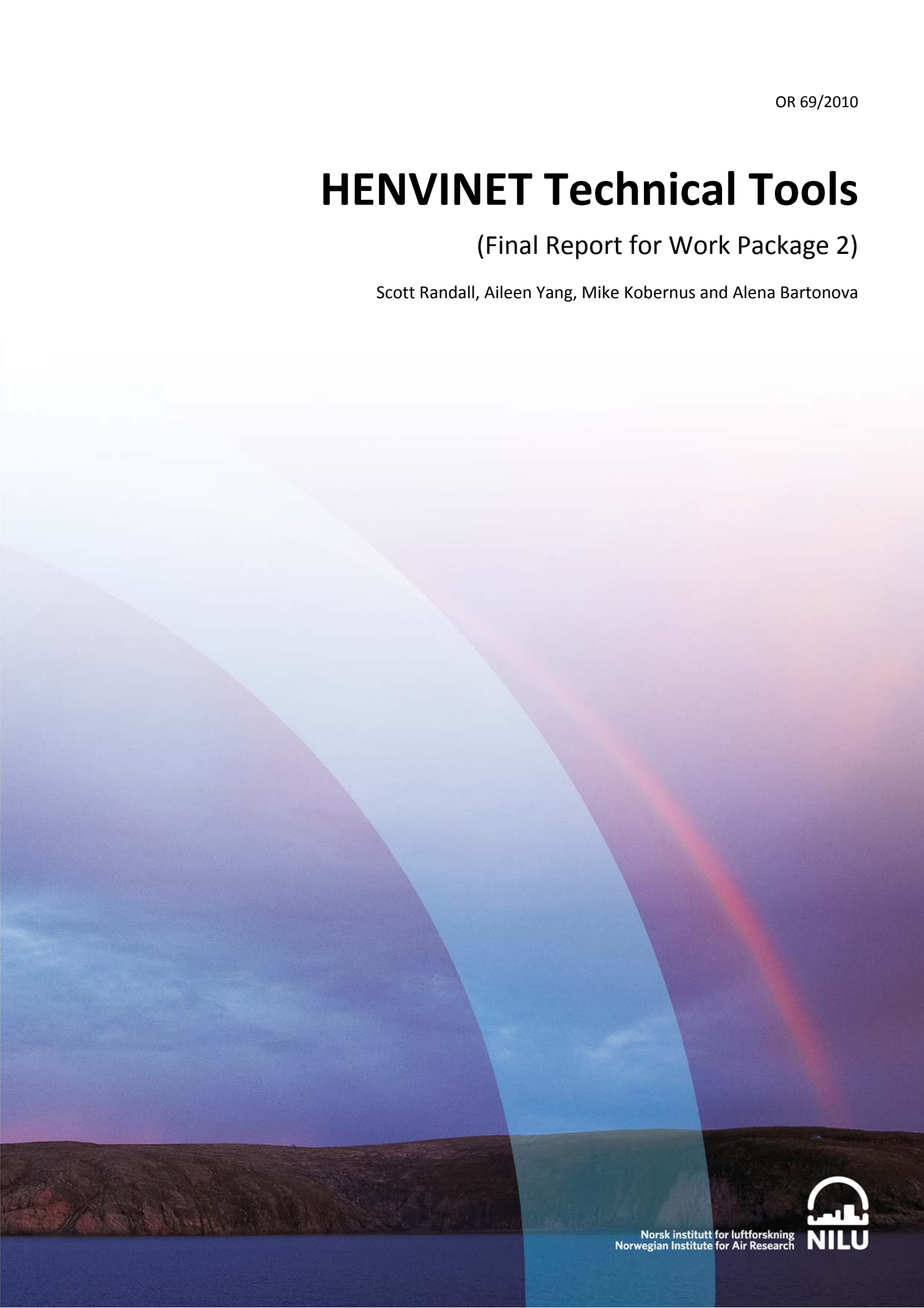
OR 69/2010

HENVINET Technical Tools

(Final Report for Work Package 2)

Scott Randall, Aileen Yang, Mike Kobernus and Alena Bartonova



Norsk institutt for luftforskning
Norwegian Institute for Air Research
NILU

OR 69/2010

HENVINET Technical Tools

(Final Report for Work Package 2)

Scott Randall, Aileen Yang, Mike Kobernus and Alena Bartonova

Contents

Executive Summary

The main objective of the Health and Environment Network (HENVINET) project (funded by the EU 6th Framework Program) was to establish a long-term co-operation between researchers, policy makers and other stakeholders in the area of environment and health research and assessment. Work Package 2 (WP2) provided the technical support to the HENVINET project research. The main objective of WP2 was to "develop a web-based tool to facilitate information gathering and access to information for the purposes of the project, to assist in dissemination of project information, and to provide technical solutions and input to the Environment and Health Information System".

The following tools (available at www.henvinent.eu) were developed through WP2 to facilitate communication, dissemination, and integration of project information:

- HENVINET website (internal and external)
- HENVINET meta-database for decision support tools
- HENVINET causal diagrams and evaluations
- HENVINET social networking portal

WP2 tools were the backbone of the entire project. They provided state-of-the-art solutions for organizing, collecting, compiling, and displaying research collected in other work packages of the project – thus well meeting the goals and objectives for the work package. WP2 tools supported ease of access to information for communication and dissemination of the information provided by the project, making it efficient for the research sector to access this information.

HENVINET Technical Tools
(Final Report for Work Package 2)

1 Introduction

The main objective of the HENVINET project (funded by the EU 6th Framework Program) was to establish a long-term co-operation between researchers, policy makers and other stakeholders in the area of environment and health research and assessment. Work Package 2 (WP2) provided the technical support to the HENVINET project. The main objective of WP2 was to "develop a web-based tool to facilitate information gathering and access to information for the purposes of the project, to assist in dissemination of project information, and to provide technical solutions and input to the Environment and Health Information System".

WP2 was essential in being able to create state-of-the-art tools in order to organize, display, and disseminate the co-operative network and corresponding information being developed through the project. These tools were the backbone of the HENVINET project research-based outcomes.

As defined in the original project description of work, specific WP2 support was given on the following topics through the duration of the project:

1. *Support to information gathering;*
2. *Definition of information databases including project & tools inventories;*
3. *Support to dissemination;*
4. *Support to tools development;*
5. *Support to external communications;*
6. *Support to internal communications and use of project internal management tool.*

Also defined in the original project description of work, the web-based tools would be developed through the following main deliverables:

- ***Dynamic Public Website**, with administrative and reporting tools.*
- ***Internal website** to facilitate internal working of the project, such as posting of documents for information and review and organisation of discussion groups.*
- ***Searchable Meta-database**: to facilitate information gathering for project inventories, inventories of tools for environmental health assessment (software tools, databases), and inventories of best practices (e.g., information on what environmental health information is used and how it is handled by authorities on different levels of administration).*

Two additional deliverables for WP2 were performed which were not specifically presented in the description of work for this WP:

- Development of the **Causal Diagrams** and associated **evaluations**.
- Development of the **HENVINET networking portal**.

The main objectives of WP2 were met, and the deliverables mentioned above where completed. The following sections of this report highlight these deliverables and final products, including how they specifically met the objectives, and how they were integrated with each other.

2 WP2 Tools and Support

WP2 was responsible for and completed the following activities and tools:

1. Created and maintained the project public website.
2. Created and maintained the project internal website.
3. Created the technical structure of the DST meta-database. Created the search tools and information display of results for the Meta-database. Supported the maintenance of the design of the DST meta-database.
4. Developed causal diagram methodology. Supported the technical design of the causal diagrams and corresponding technical evaluation.

This work and associated methodologies and outcomes will be presented in detail below, as will it be discussed if the objectives of the tasks were reached. It will also be discussed how each activity employed state-of-the-art technologies, and the specific impact of these activities to H&E research. Some references will be made to HENVINET documents and reports which cover the specifics of these activities and tools to a greater detail than is discussed here.

2.1 HENVINET public website

The HENVINET public website (http://henvinet.nilu.no) displayed all external information about the project and related research and events (Figure 1). The site was designed at the beginning of the project, and was launched early on. This initial portal was a prototype that was later succeeded by a more advanced and easily maintained system based on an open source CMS. This system has been extended and maintained throughout the duration of the project.

The public website was the frontpage for the project for the first two years of the project duration, while in the last year the project portal superceded this and became the project frontpage, with links to the existing public website.

A unique aspect of the portal was its design. By allowing each main thematic area of research within the project to have its own sub portal within the site, each with the same structure, we provided and easily navigable and intuitive project dissemination platform.

The public website presented the project in a systemic way with project information on the left frame, and project topic areas on the top frame, with project news, links, and document in between. This layout met the objectives of providing a public webpage for general access to project information, and to facilitate communication and dissemination of project results from each Task. This communication and dissemination can be found in the form of descriptions of the project tools developed, and links to the specific tools and results.

The public website's outcomes can be considered "state-of-the-art" because all project information and results were available electronically for easy access, navigability, and distribution. The impact factor of the public website to the research sector was that project information was constantly updated and

available to the research community to benefit other research being conducted in the field.

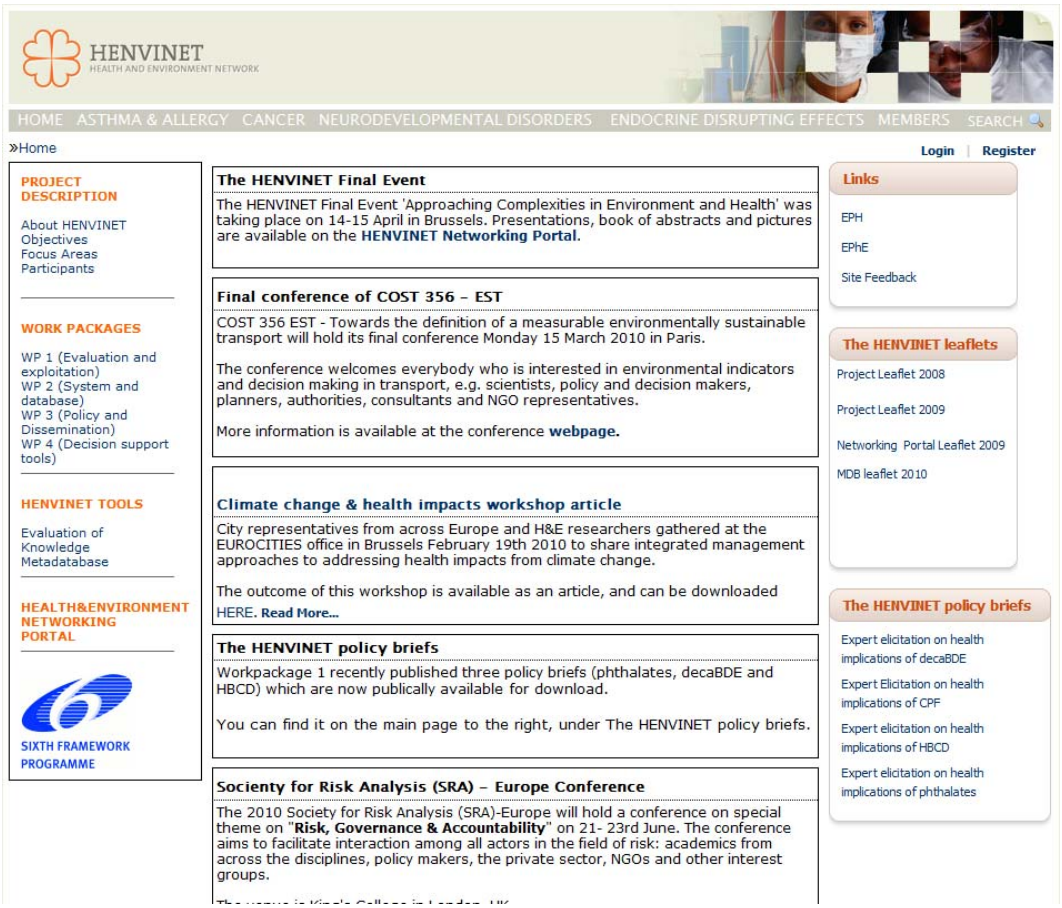


Figure 1: Project public website

2.2 HENVINET internal website

The HENVINET internal project website was accessible from the public website (http://henvinet.nilu.no) with the purpose of providing internal project information for all of the project partners (Figure 2). The project partner would login (at top right-hand side of the page) with a supplied username and password to gain access. Once logged in, the project partner had access to project news, specific documents and information for each work package, as well as general/administrative documents, and background research information. The site was maintained and updated through the life of the project.

The internal website met the objectives of this task through providing a site for project partners to gain internal project information. This tool greatly facilitated internal project communication and dissemination. The site can be considered state-of-the-art because much of the basic internal project communication could be done virtually, without the partner having to request information from the project manager. The impact factor of this tool allowed the internal project information to be transparent to all project partners, and it also allowed all

partners to work more efficiently due to the ease of access to project information.

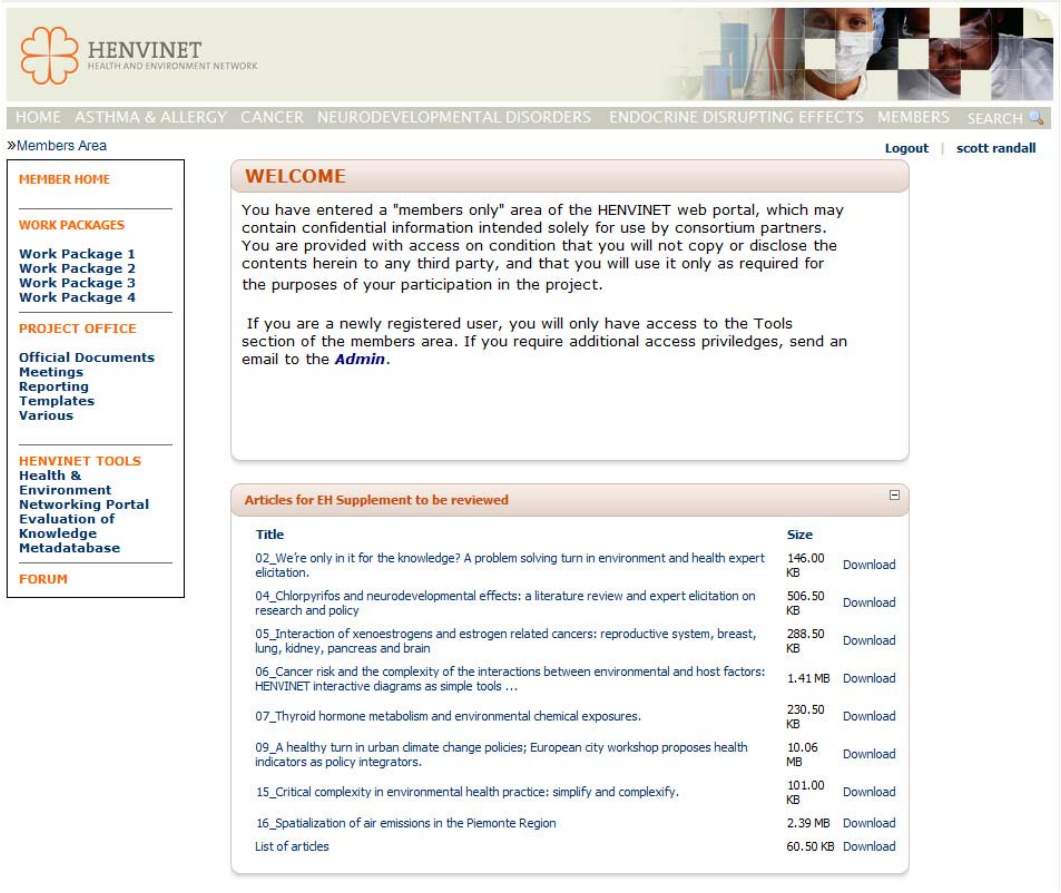


Figure 2: Internal project website.

2.3 Searchable Meta-database of Decision Support Tools and Evaluations

The Decision Support Tools (DST's) meta-database is an assemblyof relevant tools collected to support practitioners in the environmental health management process. DST's include software, handbooks, methodologies and data on environmental stressors, emissions, pathways, exposure and health effect.

The DST meta-database (Figure 3) is available from the project website as well as from the networking portal (go to "Tools" -> "DST's"). Currently there are 67 DST's available, where for each DST one can view an Overview, Source, Details, and Comments; an example DST can be seen in Figure 4. More information regarding the methodology and results of the DST meta-database is described in the report "Deliverable 4.4 Second Validation Results and DST review with recommendations" (Negrenti et al., 2010a; Negrenti et al., 2010b).

WP2 developed the web-based tool to collect, organize, and display the information for the DST meta-database. WP2 also created and designed the evaluation pages for the meta-database as well.

Figure 3: DST Meta-database.

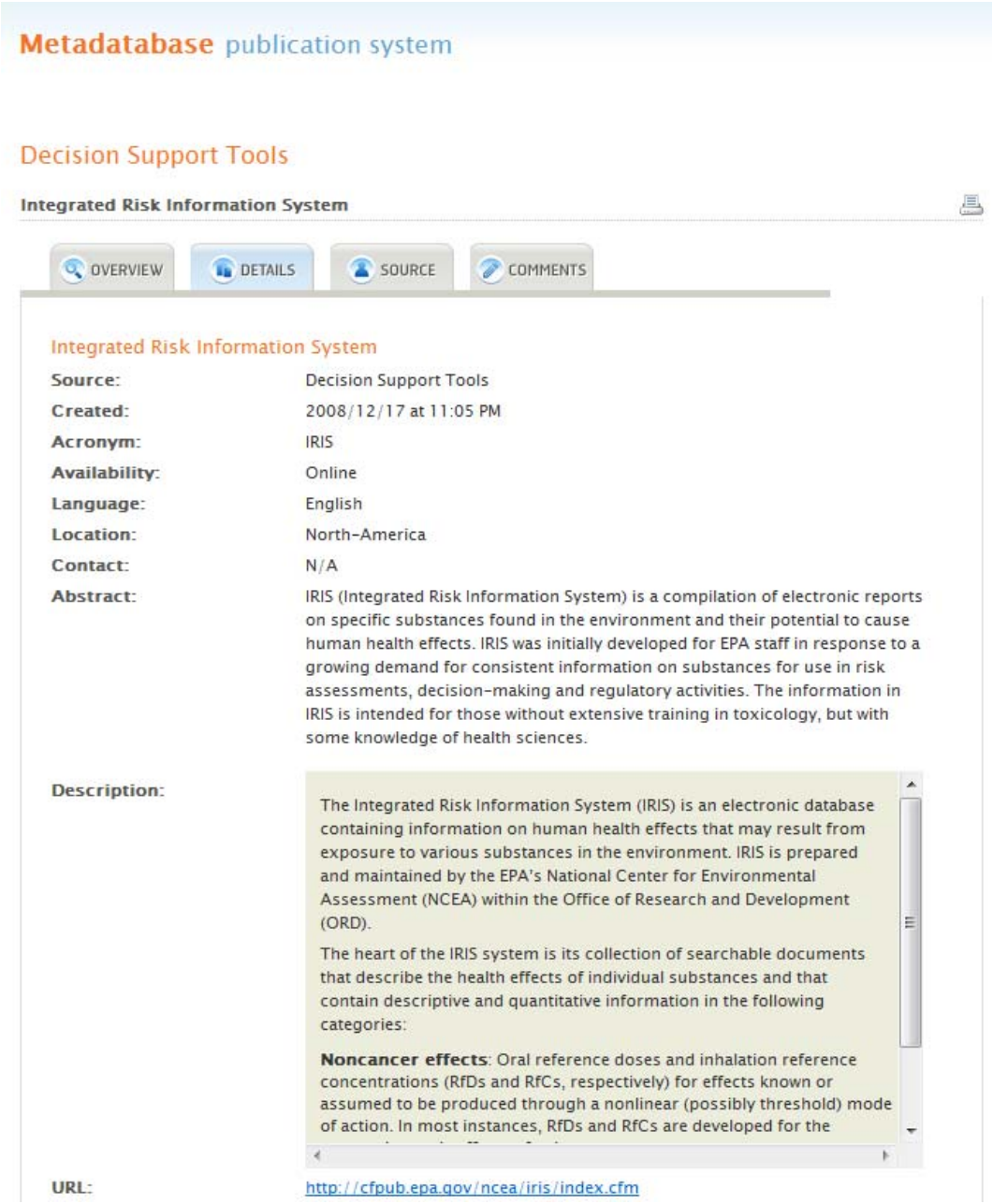


Figure 4: Example DST (Integrated Risk Information System).

The objectives were met for this task through the creation of the functioning meta-database to store and display DST information. The meta-database is an effective tool for facilitating communication and dissemination of specific decision-based tools used in the health and environment field. The meta-database can be considered state-of-the-art through providing a compilation of DST's which are easily available through web searches.

This was further facilitated by enabling the user to filter results based on keywords. This mechanism easily allows the user to see if there are relevant DSTs available without needing to review them all individually. This goes beyond a mere keyword search or free text search, since all DSTs were linked to multiple

keywords during when input into the meta-database. Consequently finding a DST relevant to the user's needs was made simple and intuitive.

The meta-database has a considerable impact factor to the health and environmental research and policy sector through putting all of this information in one place to allow for efficient and easy searching for tools which may be applied in one's own region or area.

2.4 Causal Diagrams

The full chain causal diagrams are evaluations of the quality of scientific knowledge of various aspects of the cause-effect relationship within specific health related areas (Bartonova et al., 2008). The four health topics are; "asthma and allergies", "cancer", "endocrine disruption" and "neurodevelopmental disorders". The goal is to identify knowledge gaps and potential agreement or disagreement between expert from these areas. Ultimately, the aim is to discuss the implications of the results of the evaluation for policy and research.

The causal diagrams (Figure 5) are available from the project website as well as from the networking portal (go to "Tools" -> "DST's"). Currently there are diagrams available for 7 specific areas: Asthma and allergy, BFR, Cancer, CPF, Pthlates, Traffic, and Nanoparticles; an example diagram can be seen in Figure 6.

WP2 developed the methodology and tool to organize and display the diagrams. WP2 also created and designed the evaluation pages for the diagrams as well.

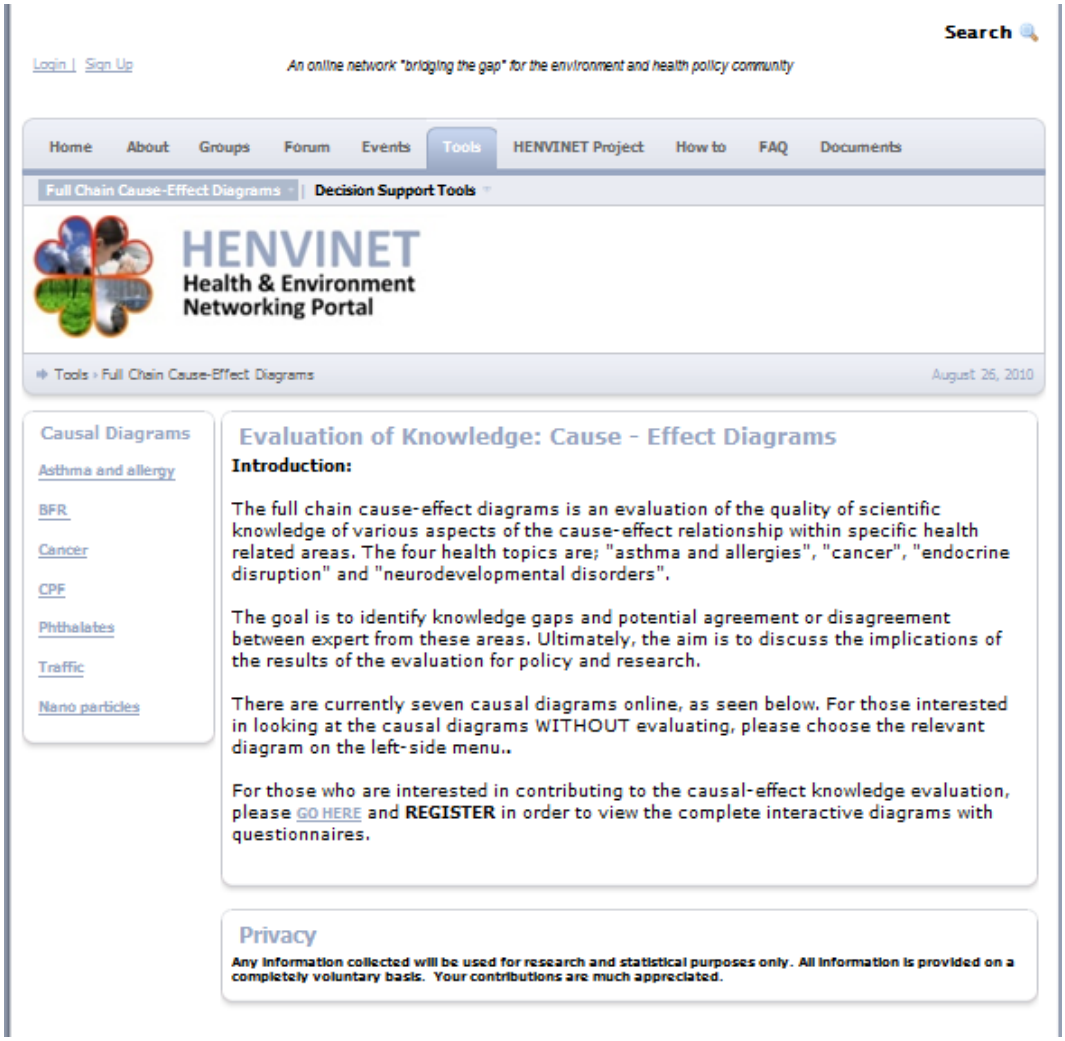


Figure 5: Causal diagram list.

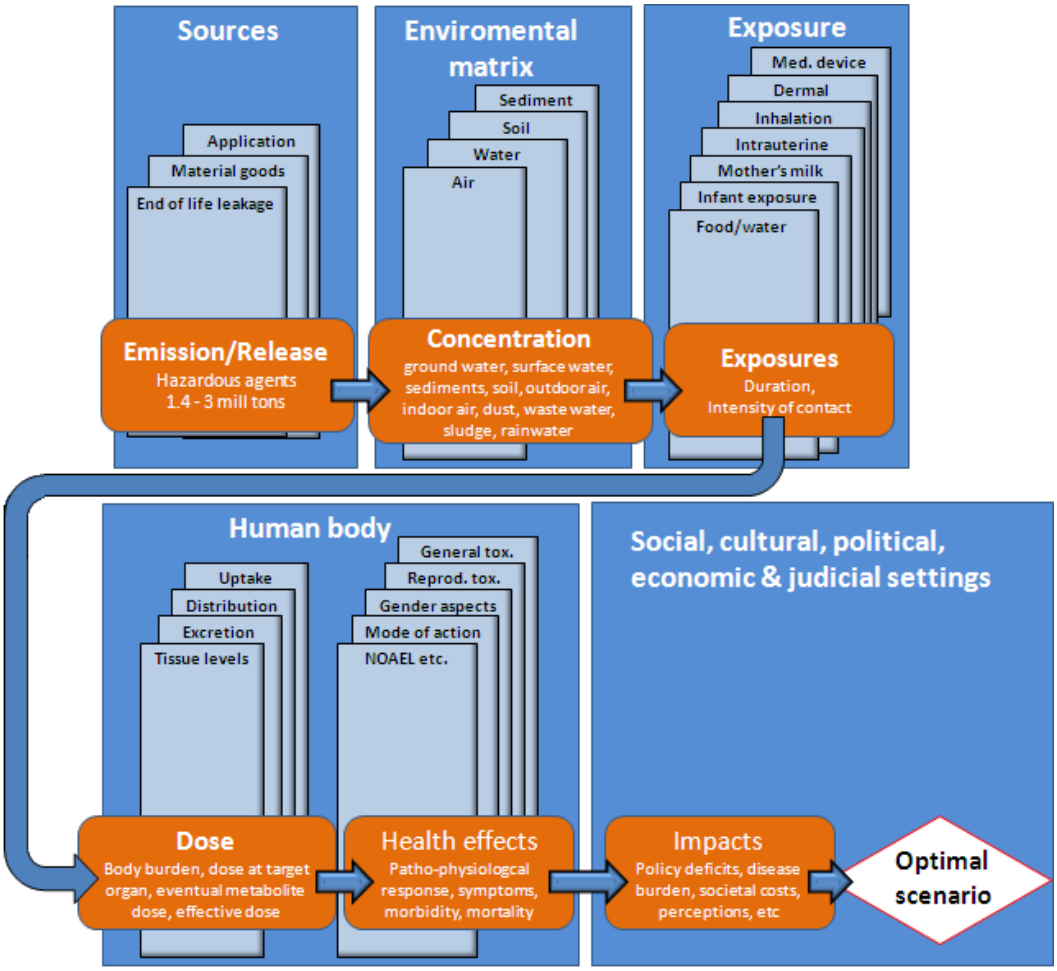


Figure 6: Example Causal Diagram (phthalates).

The WP2 work on the causal diagrams met objectives for this task through providing a way to effectively organize and display the diagrams and relevant content information. This design tool facilitated communication and dissemination of the evaluation of knowledge on the specific areas covered. The approach and presentation of the causal diagrams can be considered state-of-the-art through the use of innovative measures to compile and present the knowledge on the internet. The causal diagram tools have a potential impact factor to the research sector and policy-makers through providing a user-friendly holistic view of each area addressed.

2.5 HENVINET Networking Portal

The HENVINET portal (www.henvinet.eu) in an online social networking tool created by WP2 to provide environment and health professionals and stakeholders anywhere in world with the ability to:

> *Network with peers: Engage with a community of scientists, policymakers and stakeholders to share expertise, views and information.*

Access the experts: Search for and pinpoint specific expertise, and efficiently communicate and discuss concerns and specific topics with renowned experts.

Tackle global challenges: Effectively collaborate within self-forming communities and forums that bring together a relevant portfolio of experts and stakeholders to address the issues at hand.

Set the agenda: Shape the agenda of the Environment and Health community by participating in communities and forums discussing hot-topics of today and tomorrow.

Share opportunities: Advertise conferences, symposia, research calls, job opportunities and the like to a broad range of professionals.

The portal (Figure 7) became the front page for the HENVINET project (and the project website as well). The portal was divided into the following sections which were presented as tabs in the toolbar: About, Groups, Forums, Events, Tools, HENVINET Project, How To, FAQ's, and Documents. News items and announcements were posted on the first page as well.

More information regarding the portal is available in the report "HENVINET Networking Portal: Design Specifications and Extensions (Final Report for Deliverable 2.6)" (Randall et al., 2010), which is the final deliverable for Deliverable 2.6 for WP2. The report is also a document of the final design specifications for the portal, thus building upon the previous initial design specifications which are found in the report "HENVINET networking portal. Design specifications. (Planning document)" (Kobernus et al., 2009).

The networking portal tool met the overall objectives of this task through providing an online social networking platform for health and environment researchers to share and disseminate scientific information for policy-makers. The portal directly facilitates communication and dissemination of project information, as well as any available information in the health and environment field, making it easier to network with others in the field, as well as creating an ease of access to relevant information. The portal is also highly considered a state-of-the-art tool because it uses a cutting-edge social networking platform as the basis for the tool. The portal has the potential to have a serious impact factor to the health and research sector because the portal could change the way actors and stakeholders communicate within the field.

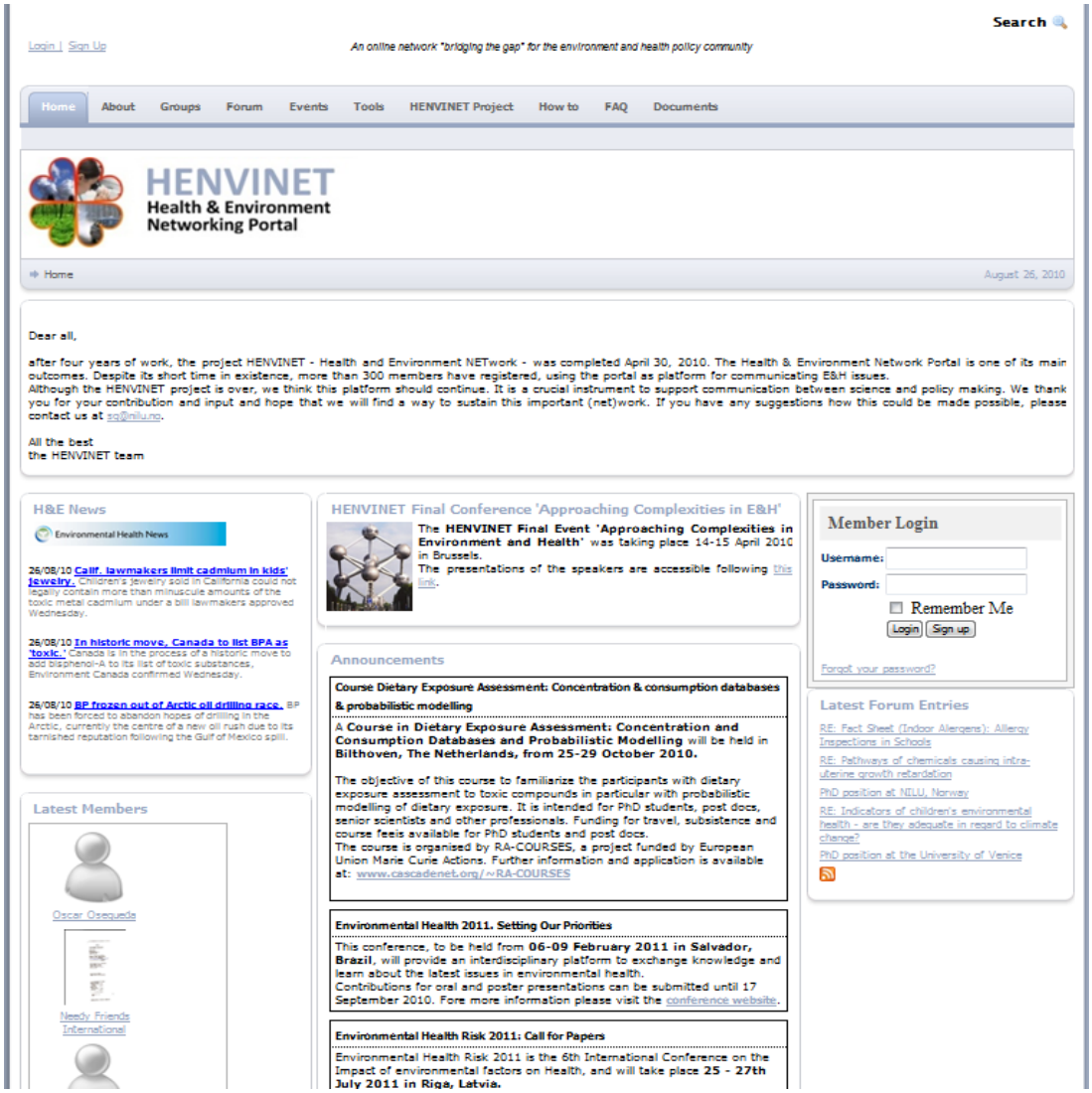


Figure 7: Networking portal.

2.6 Portal Statistics

The effectivity of the portal is clearly demonstrated by the results of the portal user's activities on the site.

Figure 8 denotes the user's country of origin and shows that HENVINET achieved a nearly global audience.

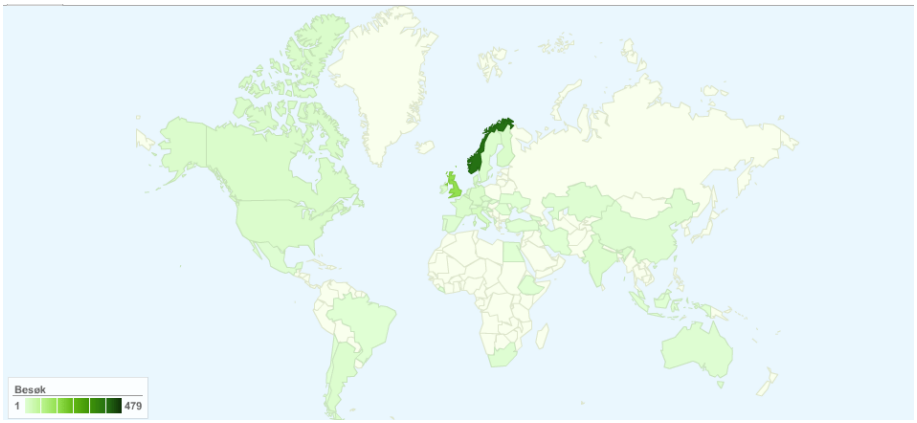


Figure 8: Origen of visitors to portal.

Figure 9 shows the usage statistics varied according to month.

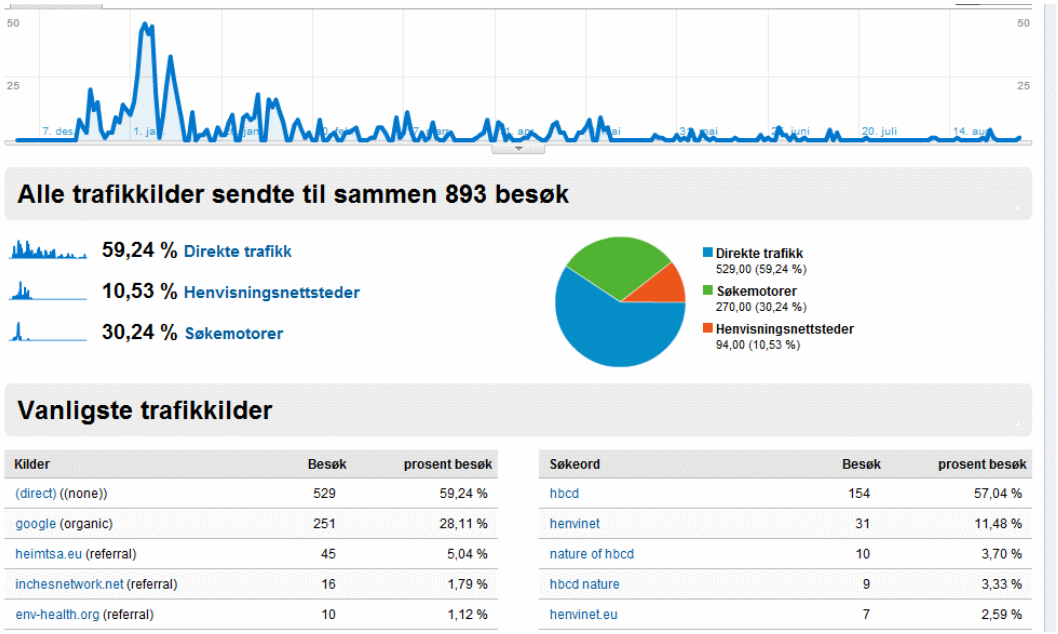


Figure 9: Portal usage statistics.

Analysis of the usage statistics demonstrate that peak traffic occurred in first quarter 2010.

3 WP2 Integration

The HENVINET project goals considered it important to integrate the project outcomes and tools together in an innovative manner. Since most of the project outcomes were already contained within WP2 tools, this total integration was accomplished through integrating WP2 tools into the networking portal. Other project outcomes not directly a result of WP2 were also integrated into the portal as well (such as policy briefs, etc.). This total integration resulted in the networking portal being: the front page for the project, a portal to the causal diagrams/evaluations and DST's/evaluations, the social networking community, and a depot for related reports/documents.

Through these integration measures, the networking portal structurally became the one-stop virtual location for health and environment networking and scientific research dissemination for policy-makers. This has amazing potential for positive impacts towards the health and environment research sector.

4 Conclusion

WP2 tools developed were the backbone of the entire project through providing state-of-the-art solutions for organizing, collecting, compiling, and displaying research collected in other work packages of the project – thus well meeting the goals and objectives for the work package. WP2 tools provided ease of access to information for excellent communication and dissemination of project information, making it efficient for the research sector to access this information. All of these tools developed were also integrated into one greater tool to provide an even stronger general platform to collect and view information. The WP2 outcomes not only strengthened the internal project dynamics, but also were a major pillar to the core of the HENVINET project – building an effective network for the health and environment field.

5 References

Bartonova, A., Liu, H.Y., Kobernus, M., Von Krauss, M., Forsberg, B., Eriksen, G. and Ropstad, E. (2008) HENVINET. Method for evaluation of knowledge using causal chain approach. Kjeller (NILU PP 23/2008).

Kobernus, M., Randall, S., Yang, A. and Bartonova, A. (2009) HENVINET networking portal. Design specifications. (Planning document). Kjeller (NILU TR 01/2009).

Negrenti, E., Neofytou, P., Secco, C. and Yang, A. (2010a) Deliverable 4.4: Second Validation Results and DST review with recommendations. *Under Review*.

Negrenti, E., Liu, H.Y., Neofytou, P. and Bartonova, A. (2010b) HENVINET. Review of decision support tools, recommendations. Kjeller (NILU OR 36/2010).

Randall, S. Kobernus, M., Yang, A. and Bartonova, A. (2010) HENVINET networking portal. Design specifications and extensions (Final report for deliverable 2.6). Kjeller (NILU OR 61/2010).

Norwegian Institute for Air Research
P.O. Box 100, N-2027 Kjeller, Norway
Associated with CIENS and the Environmental Research Alliance of Norway
ISO certified according to NS-EN ISO 9001

REPORT SERIES SCIENTIFIC REPORT	REPORT NO. OR 69/2010	ISBN: 978-82-425-2290-0 (print) 978-82-425-2291-7 (electronic) ISSN: 0807-7207	
DATE	SIGN.	NO. OF PAGES 22	PRICE NOK 150.-

TITLE HENVINET Technical Tools (Final Report for Work Package 2)	PROJECT LEADER Alena Bartonova NILU PROJECT NO. U-106169
AUTHOR(S) Scott Randall, Aileen Yang, Mike Kobernus and Alena Bartonova	CLASSIFICATION * A CONTRACT REF. GOCE-CT-2006-037019

REPORT PREPARED FOR
HENVINET Project (FP6),
Commission of the European Communities, Research Directorate-General
RTD I.5 Environment-Climate, BRU- CDMA 03/186, B-1409 Brussels, Belgium

KEYWORDS		
Networking tools	Health and Environment	HENVINET

ABSTRACT

The main objective of the HENVINET project (funded by the EU 6th Framework Program) was to establish a long-term co-operation between researchers, policy makers and other stakeholders in the area of environment and health research and assessment. Work Package 2 (WP2) provided the technical support to the HENVINET project. The main objective of WP2 was to "develop a web-based tool to facilitate information gathering and access to information for the purposes of the project, to assist in dissemination of project information, and to provide technical solutions and input to the Environment and Health Information System".

** Classification*
A Unclassified (can be ordered from NILU)
B Restricted distribution
C Classified (not to be distributed)

REFERENCE: U-106169
DATE: SEPTEMBER 2010
ISBN: 978-82-425-2290-0 (print)
978-82-425-2291-7 (electronic)

NILU is an independent, nonprofit institution established in 1969. Through its research NILU increases the understanding of climate change, of the composition of the atmosphere, of air quality and of hazardous substances. Based on its research, NILU markets integrated services and products within analyzing, monitoring and consulting. NILU is concerned with increasing public awareness about climate change and environmental pollution.

REFERENCE: U-106169
DATE: SEPTEMBER 2010
ISBN: 978-82-425-2290-0 (print)
978-82-425-2291-7 (electronic)

NILU is an independent, nonprofit institution established in 1969. Through its research NILU increases the understanding of climate change, of the composition of the atmosphere, of air quality and of hazardous substances. Based on its research, NILU markets integrated services and products within analyzing, monitoring and consulting. NILU is concerned with increasing public awareness about climate change and environmental pollution.

NILU Norsk institutt for luftforskning
Norwegian Institute for Air Research