorities for research such as climate change, nanomaterials and indoor air. One of the activities provided a description of the environment and health research landscape in the EU and reflected the diversity of the participating countries, their different cultures and structures for research and administration – and also their similarities. The task entitled “Bridging the Gap between Science and Policy” was designed to better understand the uptake mechanisms of scientific information into policy and the overall communication processes. It also outlined priorities for Environment and Health policy, to support continuous action in the field, help prioritise research and continue the cross-sector collaboration and networks already established. Projects that ERA-ENVHEALTH supports therefore must not only focus on the research areas of interest to the funders and participating researchers, but also take into account public policy agendas and the major trends that influence them. The project has set up a research database, populated according to a common framework for describing projects and their results, as well as current and past research funding allocations. Analysis tools were used so that information can be displayed graphically, for example showing the projects in progress according to distributions across topic areas. A dissemination and communication strategy was drawn up and as a result, in addition to the regular progress reports, leaflets, posters and monthly news briefing notes were produced and distributed. Two transnational research calls were issued: one in March 2008 and the second in January 2012 with three transnational projects funded. The first call was evaluated and the lessons learnt in launching and managing a transnational call were taken into account for the second call.

As seen through the attendance of over 140 participants at the ERA-ENVHEALTH final conference, ERA-ENVHEALTH has succeeded in raising the visibility of research in environmental health issues and its relevance to the policy framework and has shown that transnational collaboration fills an important niche. It provides a unique forum for discussing challenges, visions and emerging issues in Environment and Health.



II. Project context and main objectives

The vast majority of deaths and illnesses in Europe are attributable to chronic diseases whose incidence rates continue to rise. At least part of the cause of this increase is linked to environmental factors. It is estimated that around 20% of the burden of disease in industrialised countries can be attributed to environmental factors (EU Environment and Health Strategy 2004). Europe's citizens are concerned about the potential impact of the environment on their health and expect policy makers to act. Improving research to reduce uncertainties about the links between environment and health (E&H) is therefore necessary to help decision-makers take action through protection and prevention measures. However, for these to be effective in the long-term, cooperation must be improved and research driven by a common set of priorities. The European Environment and Health Action Plan (EHAP) for 2004-10 pointed to a need to strengthen networks between researchers, policy-makers and stakeholders. In addition to the need for better coordination, the World Health Organization (WHO European region) and the European Commission have expressed the need for better use of E&H research results to support policy development and to better anticipate issues affecting public health.

The E&H research field is broad and complex. Actors are dispersed across several – often segregated – organisational structures, in numerous disciplines. It is also a transversal issue, impacting and being impacted on by many different sectors. Multidisciplinary research and cross-sectoral collaboration are therefore particularly important. Both national and EU level research have significantly improved knowledge about the links between the environment and health. However, understanding the complex interactions and tackling these issues is still in an early stage. Research is important to help provide measures to use results for policy-making. Member States have developed the skills and expertise using different mechanisms to fund E&H research. The diversity of approaches and associated funding arrangements probably stems from the wide definition of E&H. The WHO working definition identifies environment and health as comprising those aspects of human well being, health and disease that are determined by factors in the environment. It also relates to the theory and practices of assessing and controlling factors in the environment that potentially affect health or well being. There is a great diversity of national institutional frameworks and decision-making processes making it difficult to have a clear understanding of the organisational arrangements and to compare the governance of E&H research programmes. In order to tackle the broad and complex issues encompassed in E&H, both the environmental science and the public health communities need to be mobilised. ERA-ENVHEALTH is focused clearly on the E&H cross-cutting issue and provides access to national research programmes in the field.



→ ERA-ENVHEALTH helps respond to the recognised need for enhancing coordination through cooperation in E&H research and helps integrate the E&H communities.

Research projects involving several countries are mainly funded through large European Framework Programmes. European Research Area Networks (ERA-NETs) were developed to promote collaborative research and enhance cooperation between national funding agencies, contributing to the creation of a European Research Area (ERA), through networking and partnerships. The goal of ERA-NETs is to foster exchange and sharing of expertise and resources across discipline, sector and country boundaries, complementing the national and European research funding schemes. The ERA-ENVHEALTH project is an ERA-NET, created to maximise the potential for joint funding of research into common strategic issues across Member States in Europe. Therefore, the aim of ERA-ENVHEALTH is to bring together organisations planning research in the E&H arena at the national level in Europe with the objective of enhancing European coordination of E&H research programming namely to support effective policy-making. Thus, ERA-ENVHEALTH's task was to mobilise scientific research in support of European and national policies

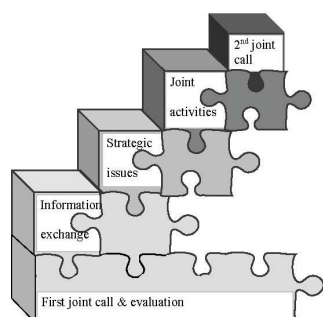


on E&H issues and ensure that research provides policy-makers with evidence-based environment and health information.

ERA-ENVHEALTH brings together 16 national organisations that finance and plan research programmes in EU member states in the field of E&H. The objective is to establish lasting cooperation through sharing information and expertise, analysing the research landscape, identifying common priority areas and defining joint activities, including transnational calls for research projects.

To establish sustainable collaboration, an integrated step-by-step approach is implemented to evaluate methods, define priorities and respond to these through joint activities. Hence, ERA-ENVHEALTH's strategic objectives are to:

- Establish a network of programme managers to share information on research activities and expertise in the area of environment and human health sciences.
- Define opportunities for cooperation and coordination of national and regional research activities and identify priority areas for multinational research leading to multi-disciplinary collaborations between the respective research communities.
- Develop coherent joint activities at the EU level on specific E&H topics.
- Implement joint multi-national calls for research proposals on identified E&H issues.
- Thereby, provide policy support for the implementation of the Environment and Health Action Plan (2004-2010) and support a number of other EU policies concerned with environmental health including strategies regarding climate change, air pollution and children's health.



→ ERA-ENVHEALTH is a practical element for the implementation of the European Environment and Health Action Plan (EHAP) 2004-2010 by promoting better coordination for research implementation and better use of research results to support policy development. The information generated by the project also aims to be a valuable resource for stakeholders to increase the visibility of E&H and related policies.

ERA-ENVHEALTH brings together key participants in E&H research management from 10 countries, representing a wide diversity of institutional arrangements for E&H funding with the objectives of achieving critical mass and ensuring better use of resources; facilitating access to experts; joining forces to provide answers to common problems, global or specific geographical issues; and developing common approaches and governance principles to develop more coherent E&H policies. Given the high diversity of E&H issues with a varying degree of importance and urgency between Member States and given the possibility that ERA-ENVHEALTH allows cooperation between a number of MS to tackle a specific E&H issue, ERA-ENVHEALTH brings dynamism to E&H research in Europe by promoting collaboration between research programmes and fostering innovative ideas.

Specific objectives are to:

WP1:

- Develop a database to facilitate information collection and analysis and inventory scientific potential in Europe.
- Identify and collect information on E&H programmes and owners to improve understanding of current practices in programme planning and management.
- Formulate EU-wide priorities for collaborative E&H research
- Analyse the process to link research to policy in E&H



WP2:

- Identify programme strategic and emerging E&H issues, complementarities and clustering arrangements.
- Develop and apply a set of prioritisation criteria to prioritise these issues for joint activities and funding.

WP3:

- Develop a long-term action plan for joint activities.
- Foster collaboration and implement coherent multi-national activities.

WP4:

- Manage a joint multi-national research call on a specific E&H topic.
- Design a second joint multi-national research call on specific E&H topics.
- Evaluate the first call.

WP5:

- Facilitate communication between partners, stakeholders, and policy and research initiatives.
- Disseminate objectives and results to bridge communication between research and policy-making.
- Find opportunities to extend the network.

ERA-ENVHEALTH fosters exchange, within the ERA, at the national and regional level with regards to E&H programme planning and funding by bringing together 16 organisations from 10 countries to build mutual understanding and long-term benefits through established networking arrangements, thereby reducing the fragmentation of the European Research Area by improving the coherence and coordination of research programmes in the E&H domain across EU Member and Associated States.

ERA-ENVHEALTH encourages initiatives undertaken by several countries in areas of common strategic interest and develops synergies between existing programmes. E&H research and activities have an interdisciplinary character, integrated expertise and multidisciplinary teams are of utmost importance, ERA-ENVHEALTH ensures research teams have mutual and timely access to E&H research in Europe thereby stimulating better integration and validation of results and avoiding overlap.

ERA-ENVHEALTH implements concrete co-operation between research programmes, networking, mutual opening, development and implementation of joint programmes and activities on a long-term perspective leading to a shared vision on best ways to build critical mass in specific areas and a long-term action plan for joint activities and multinational calls for transnational research projects.

It is impossible for one country to gather and analyse all the information needed to define common strategic activities in an area such as E&H where sources of information are many. Interfacing research programmes and outcomes with policy-making benefits from all partner inputs (institutional, political contexts, perception...) and provides important information for developing multinational research call guidelines, for discussing E&H research priorities and enabling national systems to take on tasks collectively.

ERA-ENVHEALTH provides a platform for programme managers to share information on E&H research. It follows a progressive approach to networking and mutual opening and is seen as a basis for cooperation and an efficient step towards long-lasting cooperation. ERA-ENVHEALTH also plays an important role in the dissemination of information, lessons learnt, and knowledge gather within the European Research Area. Common actions are undertaken to disseminate information and results.

By providing an overview of research programmes in the area of E&H, ERA-ENVHEALTH enables collaboration across the whole range of research issues necessary to support policy-making,



enabling opportunities for European collaboration and developing good practice in promoting science to effectively serve the needs of policy-makers. National and international initiatives are explored to provide research priorities to help drive innovation and competitiveness of European E&H research and to take forward recommendations and findings to policy-makers in a structured and co-ordinated way across Member States.

Through exchange and support, the consortium partners are able to learn, get access to information, benchmark their practices and adjust their research agendas. Shared understanding of priorities and the definition of common priorities allow joint activities to be implemented in areas where they will be beneficial.

ERA-ENVHEALTH increases the reach and audience of national programmes by bringing them closer to the various stakeholders, including the public, through the project website but also through targeted dissemination at the EU, national and regional levels. In addition, opening research programmes means that more knowledge can be used to achieve higher research standards.



→ Given the complexity and the wide range of issues in E&H, ERA-ENVHEALTH provides a comprehensive understanding of the cross-programme priority issues where implementation of joint research activities and long-term cooperation will add significant value and be of mutual benefit.

The scientific community also benefits from ERA-ENVHEALTH through easy access to updated information and knowledge on the work programmes and calls for research in the E&H domains. Also, the ERA-ENVHEALTH calls provide more funding opportunities and more possibilities for multinational partnerships.



→ ERA-ENVHEALTH provides easy access to information and calls for E&H research.



III. Main results

Collaboration between ERA-ENVHEALTH partners has enabled the development of a shared vision and improved exchange of knowledge and expertise through access to information at the European level via its website and databases for experts and research programmes. A common framework for describing and assessing the Environment and Health (E&H) research programmes and projects was developed with the aim of making available information about the current and past funding programmes, thus providing good visibility of Environment and Health research in Europe. In August 2012, the Research Database contains information from 11 countries on 41 organisations, 50 programmes and over 500 projects. This database will continue to be updated and expanded.

The “Final overview of research programmes and projects including synthesis and recommendations” provided an overview and description of the E&H research landscape in the EU. This information is a strong basis for analysing the research in the field of E&H in the participating countries. It reflects the diversity of the participating countries, their different cultures and structures for research and administration as well as their similarities.

The information gathered was used to identify key strategic issues in E&H. Horizon scanning of emerging issues was undertaken and combined with the analysis of current projects to identify emerging issues where there are gaps in E&H research in Europe. This provides an up-to-date, comprehensive analysis of E&H research in Europe and areas where transnational research can bring added value. In addition, in order to appreciate the range of projects in the database and rather than just list project titles, a visual representation was produced. The aim of this visualisation is to depict the distribution of projects by identifying clusters of similar or related project activity.

In order to maximise the potential for joint funding of common strategic issues across member states in Europe, prioritisation criteria and a multi-criteria analysis (MCA) tool have been developed. The MCA tool allows standardisation of the thematic selection process, among topics but also among the various partners in ERA-ENVHEALTH. The criteria and MCA tool enable structured discussions on the selection of E&H topics and enhance transparency in the selection process. In this way, the partners are able to define the topics for which joint activities can be set up. The main topics identified include indoor air quality, nanomaterials, toxicity of mixtures and low doses and climate change.

The originality of ERA-ENVHEALTH is that a first call for proposals was launched at the start of the project to experiment joint funding and fully assess its implementation. The first transnational joint call, funded by three partners (NERC – UK, ANSES – France, and IenM – Netherlands), was launched in 2008 on: “*Health vulnerability resulting from future climate change impacts on soil-water ecosystems, land use and water resources at regional scale*”. Two projects were funded:

- *Risk assessment of the impact of climate change on infectious diseases (Enhance)*
- *Environmental change and rising dissolved organic carbon trends: implications to Public Health*

A second call was launched in 2012 on “*Air pollution in urban areas – health impacts on vulnerable groups under changing conditions*”; funded by five partners (ANSES and ADEME – France, BeISPO – Belgium, Swedish EPA – Sweden, and UBA – Germany). One project was selected for funding: “*Assessment of changing conditions, environmental policies, time activities, exposure and disease (ACCEPTED)*”.



The first call was designed to obtain practical experience in managing and evaluating an Environment and Health multinational funding programme. To support and improve this work, an evaluation of the first call (process and impact) within ERA-ENVHEALTH was planned to identify the strengths and weaknesses, measure performance and efficiency and help provide solutions and improve the management of the calls, in particular for the design of the second ERA-ENVHEALTH



call. An independent expert evaluator was chosen to carry out the evaluation and was supported in his work by an Evaluation Steering Committee.

The first part of the evaluation concentrated on the management and scientific evaluation issues encountered during the first call and provided recommendations to improve the design and the launch of the second call. Some activities prior to the launch of the call were thereby found as highly important for the smooth running of the process. The results also recommend guidelines for future calls. A special framework for future calls was proposed in the evaluation, using the 'à la carte' method and allowing the matching of several dimensions related to the call: choice of the research topic; number of partners financing a selected research area; and modality of financing (call for proposals or tendering). The scheme has the advantage of providing a well elaborated framework, established by all the ERA-ENVHEALTH partners, and allowing for a maximum of flexibility. The majority of the recommendations were taken into account by the second call funders in the call design and implementation and improvements have been carried out.

The second part of the evaluation concentrated on the impacts of the programme, both in terms of strengthening European research in health & environment and providing useful data and decision-making tools to policymakers, climate change and human health being a priority issue. This evaluation was more of a model of feasibility as it was carried out on one call from which two projects were funded. In order to evaluate impacts over time, a longer follow-up period and more resources would have been required. Nevertheless, it is a novelty for ERA-NETs and provided very interesting insights into transnational calls for research projects in Environment and Health, in particular it highlighted:

- the importance of being able to put together and fund small European projects (smaller than EU-funded projects but larger than nationally-funded ones), thereby encouraging and implementing true and lasting collaborations;
- the possibility of building policy-oriented calls for research;
- the need for involving policy-makers in the design of such calls for research and the realisation that traditional communication tools are not sufficient to disseminate the research results to the stakeholders;
- the observation that these types of calls and research, in particular in the E&H domain, are emerging but not yet mature at the European level.

ERA-ENVHEALTH brings dynamism to E&H research in the EU by promoting collaboration and fostering innovative ideas, and by increasing its visibility as a key area for research. With the development of new programmes and changes to existing ones, an increase is expected in the diversity of disciplines involved in research and in multinational projects on E&H issues. ERA-ENVHEALTH responds to the recognised need for enhancing coordination through cooperation in E&H research and contributes to the European Environment and Health Action Plan (EHAP) 2004-2010 by promoting better coordination for research implementation and better use of research results to support policy development. Further to the success of the 1st EHAP and the Declaration from the Fifth Ministerial Conference on Environment and Health "Protecting children's health in a changing environment" in Parma, Italy, on 10-12 March 2010, there is an added value to a coherent collaborative framework which defines coordinated and combined actions for research on some of the E&H priorities. In this context, ERA-ENVHEALTH introduced a new task to investigate the link between policy and research in E&H. Recommendations to improve the uptake of scientific results in policy-making were defined and a policy framework linked to E&H research was provided by formulating EU-wide E&H priorities from a policy point of view in order to guide collaborative research.

The ERA-ENVHEALTH final conference, which took place 13-14 June 2012 in Paris (France), brought together over 140 representatives from research organisations, research funding entities, non-governmental organisations, scientists and national and European authorities from 16 countries. It provided the opportunity to take stock of four years of successful collaboration and open a high-level prospective debate on environment and health priorities and concerns. It was also



the first step for the future of the network for participants wishing to continue collaboration. Based on four major themes: E&H research in Europe, priorities for E&H, linking science and policy and, perspectives for the future, the two-day meeting provided insights into the future challenges in E&H and the ways in which research can contribute to meeting them. The discussions during this final meeting contributed to identifying relevant and effective policies for E&H research in Europe.

The ERA-ENVHEALTH consortium is a unique network for E&H research in Europe. Unique through the variety of actors participating: NGOs, ministries, agencies, international organisations.... Unique through the diversity of countries represented and unique in its innovative and multi-sectoral approach.

ERA-ENVHEALTH has contributed to increasing the visibility of European research in the field of E&H and is looking forward to continuing its collaboration, which in this time of financial crisis is crucial so as to maximise the use of research funding and help ensure coherent policies beyond national boundaries.

ERA-ENVHEALTH has shown that transnational collaboration in E&H fills an important niche. It provides an interesting forum to discuss challenges, visions and emerging issues. The project has met its primary objectives and while project funding from the European Commission ends in late 2012, the network wishes to continue to collaborate and expand, using own resources, striving towards better integrating E&H research into policy.

The results of the ERA-ENVHEALTH project are summarised in the following pages through the compilation of the executive summaries of the ERA-ENVHEALTH reports forming the basis of the project's scientific results:

1. Information exchange and creation of databases

- **The ERA-ENVHEALTH research Database contains details of current and past funding programmes in Europe, entered by the project participants and collaborating partners.**

The ERA-ENVHEALTH project brings together key participants in E&H research management from 10 countries, representing a wide diversity of institutional arrangement for E&H funding with the objectives of achieving critical mass and ensuring better use of resources; facilitating access to experts; joining forces to provide answers to common problems, global or specific geographical issues; and developing common approaches and governance principles to develop more coherent E&H policies. Given the high diversity of E&H issues of which some might be very common/urgent in some MS and less in other MS and given the possibility that ERA-ENVHEALTH will allow cooperation between a number of MS to tackle a specific E&H issue, ERA-ENVHEALTH will bring dynamism to Environment and Health research in Europe by promoting collaboration between research programmes and fostering innovative ideas.

The ERA-ENVHEALTH research database provides information about the current and past funding programmes in Europe open to Environment and Health researchers. As a first step, the database will focus on the information related the research programmes funded by the 16 organisations who are members of ERA-ENVHEALTH. However, the project also aims at widening this scope.

Albeit not an exhaustive review of E&H research in Europe, the database provides a unique source of material for E&H scientists and policy-makers to access data on research projects, to identify potential research partners and modes of specialist expertise.

Information in the database is available to anyone interested in environment and health research funding and research projects in Europe, although some fields and records may remain confidential.

Consulting data is free of charge, but users cannot claim property rights on the data in any shape or form. For any use of data, a written request is needed and the ERA-ENVHEALTH project must be mentioned as reference.



- **The ERA-ENVHEALTH Expert Database helps identify scientists of the highest standards in the E&H domain to evaluate joint call activities.**

This can only be achieved through effective identification and pooling of scientific excellence across Europe. To this end, ERA-ENVHEALTH set up a database of external scientific experts in order to develop a more effective and flexible response as needed. In addition, one of the main objectives of setting up this database is to enhance the transparency of the process through which experts are selected and invited to participate in ERA-ENVHEALTH's scientific activities.

Any user who wants to consult the data is invited to contact the administrator of the database to get a login and password. Consulting data is free of charge, but users cannot claim property rights on the data in any shape or form.

Experts in the database may be invited to provide scientific advice or participate in scientific debates within the ERA-ENVHEALTH project and potential working groups or panels created as the work progresses.

2. Description of the E&H research landscape

- **Draft overview of programmes: Survey of national research programmes related to Environment and Health within the ERA-ENVHEALTH partner countries based on the analysis of data collected via a questionnaire**

Environment and Health (E&H) research is a broad and complex area that requires the cooperation of a wide community of experts and authorities. The European Commission, as well as the World Health Organisation, have expressed the need for better coordination and use of research results to support policy development on Environment and Health. This "Draft overview of programmes" provides a first description of the E&H research landscape and gives a survey of national programmes owned or managed by the ERA-ENVHEALTH consortium partners. Necessary information was collected through a questionnaire survey focused on describing the programme manager organisations, providing overall information on the E&H programmes (objectives, budget and source of funding, topics) and information on the number of projects funded by the E&H programmes. The information was collected from 14 organisations which provided information on 18 E&H programmes. The survey confirmed that the E&H programmes dealt with a very wide range of objectives, agents, topics and other E&H issues and that there is a need to bring together scientists from many disciplines including environmental, medical, biomedical and socio-economic sciences, public health research, economists and legal experts to find solutions to environmental issues related to health and human well-being problems. The information collected in this overview will serve as an input into the E&H research database which will be a platform for mutual information and experience sharing within the E&H partners.

The aim of the "Draft overview of programmes" was to provide a first description of the E&H research landscape in partner organisations and to provide the first overview of national programmes and projects owned or managed by the ERA-ENVHEALTH consortium partners.

- **Final overview of programmes and projects including synthesis and recommendations: Report on E&H projects and programmes landscape and framework for joint activities related to E&H research within the partner countries**

The main aim of this report was to give an overview of the European Environment and Health (E&H) research landscape based on the description of programmes and their related projects owned or managed by the consortium partners and in a wider scope within the Member States. Further goals were to describe the structures available for funding of transnational research among countries participating within the ERA-ENVHEALTH project, to identify the main authorities in the field of E&H, to obtain information on programme managing practices in particular countries (mechanisms for



priorities identification, preparation and launch of programmes, implementation, quality assurance, communication, propagation and reporting) and to provide recommendations for effective funding of E&H research and effective arrangements for cooperation (see section 2).

To reach these aims two questionnaires were developed: a first one on “Research Programmes – National programmes and projects related to E&H within the partner countries” and a second one on the “Framework for joint activities relating to E&H research within the partner countries”. The 1st questionnaire was answered by the ERA-ENVHEALTH partners and other relevant organisations. Its information was collected in the ERA-ENVHEALTH research database, which was the basis for writing this Final Report. The 2nd questionnaire was intended for the ERA-ENVHEALTH partners only. Its information also served to complete this report.

It can be highlighted that the participating organisations showed a great interest in exchanging information within the ERA-ENVHEALTH network and in future cooperation within the field of E&H. By September 2009, 38 organisations (including the 16 ERA-ENVHEALTH partners) from 11 countries gathered and entered data on 49 E&H funding programmes and 461 associated projects. This information is a strong basis for analysing the research in the field of E&H in the participating countries. It reflects the diversity of the participating countries, their different cultures and structures for research and administration as well as their similarities. The large amount of information gathered stresses the high interest in further cooperation and also the need for future collaboration in this area.

The most important results of this Final Overview can be summed up as follows:

- The number of the E&H programme managing organisations per country varies – probably due to different research and administration structures as well as federal structures in certain countries. Most of these organisations are ministries, policy-oriented agencies and other public bodies. The majority of them are mainly competent for environment issues.
- The general objectives of the E&H funding programmes indicate that most of the programmes have the aim to support scientific research with the intention to provide support for policy-makers, to protect the environment and human health, to improve cooperation among experts and authorities as well as to exchange information and inform the public.
- The budget of the programmes which could serve as an indicator for their importance ranges from 0.1 M€ to 160 M€ yearly. This wide range of financial conditions could partly be due to different research and administration structures. The poor response rate (less than half of the managing organisations answered to this question) is probably due to the fact that some of these programmes have a wide range of objectives and do not only fund E&H research. That makes it difficult to clearly distinguish which part of the funding relates to E&H research only.
- The most frequently stated programme topics are “Outdoor air quality”, “Other chemical agents”, “Biological agents & Microorganisms” as well as “Exposure Assessment” and “Health Impact Assessment”. These topics have been recorded by 30 or more out of the 49 programmes and can therefore be considered as being the most important and/or most established ones for the majority of the programme management organisations. Also, cross-national overlap can therefore be expected for these topics.
- 15 topics were selected by less than 15 out of the 49 programmes, e.g. “Green Space”, “Transport” and “Electromagnetic fields”. The fact that certain topics only got selected a few times might be due to different reasons: they fall outside the remit of the majority of the programme management organisations, they are considered to be not important for most of the involved organisations, they are quite old or just upcoming.
- The outcomes of the 49 E&H programmes mainly range from science research support to recommendations for policy-makers with regards to E&H protection. 35 E&H programmes indicated outputs which refer to “Science (scientific publications)”, 32 programmes referred to “Policy (recommendations for policy-makers)” and 30 of them to “Publicly available information”. 25 programmes indicated outcomes which were focused on “Public



(information)". Particular outputs of the E&H programmes evaluated in this Final Overview are available in the ERA-ENVHEALTH research database via the links to the programme web pages.

- The near future priorities of the E&H programmes most often relate to the themes "Climate change", "Indoor air quality" and "Outdoor air quality", to the agent "Nanomaterials/Nanoparticles", to the human health effect "Endocrine disruptors", to the methodologies "Epidemiology/Epidemiological studies", "Exposure assessment" and "Human biomonitoring". Each of them has been indicated by four to seven of the ten programmes having answered this question.
- 461 projects were entered into the database by September 2009. 78% of them are conducting "applied research" and 17% "policy-orientated research".
- When looking at the topics of the 461 E&H projects, it can be stated that the distribution of the selected themes is generally very similar to the one of the programmes. This is not surprising as the projects that have been entered in the database were mostly selected as being representative of their funding programme.
- When looking at the national priorities of E&H activities (2nd questionnaire) as much as eight topics were indicated by all participating countries as being "current governmental priorities": "Outdoor air quality", "Other chemical agents", "Particulate matter", "Asthma", "Respiratory diseases" as well as "Modelling", "Health impact assessment" and "Epidemiological studies". In addition, roughly three quarters of the topics were stated by more than half of the countries as being of priority, e.g. "Climate Change", "Indoor air quality", "Biological agents & microorganisms", "Exposure Assessment" and "Vulnerable groups".
- Regarding the planned and most important E&H research activities of the ERA-ENVHEALTH partner organisations most partners recorded the themes "Indoor air quality", "Climate change" and "Outdoor air quality", the agents "Nanomaterials" and "Particulate Matter", the human health effects "Respiratory diseases", "Allergies", "Cardiovascular diseases" and "Cancer", the methodologies "Human biomonitoring" and "Health impact assessment" and the social aspects "Children's health" and "Vulnerable groups".
- The funding structures of the ERA-ENVHEALTH partner organisations show a large heterogeneity, which probably can be traced back to the different budget and funding laws of the different countries. The most frequently preferred funding structure is the "virtual common pot"; it exists for nine, partly exists for two and is possible for six out of 14 partner organisations. Due to the diverse research and administrative structures in the different countries and the experience of the 1st call the ERA-ENVHEALTH partner organisations should find a pragmatic and practical solution applicable for the 2nd call.
- The drivers for national E&H activities and priorities are very similar in the ERA-ENVHEALTH partner countries. All countries are driven by legislation and policy objectives and most of them by international commitments (like WHO CEHAPE and EU Environment and Health Action Plan). Differences are likely to occur in the different structures and ways of formal and informal actions of the relevant driving forces. Surprisingly and, to some extent unlikely, the role of "NGO/public/media" as a driver is apparently negligible in most of the countries.
- Concerning the programme management in the partner countries there are a lot of similarities, e.g. in nearly every country the competent authorities for the initiation and prioritisation of E&H research are ministries together with their agencies. Regarding the preparation (process and procedures) and implementation (call and proposal) of E&H research the answers vary a lot, probably due to the diverse research and administrative structures in the countries. With respect to quality assurance and to communication, dissemination and reporting mainly similarities can be identified. It can be highlighted that on all levels – organisations, programmes and projects – a big effort is done not only to



communicate scientific results to the scientific community and policy-makers but also to a broader public.

- The answers to the governance questions differ a lot. Between and within the different countries there are various ways for research results to make their way from science into policy.
- The analysis of the priorities of the 1st and the 2nd questionnaire indicates that there are topics which have been, are and – in the near future – will be important and recognised, such as the themes “Indoor air quality” and “Transport”, the agents “Particulate matter” and “Other chemical agents”, the human health effects “Allergies”, “Cancer”, “Cardiovascular diseases” and “Respiratory diseases” and the methodology “Health impact assessment”. Topics that are recorded as planned and most important E&H activities of the consortium partners (future state) but not as current programme topics and governmental priorities (actual state) can indicate research gaps, i.e. quite new areas where research activities are necessary. This might be the case for the themes “Climate change”, “Nanomaterials” and “Noise” and the methodology “Human biomonitoring”.

3. Bridging science and policy

- **Linking research to policy in E&H: a process analysis: Analyses and case studies to better understand the uptake mechanisms of scientific information into policy and the communication processes**

Subtask 1.3.1 “Linking research to policy in environment and health: a process analysis” of the ERA-ENVHEALTH project was designed to better understand the uptake mechanisms of scientific information into policy. Its aims are to describe the overall communication processes as well as to develop strategies that can help researchers, programme managers, policy-makers and other stakeholders create more interdependence. To complete this task a three-step analysis was conducted:

- Analysis of tools and communication strategy (BeISPO/FPS): A first part reviews the scientific literature on the knowledge transfer process between science and policy. In order to bring a more practical perspective, initiatives by the World Health Organisation (WHO) and European Commission (EC) (namely other ERA-NET experiences) intending to improve the uptake of scientific evidence are examined. The review is complemented by a survey which evaluates specific scientific information needs for policy-makers and the most common communication forms of three stakeholder groups (policy-makers, knowledge brokers and scientists). As a result, taking into account all sub-task inputs, barriers and enhancing factors for efficient communication are highlighted, best practices and recommendations to bridge the gap between science and policy in E&H are suggested.
- Analysis of funded research (UBA): Policy-orientated projects listed in the database are examined to investigate how these projects came about and whether their recommendations for policy-making are used. Additionally some follow-up interviews with project coordinators on the policy impact of scientific results are conducted as well as an analysis of project publications and science-policy interfaces as best practice examples. The purpose is to evaluate which strategies the science to policy interface pursues, which methods are used and what information is chosen to be communicated.
- Analysis of case studies (CNR): Different case studies that cover a broad range of experiences of scientific knowledge use and production are analysed. The aim of this analysis is to illustrate the process and help identify best practice examples, back up some of the previous findings and give further insight into (in)efficient knowledge transfer mechanisms. Drivers and key factors that facilitate or delay the comprehension/use of scientific knowledge are identified in order to draw tailored recommendations. To facilitate the understanding of the contextual elements and their influence, a framework to read



possible interaction flows among stakeholders and a check-list of actions to positively bridge science and policy is produced.

The cases presented are particularly useful to examine real life mechanisms, and to discuss with the involved actors and with a group of experts about what happened and possible alternative solutions. The ERA-ENVHEALTH framework here presented requires the use and integration of several models, and the models have to be seen in practice. The case studies presented are very different in terms of stakeholders, dimension and time frame. Notwithstanding, common recommendations and conclusions can be drawn.

The results of the three analyses lead to the creation of the brochure “Improving Knowledge Transfer – A Checklist for Researchers” designed to support researchers who wish to enhance the uptake of their scientific findings into policy. Researchers who would like also to function as knowledge brokers can find it very useful. It is thus a tool to prepare research and present results in a way that is particularly suitable for policy-makers.

Additionally another tool to enhance the uptake of scientific results was developed. It is an interactive map presenting information on national institutions involved in E&H, relevant publications (e.g. newsletters) and other stakeholders in Europe.

- **EU-wide priorities for collaborative E&H research: Summary of interview and survey results**

Since the Environment and Health Action Plan (EHAP, 2004-2010) ended, no new European-wide environmental health policy strategy has been laid out. In order to contribute to the development of a second EHAP, or at least to an increase in the visibility of E&H issues and their importance in policy and research, the ERA-ENVHEALTH project has outlined priorities for environment and health (E&H) policy.

Surveys and interviews were performed among 18 key experts with a broad overview of E&H policy and research trends on a national level and across the EU. The experts recommended continuous action in the field of E&H to support national efforts, prioritise research and to continue cross-sectoral collaboration and networks established by the EHAP 2004-2010. To get environmental health (back) on the political agenda it is important to involve other sectors, to find win-win situations, to clearly identify positive returns of policies and to give a positive message about environment and health. Policy sectors which may be linked to important E&H goals are for instance transport, urban environment, physical activity (health domain), energy and climate.

Focus should be on the indoor environment, outdoor air and nanomaterials, according to many of the experts that were consulted. It has been suggested to take a health-oriented approach, i.e. by prioritising those diseases that cause the largest disease burden in Europe. Health could be an indicator of well-being, sustainability and good policy, and could contribute to identifying positive returns of E&H policies. There is a need for a good information system. Continuation of research on human biomonitoring is needed. A cross-national E&H forum could help in prioritising research, collaboration and networks, training and education. Bridging the gap between science and policy-making is important to ‘put into motion what we know’.

4. Definition and implementation of joint activities

- **Report on programme strategic and emerging E&H issues, complementarities and clustering arrangements**

There are two main aims for this report. Firstly to identify common and strategic environment and health issues across the partners. Secondly to use horizon scanning to identify emerging issues in the environment and health area.

The starting point for the identification of strategic and common issues was the database developed in Workpackage 1. The database, at present (August 2010), consists of 464 projects. In considering



the strategic and common issues in E&H research, eight themes related to human health were identified as being particularly suitable for joint activities. This was based on the number of projects in the database relating to these themes and the number of partners involved in these areas. The eight broad areas are:

- Outdoor air quality
- Local/living environment
- Water quality and supply
- Indoor air quality
- Chemical agents
- Biological agents and microorganisms
- Particulates
- Pesticides and biocides

Within each of these themes more detailed areas of work have been identified.

To identify emerging issues a futures technique called horizon scanning has been used. This can be described as the systematic search for potential threats and opportunities. To identify these threats and opportunities a large variety of on-line sources (including newspapers, journals, science, health and environment news sites) were scanned on a monthly basis for articles relating to environment and health. A total of twelve scans were completed between July 2009 and June 2010. On average each monthly scan contained about 20 articles. All of the articles collected over the 12 month period were referenced to the same categories and sub-categories of environment and health research used in the analysis of the database of projects.

The theme with most horizon scanning articles was chemical agents, which had double the number of articles compared with the next nearest theme. Other popular themes with 20 or more articles were: outdoor air quality; nanomaterials; climate change and particulates. In addition, there are more detailed work areas for each of these themes.

In comparing current issues with emerging issues there are three themes which feature in both lists at the theme and sub-theme level. These are outdoor air quality (for example the effects of ozone pollution), particulates (for example linking sources and fractions responsible for toxic effects) and chemical agents (for example exposure to flame retardants).

In order to appreciate the range of projects in the database a visualisation of the data was performed. The aim of this visualisation was to depict the distribution of projects by identifying clusters of similar or related project activity. It is generated from the textual descriptions of ongoing research projects in the ERA-ENVHEALTH database collected by the partners. In addition, the horizon scanning articles have also been included in this visualisation. The visualisation will be accessible from the ERA-ENVHEALTH website and can be used in planning collaborative activities and a joint research call.

Following the presentation of a draft version of this report to the Annual Assembly meeting a number of additional emerging issues were identified by the partners based on expert opinion.

The common and strategic issues as well as the emerging issues will be considered by the ERA-ENVHEALTH partners for collaborative activities including as issues for a joint call.

- **Prioritisation criteria to select environment and health issues for joint activities and funding: Report summarising the development and application of prioritisation criteria and list of prioritised work areas**

To maximise the potential for joint funding of common strategic Environment and Health issues across member states, prioritisation criteria are needed, not only at the international level, but also



at the national level. In ERA-ENVHEALTH, RIVM together with the ERA-ENVHEALTH partners has developed such criteria.

This report summarises the outcomes of discussions. The following set of prioritisation criteria has been developed:

- Links with policy needs
- Multi/interdisciplinary issue
- Severity and size of the problem – burden of disease
- Benefit of international collaboration
- Public concern

In addition, a Multi-Criteria Analysis (MCA) tool has been developed, that allows standardisation of the selection process, among topics but also among the various partners in ERA-ENVHEALTH. The criteria and MCA tool enable structured discussions on the selection of E&H topics and enhance transparency in the selection process.

The ERA-ENVHEALTH consortium will apply these criteria and the MCA to highlight a list of prioritised work areas for ERA-ENVHEALTH partners. In this way, the ERA-ENVHEALTH partners will be able to define the topics for which joint activities can be set up, including for example workshops and knowledge exchange activities as well as those for which an ERA-ENVHEALTH research programme may be launched.

A 3-step procedure is to be implemented in order to firstly get ERA-ENVHEALTH partner organisations to define and prioritise areas in E&H which, for each organisation, would benefit most of transnational collaboration and in what form (through calls or other activities). The idea is to have partners prioritise the list of areas prior to a work session organised in March 2011 and according to their responses create subgroups to work closely together on a joint activity in their common area of interest. The partners in each subgroup can then start using the MCA tool together to prioritise the themes, and topics, if relevant with regards to the chosen activity, under their chosen E&H area, during the work session organised on the 30th of March 2011.

- **Action plan for common activities: Report following up on the prioritisation exercise and providing a framework for priority focus for E&H activities**

To maximise the potential for joint funding, common strategic Environment and Health (E&H) issues across Member States were defined and types of research areas, prioritisation criteria, research themes and topics within themes have been identified. Broad areas were defined as being particularly suitable for joint activities including outdoor air quality, local/living environment, water quality and supply, indoor air quality, chemical agents, biological agents and micro organisms, particulates, pesticides and biocides. Horizon scanning was used to identify emerging issues which included chemical agents, outdoor air quality; nanomaterials; climate change and particulates.

These common and strategic issues as well as the emerging issues were then considered by the ERA-ENVHEALTH partners for collaborative activities. In order to do so, five prioritisation criteria were developed (links with policy needs, multi/interdisciplinary issue, severity and size of the problem – burden of disease, benefit of international collaboration, public concern).

In a multi-criteria-analysis-like approach these five criteria were applied to the various research themes to structure and facilitate the decision process on selected research themes and establish sensible partnerships. An internet questionnaire was designed containing questions on affiliation, importance (ranking) of types of research areas and criteria, evaluating research themes on the criteria (7-point scale) and “willingness to invest”. In a second run partners’ preferences for specific research topics within research themes were analysed.

The main conclusion is that there are various opportunities for transnational collaboration including funding calls. The main common research areas of interest for the future of the network are: climate



change, indoor air quality, outdoor air quality, nanomaterials, and toxicity of mixtures/low doses and noise.

Although these research areas are of interest to the ERA-ENVHEALTH partners, to maximise the impact and added-value of the network, activities must also be focused on the policy agenda and major trends that may influence our environment. The discussions are integrated into a framework for priority focus.

Demographic developments and climate change clearly dictate the focus of environment and health policy on the urban residential area. The implications of rapid urban growth include unemployment, environmental degradation, lack of urban services, overburdening of existing infrastructures and lack of access to land, finance and adequate shelter. Managing a sustainable urban residential environment becomes one of the major challenges for the future especially when balancing the different parameters including waste discharge and resource consumption.

On top of it all is the apparent change of the environment itself due to climatic changes. It is recognised that adaptation to climate change is needed. The European Regional Framework for Action 3, adopted at the World Health Organization's Fifth Ministerial Conference on Environment and Health "Protecting children's health in a changing environment" in Parma, Italy, on 10–12 March 2010, is aimed at assuring adequate (public) health measures to deal with climate change.

These autonomous developments dictate a priority focus of environment and health policies on the urban environment. Policies should be aimed at three distinct levels, spheres: cities (macro), neighbourhood (meso) and households/Individuals (micro). Exposure considerations should focus on the built environment and human behaviour within these distinct spheres.

Considering this, improving the indoor air quality chemically, physically (temperature, humidity) and biologically, then, is likely to have a significant impact on human health even more so than reducing outdoor air quality.

Directions already provided by the European Commission to deal with health consequences from climate change have to be bent and tuned in a more integrated, rather than sectorial, way. As a suitable policy instrument to deal with this, the Strategic Environmental Assessment (SEA) is recommended. The objectives of the SEA process are to provide for a high level of protection of the environment and to promote sustainable development by contributing to the integration of environmental considerations into the preparation and adoption of specified plans and programmes, prior to their approval or authorisation.

Given the outcome of the ERA-ENVHEALTH prioritisation exercise amongst partner institutes this is fairly consistent since the main topics for research needs in the coming years are in particular indoor air quality and

- its relation to asthma and airway related diseases
- minimum ventilation requirements linked to energy saving requirements
- chemical exposure (70% of the exposure is mixed exposure indoors)
- fungal and micro-organism exposure

- **Report on the implementation of joint activities: Report on the process of building joint activities in ERA-ENVHEALTH**

The ERA-ENVHEALTH project brought together 16 partners from 10 countries and an external advisory committee composed of representatives of various stakeholders in environment and health, creating the opportunity of an active network for environment and health research in Europe.

Over the four years of collaboration and cooperation, carried out with the support of European funding, the network partners worked on tackling the challenges in environment and health research, including knowledge gaps and priority areas for research to support policy-making.



The work programme also tried to overcome “governance” challenges such as:

- the fragmentation and overlap of research at the national level and across EU Member States,
- the need to improve expertise from mutual learning and access to research,
- the lack of an appropriate platform for concrete co-operation between countries and research programmers,
- the development and implementation of joint programmes and activities on a long-term perspective.

Other variables were also considered and discussed among the project partners not only on the basis of scientific knowledge but also keeping in mind global aspects such as the current crisis situation, socio-economic and demographic drivers and global environmental changes such as climate change.

The ultimate goals were also to define a common vision of the environment and health research landscape in Europe, to provide tools for dissemination of lessons learnt and knowledge gathered, to launch a framework for coordinating public research programmes and maintain network cooperation beyond the project’s lifetime.

Hence, further discussions among partners highlighted that joint activities were essential for a network based on “contributing and sharing”, and also for the future of the network beyond the project’s life and, finally, that it was also important to share the entire process that led to the definition of concrete joint activities as illustrated in Figure 1.

As a result of all of these implications, activities under task 3.2 were expanded including two main areas of work with two separate reports:

- Report on the joint activity concerning an indoor air quality survey on research and policy governance within the enlarged ERA-ENVHEALTH network.
- Report on the process of building joint activities in ERA-ENVHEALTH.

The first report focused on a more in-depth survey on indoor air quality research and governance within the ERA-ENVHEALTH enlarged network, including the cooperation potential of potential new partners (PNP) enrolled under the framework of task 5.2 and also all institutions that provide information for the ERA-ENVHEALTH research database.

This second report on the process of building joint activities in ERA-ENVHEALTH summarises the activities that have been implemented with the cooperation of the consortium partners and the potential new partners enrolled throughout the timeline of the project, with the aim of describing the entire process underlying the definition and scenario for joint activities in the consortium. The process consisted of two main interconnected stages:

- A preparatory stage to strengthen network knowledge and ability to network
- An implementation stage where concrete actions were planned and undertaken

All these tasks were achieved basically through a learning-by-doing process, mainly through joint activities which involved ERA-ENVHEALTH partners and the potential new partners (PNP) network and aimed to build knowledge and tools for Environment and Health (E&H) research governance at the EU level and to improve national capacities.

In the preparation stage all partners were called upon to cooperate in the implementation of research database information exchange and dissemination tools, in providing national information for the survey, investigating crucial issues such as priority issues in E&H research and science-policy gaps. Activities done under the framework of workpackage 1 and workpackage 5 were essential for this process. Project leadership and workpackage 6 consistently supported the whole process. This preparatory phase allowed partners to select topics and tools for joint activities.

Three main joint activities were developed using project tools and tasks:



- funding transnational calls on the topic of climate change (see WP2 and 4 reports),
- launching a pilot activity using the ERA-ENVHEALTH network and tools (consortium and potential new partners, ERA-ENVHEALTH research database, ERA-ENVHEALTH dissemination tools) to test the network ability to picture Indoor Air Quality (IAQ) research and policy needs (see also task 3.2 and 5.2 reports),
- the organisation of ERA-ENVHEALTH project final conference, open to stakeholders and researchers outside the consortium focusing on Environment and Health research strategic visions to share experiences and lesson learnt.

The objectives of these joint activities were to promote exchange and collaboration among the different actors involved in environment and health, and also to help bring science closer to policy in this sector by enhancing the use of scientific outputs.

These discussions not only bring dynamism to environment and health research by promoting collaboration and fostering innovative ideas but are also the foundation of the network's future activities.

- **Survey on indoor air quality research and policy governance: Report from the ERA-ENVHEALTH joint activity on indoor air quality research and governance within the ERA-ENVHEALTH network**

Healthy indoor air governance is a quite complex issue, still facing many research (such as for instance pattern of exposure or secondary pollutants) and policy challenges at the national and European levels. Indoor air quality was also ranked among one of the top topics of interest by the ERA-ENVHEALTH consortium partners further to the project's activity results achieved in the different workpackages.

This survey was developed within task 3.2 of the ERA-ENVHEALTH project. This task is under workpackage 3 meant to provide a framework plan for joint activities to address the prioritised work areas defined in workpackage 2.

ERA-ENVHEALTH partners, both in preparatory work and discussions on selecting topics for joint activities, agreed on 3 main joint activities to be developed using project tools and tasks:

- funding transnational calls on the topic of climate change (see WP2 and 4 reports),
- launching a pilot activity using the ERA-ENVHEALTH network and tools (consortium and potential new partners, ERA-ENVHEALTH research database, ERA-ENVHEALTH dissemination tools) to test the network's ability to picture IAQ research and policy needs (see also task 3.2 and 5.2 reports),
- the organisation of the ERA-ENVHEALTH project final conference, open to stakeholders and researchers outside of the consortium on Environment and Health research strategic visions to share experiences and lesson learnt.

The indoor air quality survey was launched using a "contributing and sharing" approach in order to also verify the cooperation potential of the global ERA-ENVHEALTH network including potential new partners enrolled under the framework of task 5.2 and also all institutions that provide information for the ERA-ENVHEALTH research database.

The work programme defined by the leader of task 3.2 was presented, discussed and approved at the ERA-ENVHEALTH General Assembly meeting in October 2011. The survey was launched in the fall in 2011. Results were preliminarily presented at the ERA-ENVHEALTH work sessions in Berlin in March 2012 and finally discussed at the ERA-ENVHEALTH final conference held in June 2012 in Paris.

An online questionnaire built on the ISPRA-SINANET (Italian Environment Information System managed by ISPRA) was created using a user-friendly interface. The questionnaire was also



available and disseminated through the ERA-ENVHEALTH website (section joint activities and join the project).

The report summarises the methodologies, issues encountered and results of this joint activity including a brief review of existing indoor air quality related policy at the EU level.

The questionnaire consisted of two main sections, one for strictly research-related input and one for governance-related input.

The “Research overview” section included six questions about:

1. Type of indoor environment investigated
2. Sources of indoor air pollution investigated
3. Population groups considered
4. Chemical and biological pollutants investigated
5. Research on indoor air quality monitoring techniques/procedures
6. Health impacts investigated

The “Governance overview” section included questions about:

1. Indoor air quality regulation in your country
2. Competent authority for the management of indoor pollution sources
3. Participation in indoor air quality related research projects
4. Allocated funds for indoor air research in (your) institute (yes/no/ % total budget)
5. Integrated research activities (e.g. climate change and indoor air...)

Although dissemination of the questionnaire was European-wide, if we just look at the figures, the survey results aren't satisfactory both from a quantitative and qualitative point of view. The response rate was low compared to the relevance that was highlighted in the discussions on the indoor air topic. We feel that this was due not only to a question of time constraint (the survey was done over a period of a couple of months), neither to a lack of interest for the issue, but mainly to the fact that the indoor air quality issues is very complicated to picture per se and often it is still not very clear and defined which are the authorities involved and their fields of action.

However, the data also show some interesting information: no regulation exists on indoor air quality in residential homes still these are the indoor environments that received most attention from researchers. Although respiratory and allergic diseases are the health impacts most commonly investigated, ozone and pollens are the “least” monitored pollutants.

In most cases, the question related to competent authorities for local indoor air monitoring were left blank even if some countries, such as France, Italy and Germany, show advanced policy scenarios with a focus also on vulnerable groups or environments (i.e. children, schools).

The data gathered from the questionnaire are scarce and probably not very representative of the actual situation on indoor air research at the European level, it is still true though that any extension of this survey may lead to interesting results on the current indoor air quality scenario.

5. Funding of transnational research

• First call for proposals

The full details of the call management process, scope of the call, available budget etc. are contained within a Memorandum of Understanding (MoU) signed by all three funding partners.

The announcement of opportunity for the first joint call for ERA-ENVHEALTH was published on the 3rd of March 2008. The theme for this call was “Health vulnerability resulting from future climate



change impacts on soil-water ecosystems, land use and water resources at regional scale” Applications were invited from consortiums of scientists from the UK, France and the Netherlands but could involve researchers from other European member states. The funding available for the call was approximately 3 million Euros, provided by UK, French and Dutch partners.

The call had a deadline for pre-proposals of 25 April 2008. 10 proposals were received which were assessed for their fit to call criteria, all were then invited to submit full proposals with a closing date of 24 June 2008. All 10 full proposals were received and were externally reviewed prior to evaluation by an international assessment panel. The proposals were ranked according to “scientific excellence”, with a secondary category of “added value” applied to separate those with the same grade. The panel then recommended that the final decision of funding should be taken by the ERA-ENVHEALTH Joint Call Steering Committee, based on funding limitations and strategic fit. The Steering Committee accepted the recommendations of the panel, and agreed to fund the top two ranked proposals (details below).

Due partly to differences in national financial regulations and budgetary regimes it has proved challenging to synchronise the issue of contracts / grants to the successful project research teams and this stage of the process has been protracted and ideally would have been concluded in a shorter timescale. This has been an important learning point for future calls and has highlighted that the uncertainties that can develop from use of the “virtual” common pot mechanism must be considered and contingency procedures agreed & incorporated when developing future call processes.

The first joint call provided a useful case study and practical experience of managing and evaluating a trans-national call. The strong process framework that has been developed and lessons learned during the implementation have provided a sound basis on which to develop future trans-national calls.

- *Environmental Change and Rising DOC Trends: Implications for Public Health*

This highly integrated multidisciplinary project engages the skills of environmental scientists, mathematical modellers, analytical chemists, toxicologists and public health scientists to address health vulnerability issues resulting from future environmental change impacts on soil-water ecosystems at a regional scale. It will address the health implications of a recently observed alarming trend for rising Dissolved Organic Carbon (DOC) concentrations in aquatic ecosystems used for potable water abstraction. Over the past two decades the concentration of dissolved organic carbon (DOC) in many source waters has more than doubled and continues to rise (Freeman et al., 2001). There is increasing evidence to suggest that the process is being driven by environmental changes such as a decline in acid deposition (Evans et al., 2006; Monteith et al. 2007), combined with rising temperatures, increased frequency of drought and changes in the seasonal distribution of rainfall. We aim to analyse data from monitoring programmes and various other studies to allow us to predict the likely impact of future changes in climate and air pollution on DOC concentrations in water entering reservoirs and water treatment works. The increase in the level of DOC reaching water treatment works has major implications for human health. Organic matter in raw water is only partially removed by conventional treatment using inorganic coagulants; what remains may react with disinfectants. During chlorination of water supplies the chlorine reacts not only with the microorganisms but also with most of the other organic material present in the water, either dissolved or in suspension. This produces a range of organic compounds known as disinfection by-products (DPBs) including a group of chemicals called trihalomethanes (THMs), plus haloacetic acids, halonitriles, haloaldehydes and chlorophenols. We will carry out laboratory experiments to test the likely implications of the future changes in DOC we have predicted for the generation of these compounds within the water treatment system. Furthermore, a wide variety of other chemical contaminants, derived from industrial air pollutants, fertilizer application and urban waste water discharge may bind (by sorption) to natural organic matter and be transported into reservoirs and water treatment works in association with DOC. Their fate within the treatment system, i.e. whether they are removed or remain within solution, depends heavily on the type of contaminant, the nature (or quality) of the DOC, the chemistry (e.g. pH and ionic strength) of the



aqueous solution and the type of treatment process. We will carry out laboratory experiments to determine the extent to which these contaminants are bound to DOC at the point they enter the water treatment process and what is likely to happen as a result of the process, e.g. the extent to which contaminants are likely to be removed or remain in solution. Living organisms respond in various ways and on a spectrum of timescales when exposed to chemical contaminants. Some effects in organisms are immediate while others effects may be delayed and not shown up for 10 or 20 years or more; for example, cancer in humans. We will draw on existing risk assessment approaches from national and international (EU) governmental agencies to evaluate the potential human health impacts of changes in levels of a range of contaminants under environmental change scenarios. Finally, we will bring together the findings of our research in the form of a Decision Support System (DSS) that will provide information to the water industry, the environmental agencies and other stake holders. The DSS will provide predictions of likely DOC trends under future climate change scenarios and the likely importance of predicted changes for wider water quality and human health.

- *Risk assessment of the impact of climate change on human health and well-being*

Assessment of the potential impact of future climate change on human health and well-being (the latter via effects on animal health) is hindered by the sheer number of pathogens, their diversity, varied linkages to climate and ecosystems and, often, lack of data. Here we propose to exploit a unique database developed at the University of Liverpool which will soon contain a set of records for all known pathogens of humans and domestic animals. We will use expertise present within the University of Liverpool, the international co-investigators and our project partners to generate a subset of the list, namely all those pathogens that occur in proximity to the UK, France and the Netherlands or threaten these countries; are of major impact in terms of the magnitude and likelihood of impact on human health or well-being; and have epidemiological linkages to temperature or moisture levels in air or the environment and, hence, may be expected to be susceptible to the effects of climate change. This subset of diseases will be subjected to qualitative or quantitative risk assessment to estimate how they will change (in terms of distribution, incidence and severity) under scenarios of future climate change within the next half-century. Our underlying principle is that the data and pathways on which our conclusions are based should be fully recorded, referenced and transparent; as better data become available, it will be possible to update the model outputs. A benefit of our approach is that it is 'bottom-up', at the start giving equal weight to all possible pathogens that could be affected by climate change, and then reducing the list according to agreed criteria. This approach is balanced, allowing the conclusion, for example, that the highest-impact pathogens are largely insensitive to climate change. By contrast, most previous assessments of the impacts of climate change are top-down, starting (and often ending) with the premise that a few key vector-borne pathogens of (usually) humans (malaria, dengue, yellow fever) need urgent consideration. We will listen closely to stakeholders and end-users while designing our risk assessment pathways, and wish to communicate our scientific approaches and findings to them effectively. To the end, we plan to adopt participatory methods throughout the project.

• **Design of the second call and Management Paper**

The model chosen by ERA-ENVHEALTH ensures the participation of all partners in the definition of the programme and the launch of a common programme with specific targeted calls (involving partners with the same interests), a number of common eligibility criteria, common evaluation procedures and flexible funding modes depending on the national constraints.

ERA-ENVHEALTH and its partners highlight the value in enhancing European collaboration and express a number of benefits and opportunities arising from the development of transnational cooperation and activities including joint calls for research projects, both for the programme managers and for the researchers:



- Increased research capacity and quality of results, not only through greater access to scientific excellence but also due to cost sharing enabling a higher impact of the public investment in research.
- Minimisation of duplication through information exchange and exploitation of complementary strengths.
- Broadening of the access to research funds for the area of E&H but also for national research teams.
- Capacity building for the national research teams and enabling them to build lasting linkages within the European scientific community.
- Building up of experience in transnational cooperation.
- Greater degree of flexibility in launching transnational calls by using the “a la carte” framework.

The Partners intend to issue a second transnational call for research projects in the general area of Environment and Health research. The purpose of the Management Paper is to establish the procedures for the second call for proposals in the framework of a transnational funding programme within the context of the ERA-ENVHEALTH network. It dictates the common action of the Partners with respect to the organisation and management of the second ERA-ENVHEALTH call. The Management Paper takes into account the recommendations of the evaluation of the 1st call and sets out the procedures for the design and management of the 2nd call.

The Management Paper sets out the common procedures, such as the area of the programme and the dissemination of the call, which are to be defined and carried out by the ERA-ENVHEALTH partners together. Specific procedures, related to the proposed “a la carte system” which enables groups of partners to get together to fund targeted calls within the programme, are to be defined within each subgroup of funding partners. These include the establishment of the call application, review and funding procedures. They will be defined in the signed Memorandums of Understanding between specific funding partners detailing the cooperation relevant for each targeted call, which will come to complete the Management Paper. The Management Paper defines common operational procedures whereas the Memorandums of understanding will define the specific decision-making procedures between funding partners.

- **Second call for proposals: Announcement of opportunity and selected project**

The second call was launched in January 2012 on: "Air pollution in urban areas – health impacts on vulnerable groups under changing conditions". Once the call programme and funding partners were defined and agreed upon, the funding partners were then responsible for implementing the call: defining more precisely the scientific domain addressed by the call, preparing the call documents, setting up the secretariat of the call and providing national contact points for the researchers, organising the evaluation of the proposals received, taking the final funding decisions and elaborating the contracts with the funded research teams. The funding partners are also responsible for the follow-up and monitoring of the projects they fund, and the valorisation of the results. However, all ERA-ENVHEALTH partners are to take part in the dissemination activities.

The 2nd call was open to proposals for transnational scientific research projects that:

- link scientific advancement to challenges in E&H research, policy and practice,
- generate new knowledge and insights,
- generate added value by linking expertise and efforts across national borders, leading to research projects designed at the appropriate scale and scope,
- provide a transnational vision to support policy-making.

Policy-oriented, integrated, applied research was requested.



For this second call, a total amount of 1.35 M€ was provisionally reserved by the 5 funders in France, Belgium, Germany and Sweden.

The call was announced on the ERA-ENVHEALTH website (www.era-envhealth.eu), where all relevant documents are available for download, and in the ERA-ENVHEALTH newflash. In addition, all ERA-ENVHEALTH partners advertised the call using their own usual channels of communication.

The following documents were produced for the call:

- 1) The Management Paper: establishing the procedures for the second call for proposals in the framework of a transnational funding programme within the context of the ERA-ENVHEALTH network. It dictates the common action of the Partners with respect to the organisation and management of the second ERA-ENVHEALTH call. This Management Paper takes into account the recommendations of the evaluation of the 1st call and sets out the procedures for the design and management of the 2nd call.
- 2) Memorandum of understanding signed between the funding partners (last signature 10 January 2012): establishing the principles dictating the call's specific actions by the funding partners with respect to the organisation and management of the second ERA-ENVHEALTH transnational call for research proposals within the context of the ERA-ENVHEALTH network.
- 3) Call documents including the:
 - Announcement of opportunity for the ERA-ENVHEALTH 2nd call for transnational projects
 - 1st stage application form: Annexe 3 – letter of intent application form
 - 2nd stage application form: Annexe 4 – full proposal application form
 - Funding model: Annex 2
 - Secretariat procedures: Annex 5
 - Information and guidelines for the Evaluation Committee and Assessment Criteria: Annex 6
 - Good practice and conflict of interest: Annex 7
 - Additional information and national contact points: Annex 8

Calendar of the ERA-ENVHEALTH second call:

- November 2011: Preparation of the calls by the funders
- December 2011: Signature of the call MoU
- End of January 2012: Launch of the call
- End of March 2012: Deadline for submission of the letters of intent
- Beginning of July 2012: Deadline for submission of the full proposals
- July 2012 to September 2012: Evaluation of the proposals
- September 2012 - December 2012: Signature of the contracts with the research teams
- December 2012: Publication of the results and start of the projects
- January 2013 to December 2015: Follow up of the research funded

Eight letters of intent were received by the 31st of March 2012. Seven were eligible and five were invited to submit for the second stage. Four full proposals were received by the 6th of July 2012 and evaluated over the summer by 12 external referees. The evaluation committee meeting took place in Brussels on the 28th of September 2012. The Evaluation Committee, composed of 6 international experts, evaluated and ranked the proposals on the basis of the referee assessments and suggested recommendations for funding. The final selection meeting with the steering committee



took place after the evaluation committee meeting in Brussels and one project was selected for funding:

- *Assessment of changing conditions, environmental policies, time activities, exposure and disease – ACCEPTED.*

The ERA-ENVHEALTH 2nd call funding partners allocated a total budget of 1.17M€ to the ACCEPTED project consortium members. The partners implemented the virtual common pot funding mechanism.

The selected project started in December 2012 for 36 months.

- **Evaluation and review of the calls for proposals: Report on the management and scientific evaluation issues encountered during the first call**

The work leading to the preparation of the report was sub-contracted to an independent evaluation expert

ERA-ENVHEALTH is a network of 16 public research funding organisations from 10 European countries supporting scientific research in the field of environment and health. It was funded as an ERA-NET project under the European Commission's 7th Framework Programme for Research and Technological Development. It aims to network its partner organisations to develop sustainable collaboration in research funding, policy and practice, thereby creating added value in high quality environment and health research across national boundaries.

One of the activities of ERA-ENVHEALTH has been the organisation of a first targeted call for transnational research on the human health impacts of environmental change, funded by ANSES (French), IenM (Dutch) and NERC (UK) partners. The theme for this first call was "Health vulnerability resulting from future climate change impacts on soil-water ecosystems, land use and water resources at regional scale".

Through its evaluation, the first call aims to provide recommendations for future transnational calls for research, and in particular for the design of a second joint call in the framework of the ERA-ENVHEALTH project. This evaluation concentrates on management and scientific evaluation issues encountered during the first call.

The evaluation tools used for the assessment of the 1st call were based on a set of evaluation questions. The Term of References of the evaluation defined a list of questions, which have been gathered and reformulated into evaluation questions and judgement criteria. The evaluation questions were then ranked by the members of the Evaluation Steering Committee, formed by members of the ERA-ENVHEALTH project, members of the ERA-ENVHEALTH external advisory committee and the financing organisations.

The main information sources for the data collection process were: Analysis of documents and interviews with stakeholders, including an on-line questionnaire for the non-selected project holders. In addition, a benchmark study was carried out using the same tools (interviews and desk study). In total, 22 interviews took place, of which 4 face-to-face and 18 telephone discussions.

Based on the documents and interviews, the logical framework of the call (the objective tree, the impact diagram and the theory of action) was reconstructed. Assessing the links between these elements through the qualitative analysis provided better insight in the expectations and satisfaction of the stakeholders.

The main findings of the evaluation concerned, in first place, the procedural framework of the call. Some elements were unanimously found as positive, such as the functioning of the Call Secretariat with the support of the National Focal Points. The text of the call was described as exhaustive, containing all the necessary elements for the submission of an eligible and good quality proposal.

The selection process was well established and enabled to choose the best projects in terms of scientific excellence, interdisciplinarity, novelty and project management. However, the policy



orientation of the projects could be enhanced by requiring the involvement of the policy-makers in the realisation of the projects and by targeting the dissemination and use of the results. The composition and performance of the evaluation committee was highly appreciated, but at the same time the specific scientific expertise of the external peer reviewers were in some cases found to be not fully adapted to the special and interdisciplinary research fields.

Some activities prior to the launch of the call were found to be highly important for the smooth running of the process. These issues were confirmed by the benchmark study. First of all, the objectives of the financing organisations should be clearly expressed. In order to launch a common call, the goals of the policy oriented organisations have to be harmonised with those of the research financing bodies. This can concern issues such as the financing framework (tendering or call for proposals), or the type of research (applied or fundamental). Secondly, the definition of the research area targeted by the call should include all stakeholders in order to satisfy the needs of all users. And last but not least, the financing framework should be defined and formalised by a commitment document, such as a Memorandum of Understanding.

The research activities (and thereby the results) of the two selected and financed projects are currently underway. Programme managers consider that these scientific results will bring answers to some policy questions in terms of risk assessment of climate change impact on human health, with a special focus on pathogens on one hand, and on soil-water ecosystem changes related to organic contamination at a regional scale on the other hand.

The conclusions and recommendations of the report include elements highlighted by the benchmark study, in addition to the findings of the evaluation of the 1st call for proposals. As a general conclusion, all the project holders and stakeholders agree that the ERA-NET scheme is a good tool to finance transnational research projects, and an innovation between the national and European levels of research financing schemes. The transnational programmes target this niche, and provide appropriate support by applying the principles of subsidiarity. The added value of transnational calls in terms of project size was highlighted, as well as the synergic aspect of the budget: financiers provide some available funds and have access to all research results. With regards to the management, the call secretariat was mentioned as being essential for the efficient implementation of the calls.

Some common difficulties can also be identified in almost all ERA-NETs. The most important one was the setting up of a real common pot; as a matter of fact, mostly virtual common pots or mixed-mode pots exist. The “funders’ agreement” was mentioned as a serious bottleneck in the cooperation in several calls. National agendas and strategies should be taken into account; therefore the definition of the research scope was also identified as a key point. The focus should be brought on applied research and less on fundamental research to answer financiers (policy-makers) needs. A limited number of financing partners (max 4-6) can ease the choice of topics and the definition of the financing rules. Finally, the dissemination of results was also stated as a key issue; however its execution is usually left to the research teams, and depends on the researchers.

As a general recommendation for a next call based on the findings of the present evaluation and completed by the benchmark study, a special framework was defined, using the ‘A la carte’ method. This framework allows the matching of several dimensions related to the call:

- Choice of the research topic
- Number of partners financing a selected research area
- Financing approach (call for proposals or tendering)

A strategic plan or an umbrella action plan can be elaborated jointly with all the involved stakeholders, defining the main research fields, and indicating, as much as possible, a schedule related to the different research areas or axes.

Based on this action plan, specific targeted calls can be launched for one of the axes depending on: the interested partners, the budget they can make available, and the objectives they express relating to the research results. The targeted calls can be launched one after the other or in parallel.



The financing approach for the call can follow either the tendering type, or the call for proposals type, depending on the urgency and the specificity of the research results needed. The scheme has the advantage of providing a well elaborated framework, established by all the ERA-ENVHEALTH partners, and allows for a maximum of flexibility.

The stakeholder interviews and the discussions during the Evaluation Steering Committee meetings brought attention to the involvement and coordinating role of the European Commission regarding the calls through ERA-NET projects.

Programme managers and policy-makers expressed their needs to be informed about the existing research results in order to avoid double-financing. The issue is even more relevant, considering the continually narrowed national budgets for research and the economic crisis. This financial burden can be overcome with transnational calls by financing areas where no other financial resources are available. The willingness of the EC to harmonise research financing at the EU level is underpinned by the launch of the NETWATCH website (<http://netwatch.jrc.ec.europa.eu/nw/>), collecting information on ERA-NETs. For instance, a guideline and an exhaustive checklist (http://netwatch.jrc.ec.europa.eu/nw/static/eralearn/manual_printable.pdf & ERA-LEARN checklist, Feb 2010. http://netwatch.jrc.ec.europa.eu/nw/static/eralearn/checklist_printable.pdf) can be found in order to share experiences with the already accomplished calls (<http://netwatch.jrc.ec.europa.eu/nw/index.cfm/static/eralearn/overview.html>). However, ERA-NETs are funded as research projects and the question of their sustainability and the longevity of their call financing activities is raised, the continued funding of a secretariat being necessary.

- **Outcomes and impacts evaluation of the first ERA-ENVHEALTH call - Report reviewing the first call for proposals with recommendations for later calls**

An independent expert evaluator was chosen to carry out both parts of the evaluation and was supported in his work by an Evaluation Committee composed of 10 members.

The first part of the evaluation (*ERA-ENVHEALTH report on the management and scientific evaluation issues encountered during the first call, June 2010*) focused on the actions implemented to reach the first two operational objectives: “To create a new funding scheme” and “to test a new funding scheme”. The second part of the evaluation aimed at assessing the outputs of the first call process so that recommendations can be defined in order to support the design of the second call which was already planned in the ERA-ENVHEALTH project plan. This second part focuses on the outcomes and impacts of the first call on the one hand and checks if the recommendations of the first part of the evaluation have been taken into account by the ERA-ENVHEALTH partners in the design of the second call process on the other hand.

The main objective of the second part of the evaluation was to analyse the follow-up of the research projects funded under the first call, the results produced by the research teams and their impacts on public policies and the structure of European research in environment and health.

This impact evaluation is a keystone to appreciate the adequacy between policy-making needs and research results and outcomes. In addition, it is to our knowledge, a novelty in ERA-NET projects.

The methodology of the second part of the evaluation was built on three steps: definition of the framework of the evaluation; data collection; and analysis.

From a temporal aspect, the evaluation took place before the end of the two funded projects and whereas the second call design process was ongoing. The vision of the evaluation, with regards to impact on policy-making, is not in capacity to fully assess the impact of the research projects: an impact that will occur over the next few years. However, elements have been collected all along the data collection phase and provide information on the potential effects of the projects.

Defining evaluation questions is an essential part of the set-up of any evaluation exercise. To ensure that the evaluation questions correspond to a real need for information, understanding or identification of a new solution, a set of interviews were done with funders of the first call and partners of the ERA-ENVHEALTH consortium.



Since the funded projects were not finished yet, the evaluation mainly focused on the effectiveness and the efficiency of the first call. The evaluation also described the first outcomes and impacts of the first call (utility and sustainability):

In order to reply the evaluation questions defined in the first step of the evaluation, different evaluation tools were used, including participatory observation which is a qualitative method to help understand the interplay among a group of a given community. The expert approaches participants in their own environment rather than having the participants come to him. The evaluator accomplishes this through observing in meetings. Data obtained through participant observation serve as a check against participants' subjective reporting of what they believe and do.

This evaluation was more of a model of feasibility as it was carried out on one call from which two projects were funded and in order to evaluate a real impact over time more years and resources would have been required. Nevertheless, it is a novelty for the Environment and Health domain and provided very interesting insights into transnational calls for research projects in Environment and Health, in particular it highlighted:

- the importance of being able to put together and fund small European projects, encouraging and implementing true and lasting collaborations;
- the possibility of building policy-oriented calls for research;
- the need for involving policy-makers in the design of such calls for research and the fact that traditional communication tools are not sufficient to disseminate the research results to the stakeholders;
- the fact that these types of calls and research, in particular in the environment and health domain, are emerging but not yet mature at the European level.

6. Dissemination and communication – extending the network

The recruitment of new partners and participants is paramount to achieve the objectives of ERA-ENVHEALTH since it will facilitate:

- the identification of E&H research programmes not represented in the ERA-ENVHEALTH consortium;
- the identification of organisations that can be interested in becoming new fully fledged partners of the ERA-ENVHEALTH consortium;
- the fostering of an effective cooperation mechanism for the exchange of information among partners, potential partners and the larger stakeholder community, including researchers and NGOs;
- the provision of a cooperation platform or appropriate forum of discussion on E&H research priorities and programmes through the ERA-ENVHEALTH Consortium partners;
- the involvement of other strategic partners within partner countries to overcome knowledge gaps in policy implementation;
- the attenuation of institutional and financial barriers for international research implementation;
- the building of future network scenarios beyond the ERA-ENVHEALTH project life period.

The long-term objectives are also to:

- stimulate environment and health research through an integrated approach in particular for neglected areas of research resulting from the ERA-ENVHEALTH Report concerning E&H programmes and projects within the Consortium, including emerging risks and “orphan” issues;



- contribute, through the exchange of research results and knowledge, to the development of coherent E&H research policies at EU and national levels;
- expand the Consortium network specially focusing on Southern European Countries and new Member States as established in the ERA-ENVHEALTH Description of Work.

In achieving these objectives, the work of Task 5.2 provided a recruitment strategy structure and tools supporting the involvement of organisations in future activities and aimed to answer two questions: *Who to involve and How to do it?* This work facilitates the overall achievements of WP 5 – Dissemination and Communication by both expanding the communication programme already in place and involving Partners and EAC members.

The main outputs of the work carried out and discussed in this Report and supporting the proposed communication and recruitment strategy include:

- a) developing several activity scenarios according to different targets and cooperation with different Consortium bodies such as the External Advisory Committee (EAC), WP leaders and project Partners (see Fig. 1);
- b) establishing transparent criteria with regards to requirements and mutual benefits from joining the network for different categories (potential full partners, scientific bodies without funding facilities, NGOs, etc.) to avoid misunderstanding on expectations and benchmark activities (see Annex 1);
- c) selecting a list of potential new partners outside the consortium based on certain criteria such as: 1) National authority in the field of E&H research, 2) Attitude towards European research and network task achievements, 3) Geographical location according to the DOW mandate (see annex 4);
- d) the help of consortium partners in contacting potential new partners or contributors in their countries (see annex 2.);
- e) expanding of the communication programme to interest potential new partners through the project's website;
- f) scheduling an ad hoc workshop to be organised at the next GA meeting in September 2010 in The Netherlands where potential new partners will be invited to participate.

This workshop, entitled: "Planning transnational E&H research activities with potential new partners", was organised on the 15th of September 2010 in The Hague, the Netherlands, at the end of the ERA-ENVHEALTH annual General Assembly meeting, which took place from the 13th to the 15th of September. The aim of the workshop was to finalise the mechanisms for participation of interested potential new partners and potential collaboration was investigated with a number of other EC projects and potential partners working in the same area. 3 projects presented their work: the ENRIECO project, HEIMSTA/INTARESE projects and HENVINET portal and discussions around how we could collaborate together took place. Organisations working in the same area were also present and in particular the Health Protection Agency's (UK) work in Environment and Health was presented.

Another main aim of the workshop was to look into the possibility of launching pilot study activities to be developed with collaborating potential new partners on the specific topics of climate change, endocrine disruptors and housing and health. The idea of these activities is to translate science into policy tools and provide evidence-based recommendations useful for future research planning and policy-making and the objective of the workshop was to discuss this possibility (see 4. Definition and implementation of joint activities: Survey on indoor air quality research and policy governance: Report from the ERA-ENVHEALTH joint activity on indoor air quality research and governance within the ERA-ENVHEALTH network).

The first report investigating the involvement of potential new partners in the consortium already stated that the recruitment of new partners and participants is paramount to achieve the objectives of ERA-ENVHEALTH since it facilitates medium and long term goals. Mechanisms to achieve and



support these goals were discussed within task 5.2 and two main stages were planned throughout the project's work programme:

1. The elaboration of a recruitment strategy to enhance the visibility of the added value and long-term objectives of ERA-ENVHEALTH for potential new partners and to set up criteria and methodologies to provide a list of potential new partners, in particular for countries outside of the consortium network.
2. The involvement of the potential new partners in joint activities planned by the consortium, and also to facilitate future access as partners of the Consortium and/or in future network scenarios beyond the ERA-ENVHEALTH project's life period.

The recruitment strategy of potential new partners was applied throughout the entire project period also using an online questionnaire created using a user-friendly interface and hosted by ISPRA-SINANet (Environmental Information System network) server. The questionnaire for potential new partners has also been uploaded on both the ERA-ENVHEALTH and ISPRA websites to maximise the spread of knowledge about the project's recruiting status. A list of 258 contacts in authorities working in the Environmental, Health and related sectors in Countries outside of the consortium, and mainly South and East European Countries was developed. Three percent of the contacted institutions showed interest in joining ERA- ENVHEALTH and the consortium As a result of this involvement strategy, so far over 40 potential new partners from 37 organisations have been involved, many of which have already participated in the first joint activity designed to bring partners and new partners in contact and, above all, to involve the potential new partners in the consortium activities. Of the 37 organisations enlisted as potential new partners 12 are University, 11 are Public Bodies and 14 are Research Organisations.

Potential new partners were also involved in the joint activity carried out in collaboration with ERA-ENVHEALTH partners focusing on indoor air, namely a survey on research knowledge and governance measures. For this survey, a specific online questionnaire also hosted by the ISPRA-SINANet server through a user-friendly interface, was elaborated and included two main sections: research and governance. Results from the survey were presented at the ERA-ENVHEALTH project Final Conference in June 2012 in Paris, where the presence of potential new partners was welcomed as sign of interest and effectiveness of the involvement strategy. In the last ERA-ENVHEALTH project General Assembly meeting in June 2012 in Paris, the future of the ERA-ENVHEALTH network was a major theme of discussion. All partners in the consortium agreed on the importance and role of this network and decided to continue this productive working relationship between partners. Potential new partners shall be informed in the next months of this arising opportunity and instructed on how to properly enter the future network.

Although networking is the ultimate goal, for the E&H research domain the ERA-ENVHEALTH project highlighted the need for creating and strengthening an appropriate forum of discussion at the EU level integrating all actors, including stakeholders, research funders and research programmers.

The two-day ERA-ENVHEALTH final conference aimed to provide a better understanding of future challenges in environmental health and how research can contribute to meeting them. It brought together over 140 representatives from 16 countries, from a wide range of stakeholders including research organisations, research funding entities, non- governmental organisations, scientists and national and European authorities, a sign of the success of this project.



IV. Potential impact

1. Strategic impacts

The ERA-ENVHEALTH consortium is a unique network for E&H research in Europe. Unique through the variety of actors participating: NGOs, ministries, agencies, international organisations.... Unique through the diversity of countries represented and unique in its innovative and multi-sectoral approach.

ERA-ENVHEALTH's aims are to:

- Advance high quality E&H science by the dissemination of knowledge, sharing of experience and the transfer of skills between the members of the network through creating a platform for cooperation and tools for continued information exchange & communication.
- Enlarge the scientific capabilities of the partners through mutual learning, working together and implementing joint activities.

The ERA-ENVHEALTH partners have joined forces and resources to increase the relevance and efficiency of E&H research in Europe and better integrating E&H research into policy. ERA-ENVHEALTH has contributed to the European Environment and Health Action Plan (EHAP) 2004-2010, by promoting better use of research results to support policy development. The information generated by the project is also a valuable resource for stakeholders to increase the visibility of E&H and related policies.

ERA-ENVHEALTH brings dynamism to E&H research in Europe by increasing its visibility as a key area, promoting collaboration and fostering innovative ideas. ERA-ENVHEALTH has shown that transnational collaboration in E&H fills an important niche. It provides an interesting forum to discuss challenges, visions and emerging issues. As concern regarding E&H issues is increasing, ERA-ENVHEALTH is helping to provide the much needed trans-national cooperation for research in that area. ERA-ENVHEALTH contributes to the ERA-NET objectives by:

- improving the coherence and coordination of research programmes in the E&H domain,
- avoiding overlap and developing expertise from mutual learning and access to European research,
- implementing concrete cooperation between research programmes, networking and joint activities,
- providing a framework for coordinating E&H research activities,
- enabling tasks to be taken on collectively.

After four years of close collaboration and cooperation, the network has become valuable for the partners and stakeholders in the E&H sector at large, and in particular for research, by:

- Increasing the visibility of E&H in Europe and providing a voice for a European perspective on E&H priorities and research in Europe
- Providing access to a forum to discuss public policies, priorities and strategic visions of the challenges in E&H research and how to tackle these
- Providing access to a unique source of information including national research results and visions
- Promoting exchange and collaboration among the different actors involved in E&H and trying to bring research closer to policy
- Enabling the optimisation and pooling of resources, in particular joint calls for research, and providing opportunities for joint work on topics of common interest
- Disseminating relevant information



2. Specific impacts

- **Active transnational network including stakeholders in the E&H field**

The ERA-ENVHEALTH project, co-funded by the European Commission under the 7th Framework Programme from 2008 to 2012, brought together 16 partners from 10 countries and an external advisory committee composed of representatives of various stakeholders in environment and health, creating an active network for E&H research in Europe (including agencies, ministries, research organisations, research funders, non-governmental organisations, European organisations such as the European Environment Agency; the World Health Organisation...).

- **Innovative forum for all actors in E&H to discuss challenges, visions and emerging issues**

Over the four years of collaboration and cooperation, the partners defined a common vision of the E&H research landscape in Europe. This enabled the formulation of EU-wide priorities for research to contribute to reducing the impact of environmental factors on human health.

It has never been as important to share and collaborate in order to maximise the impact and efficiency of environment and health research funding in Europe, namely to help ensure coherent policies beyond national boundaries. The network fosters and develops innovative ideas and tools providing valuable support in tackling these challenges.

- **Bringing E&H to the forefront of policy and research concerns**

Environment and Health is a broad and complex issue. It is also a transversal issue being impacted upon by many different sectors such as agriculture, energy, transport ... Cross-sectoral collaboration must therefore be supported in order to contribute to improving human health through a better environment. The ERA-ENVHEALTH network is striving towards increasing the visibility of environment and health issues and their importance for policy by facilitating cross-sectoral exchange.

- **Mobilising European science for E&H research, policy and practice**

Research has significantly improved knowledge about the links between the environment and health. However, understanding the complex interactions is still in an early stage. The diversity of issues under the environment and health theme and the diversity of approaches and associated funding arrangements stem from the wide scope of the research which could be conducted. Through its collaboration and trans-national funding scheme, the ERA-ENVHEALTH network creates added-value in high quality environment and health research across national boundaries. The environment and health research community is emerging and multidisciplinary is required to respond to the challenges in environment and health research. Targeted transnational calls are well adapted to this context and enable researchers to create a viable multidisciplinary and transnational network.

Research also plays a fundamental role in the development of policies. The network evolved in order to take into account the challenges, particularly for environment and health issues, such as the evaluation of scientific evidence, the integration of different sectors and policies that may be impacted (co-benefits...). For the different stakeholders including policy-makers, it brings a deeper understanding of both the science and policy levels and facilitates communication between researchers and policy-makers.



A. Unrivalled access to information

ERA-ENVHEALTH is a unique network for E&H research in Europe. Access to and sharing information is a critical success factor. ERA-ENVHEALTH facilitates the integration of knowledge and good practices in the E&H research field, and helps identify gaps and needs for both policy and research.

For scientists, research administrators, and policy-makers the expert database provides access to specific expertise. The research database is very useful and gives a precise overview of European projects, which are financed in the field of E&H. It can help provide input to discussions about orientation and axes of research in E&H with a focus on the use of research for public policy. It is very valuable for both scientists and policy-makers in these areas.

The description of the research landscape reflects the diversity of the participating countries and organisations, their differences and similarities. The large amount of information gathered stresses the high interest in further cooperation and also the need for future collaboration in this area. Through sharing information, the partners have been able to identify key strategic issues and priority areas for research and have contributed to the development of a coherent collaborative European framework for defining coordinated and combined actions for research on a number of E&H priorities.

As concern regarding environment and health issues is increasing, ERA-ENVHEALTH is helping to provide the much needed trans-national cooperation for research in that area.

B. Increasing the visibility of E&H

Providing access to information and the outputs of ERA-ENVHEALTH and reaching stakeholders is critical for the E&H sector. The ERA-ENVHEALTH project has created a number of communication tools to disseminate different types of information. ERA-ENVHEALTH facilitates and stimulates communication and dissemination of information to help support research programming and policy relevance in E&H thus facilitating better communication and deeper understanding of the drivers and priorities for both scientists and policy-makers in E&H.

ERA-ENVHEALTH contributes to EU policies and specifically those initiated in the Environment and Health Action Plan 2004-10. Activities not only focus on the research areas of interest to the agencies, but also take into account the policy agenda and major trends influencing it. The ERA-ENVHEALTH network has many links with decision makers at the national level, through the participation of ministries in the network or through other organisations such as national agencies. The project has a website (www.era-envhealth.eu) and its newsflash is distributed to over 1 000 stakeholders. The final conference was open to external participants and provided a better understanding of future challenges in environmental health and how research can contribute to meeting them. It brought together over 140 representatives from research organisations, research funding entities, non-governmental organisations, scientists and national and European authorities from 16 countries. The discussions during this final meeting contributed to identifying relevant and effective policies for E&H research in Europe.

C. Acting together

ERA-ENVHEALTH has shown that transnational collaboration in E&H fills an important niche. ERA-ENVHEALTH stimulates the implementation of joint activities where transnational collaboration can bring added-value. The joint activities implemented promoted exchange and collaboration among the different actors involved in E&H, and also helped bring science closer to policy in this sector by enhancing the use of scientific outputs.

ERA-NETs bring new funding opportunities for researchers. ERA-ENVHEALTH's calls for research projects bring added-value as the research consortia formed are newly established, multidisciplinary and transnational. ERA-ENVHEALTH allows the best researchers across Europe to link up with



their peers in different way from those currently possible under larger European projects or smaller nationally funded projects.

The ERA-ENVHEALTH brochure “Bridging the Gap Between Science and Policy - Improving Knowledge Transfer - A Checklist For Researchers” was designed to support researchers who wish to ensure the consideration of their work and enhance the uptake of their scientific findings into policy.

ERA-ENVHEALTH has contributed to the development of the European Research Area in the field of E&H and has built lasting cooperation in the E&H sector. A new model of research collaboration in the E&H field, consistent with the idea of the European Research Area, has been created. ERA-ENVHEALTH has established a new lasting E&H network for cooperation with regards to E&H research in Europe including key actors in E&H and stakeholders and has provided opportunities for networking with programme managers and owners and scientific communities. It has increased knowledge of, and cooperation with, E&H scientific communities and funding agencies across Europe. ERA-ENVHEALTH has implemented lasting mutual learning about the design of joint activities between programme owners and managers, thus enabling transnational R&D cooperation by creating a forum for discussing R&D policy and priorities in the E&H research field at the European level. After the termination of the EU funding and the end of the project, the cooperation will continue to be strengthened, through the signature of a ERA-ENVHEALTH network agreement setting the rules for the future of the network and the activities that will be continued which include an annual network meeting as well as in monitoring the funded projects, and dissemination of a biannual newsflash. All ERA-ENVHEALTH partners are encouraged to join the newly formed network which will also actively seek to expand membership beyond the initial core members.

3. Socio-economic impact and wider societal implications

A. Links and cooperation between stakeholders, increasing the visibility of E&H and engaging with civil society and policy-makers

ERA-ENVHEALTH has strengthened links between national and European policy-makers and the E&H research community. Involvement of ministries (as partners) and stakeholders, including NGOs, (in the External Advisory Committee) links them with E&H research programmers and thereby researchers. Such cooperation supports future implementation of research programmes on national and European levels. Through the links to the databases and other initiatives, the website is fostering exchange, within the E&H community, at the national, regional and European levels with regards to E&H programme planning and funding. ERA-ENVHEALTH has increased transnational cooperation in the E&H research sector both within the research community through the ERA-ENVHEALTH calls for transnational research proposals and within the E&H stakeholders' community through the sharing and transfer of knowledge.

Links and collaboration between the project and other international projects have been implemented in different formats – links on the website, links with the databases, presentations at the projects' meetings, common workshops on how to collaborate...

As a result of the active outreach strategy, over 40 potential new partners from 37 organisations have been involved in ERA-ENVHEALTH, many participated in the first joint activity focusing on indoor air (survey on research knowledge and governance measures), carried out in collaboration with ERA-ENVHEALTH partners, designed to bring partners and new partners in contact and, above all, to involve the potential new partners in the consortium activities. The results from the survey were presented at the final conference where the presence of some potential new partners was welcomed as a sign of interest and effectiveness of the strategy.

The ERA-ENVHEALTH final conference brought together over 140 representatives from research organisations, research funding entities, non-governmental organisations, scientists and national and European authorities from 16 countries. It provided a better understanding of future challenges



in environmental health and how research can contribute to meeting them and contributed to identifying relevant and effective policies for E&H research in Europe.

B. Improvement of competencies, capacity building and use of scientific results in the E&H field

ERA-ENVHEALTH has allowed extensive exchange of information and experiences between the partners not only concerning information on E&H research and priorities in Europe but also, with the calls and evaluation, of the management of research programmes and implementation of E&H research. The project activities, for instance the brochure on “Improving Knowledge Transfer: A Checklist for Researchers”, significantly contribute to an increase in competencies and in the use of scientific results both for the E&H stakeholders and policy-makers and for the research community. ERA-ENVHEALTH also increases the diversity of the disciplines involved in E&H and as such enables capacity building.

ERA-ENVHEALTH provides possibilities for multinational and multi-disciplinary partnerships. From a scientific perspective, the evaluation of the first call showed that these calls encourage the production of high quality results through requiring collaboration between researchers and providing a unique opportunity to work with other disciplines, with the benefits that this brings.

C. Employment and research funding

ERA-ENVHEALTH provides novel funding opportunities for researchers. Three research projects were funded through the ERA-ENVHEALTH calls. During the evaluation of the first call it was highlighted that these calls provide a good tool to finance transnational research projects, and are an innovative intermediate level between the national and European levels of research financing schemes, providing appropriate support to the researchers. The added value of transnational calls in terms of project size was highlighted, as well as the budget. The evaluation also highlighted the importance of being able to put together and fund small European projects, encouraging and implementing true and lasting collaborations, the possibility of building policy-oriented calls for research, and the fact that these types of calls and research, in particular in the E&H domain, are emerging but not yet mature at the European level.

ERA-ENVHEALTH contributed to the recruitment of qualified personnel but only short-term (for the length of the project). Many of the highly involved partners (WP and task leaders) recruited specific personnel to help carry out their tasks in the project. At least 5 people (mainly women – see below) were recruited, for a specific period, in the context of the ERA-ENVHEALTH project.

The ERA-ENVHEALTH project logo is not only a visual identity of the project but also has an educational story as it was designed by students from the “Media and graphic design programme” class from the Jämtlands Gymnasium in Sweden, thereby asking the students to think about what a European Research Area network is and also what Environment and Health encompasses.

D. Gender balance

Regarding gender issues, the ER-ENVHEALTH partners, being mainly public sector organisation, give high priority to equity issues and gender-awareness policies. There was no need to implement or set targets for gender balance strategies in the project as many women often work in the E&H sector. The consortium was composed of a majority of women: out of the 34 people involved in the project in the different partner organisations, 23 were women and 11 were men. The creation of the External Advisory Committee, tried to balance expertise, community (scientific, stakeholder and policy-making communities), and gender, which it did as it was composed of 5 men and 3 women.

Eight task leaders were women and 5 men, and workpackage leaders achieved a perfect balance between men (3) and women (3). The project coordinator was a woman.



The project meetings were organised trying to take into account daily life restrictions and to optimise work-life balance by being timed appropriately and this was nearly always effective.

4. Dissemination activities and exploitation of results

The necessary tools and structures for efficient communication were created and implemented early on in the project. The project website and internal platform (CIRCA), operational since M5, are continually updated with the latest information and deliverables of the project. The website was reorganised and improved during the final period and new section was opened for potential new partners and all project tools are available on the website. All communication and dissemination material is available for all partners on the project platform and also for the general public on the website (project poster, project leaflet in PDF format, project presentations....). A dissemination and communication strategy was defined by M12 and has been the guiding document for the communication and dissemination activities. It is continually updated and discussed at the annual GA meetings and indicators monitored by the project coordinator and WP5 leader ensure that the dissemination and communication strategy is running in an efficient way.

Stakeholders are viewed as an integral part of the network and are kept informed of the progress and results. The main stakeholders of ERA-ENVHEALTH are external knowledge users, internal knowledge users and potential funding organisations. The network is dynamic so this list is not fixed and is continuously updated and extended. The External Advisory Committee and External Interest Group (EIG) of ERA-ENVHEALTH are good examples of these target groups/audiences. The EAC members, composed of scientists, academics, NGOs and policy-makers, provide critical and useful feedback on existing activities organised by the stakeholders and on the ERA- ENVHEALTH project itself. Different communication and dissemination tools are used by the project partners. The project leaflet was updated for the final conference in June 2012 presenting the results of the project and the future vision for the network. The newsflash is distributed to a wide contact list with over 1300 contacts. The ERA-ENVHEALTH website and newsflash have played an important role in the dissemination of the results and outcomes of the project.

Providing access to information and the outputs of the network is critical for the information and exchange activity, it also helps communication with stakeholders. The ERA-ENVHEALTH project had created a number of communication tools to disseminate different types of information, including the interactive map, the website and the newsflash which all provide links and access to important information in the E&H sector. After the end of the EU funding, the network will maintain these tools for dissemination and communication and the links created with other network in the field will be reinforced through the use of these tools. For instance, ERA-ENVHEALTH has, through its membership and activities, a strong link with the European Environment Agency (EEA) and its environmental health network which will be maintained through the participation and use of the ERA-ENVHEALTH network and tools in certain projects of the EEA such as in the *Foresighted Reasoning on Environmental Stressors and Health (FRESH)* project, coordinated by the RIVM, where the ERA-ENVHEALTH network will be used to communicate any information or queries and disseminate key messages, activities and results.

ERA-ENVHEALTH workshops and conferences have been an important means of information exchange as well as knowledge dissemination and transfer to the stakeholders in the E&H field. The aims, activities, and results of the network have been presented (oral presentations, posters, leaflets...) at national and international levels by the WP5 leader, project coordinator and partners. Furthermore, information on the ERA-ENVHEALTH project and its results were disseminated by the partners on different levels and a number of publications have been published. All reports are available on the ERA-ENVHEALTH website. The August 2012 special issue of "International Innovation - Disseminating science, research and technology" on the Environment devoted an article to the ERA-ENVHEALTH network. In the brochure "ERA-ENVHEALTH, Coordinating Europe's national environment and health research programmes", the creation of ERA-ENVHEALTH network is described as is its future aim of continuing to unite important policy-relevant research on the links between E&H. (*International Innovation is the leading global*



dissemination resource for the wider scientific, technology and research communities, dedicated to disseminating the latest science, research and technological innovations on a global level. More information and a complimentary subscription offer to the publication can be found at: www.researchmedia.eu)

A complete detailed list of these activities can be found in the ERA-ENVHEALTH 3rd periodic report.

Partners have also been very active in disseminating project information using their own communication tools, such as partner newsletters which include references to the ERA-ENVHEALTH newsflash issues (for example ANSES's newsletter and UBA's APUG-newsletter <http://www.apug.de/newsletter/index.htm> announced and forwarded the ERA-ENVHEALTH newsflash on a regular basis).



V. Website and contact details

All the ERA-ENVHEALTH information, results and reports are available on the **ERA-ENVHEALTH website**: www.era-envhealth.eu.

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ERA-ENVHEALTH'S PARTNERS

Partner name	Acronym	Logo
French Agency for Food, Environmental and Occupational Health & Safety (France)	ANSES	
French Environment and Energy Management Agency (France)	ADEME	
Ministry of Ecology, Sustainable Development, and Energy (France)	MEDDE	
Belgian federal Science Policy Office (Belgium)	BelSPO	
Federal Public Service Health, Food Chain Safety and Environment (Belgium)	FPS	
Environmental Protection Agency (Ireland)	EPA	
Superior Institute for Environmental Protection and Research (Italy)	ISPRA	
Swedish Environmental Protection Agency (Sweden)	Swedish EPA	
Ministry of Infrastructure and the Environment (Netherlands)	IenM	
National Institute for Public Health and the Environment (Netherlands)	RIVM	
Public Health Authority of the Slovak Republic (Slovak Republic)	UVZ	
Environment Agency (England and Wales)	EA	
Natural Environment Research Council (UK)	NERC	
Ministry of Health (Israel)	MOH	
Federal Environment Agency (Germany)	UBA	
National Research Council (Italy)	CNR	