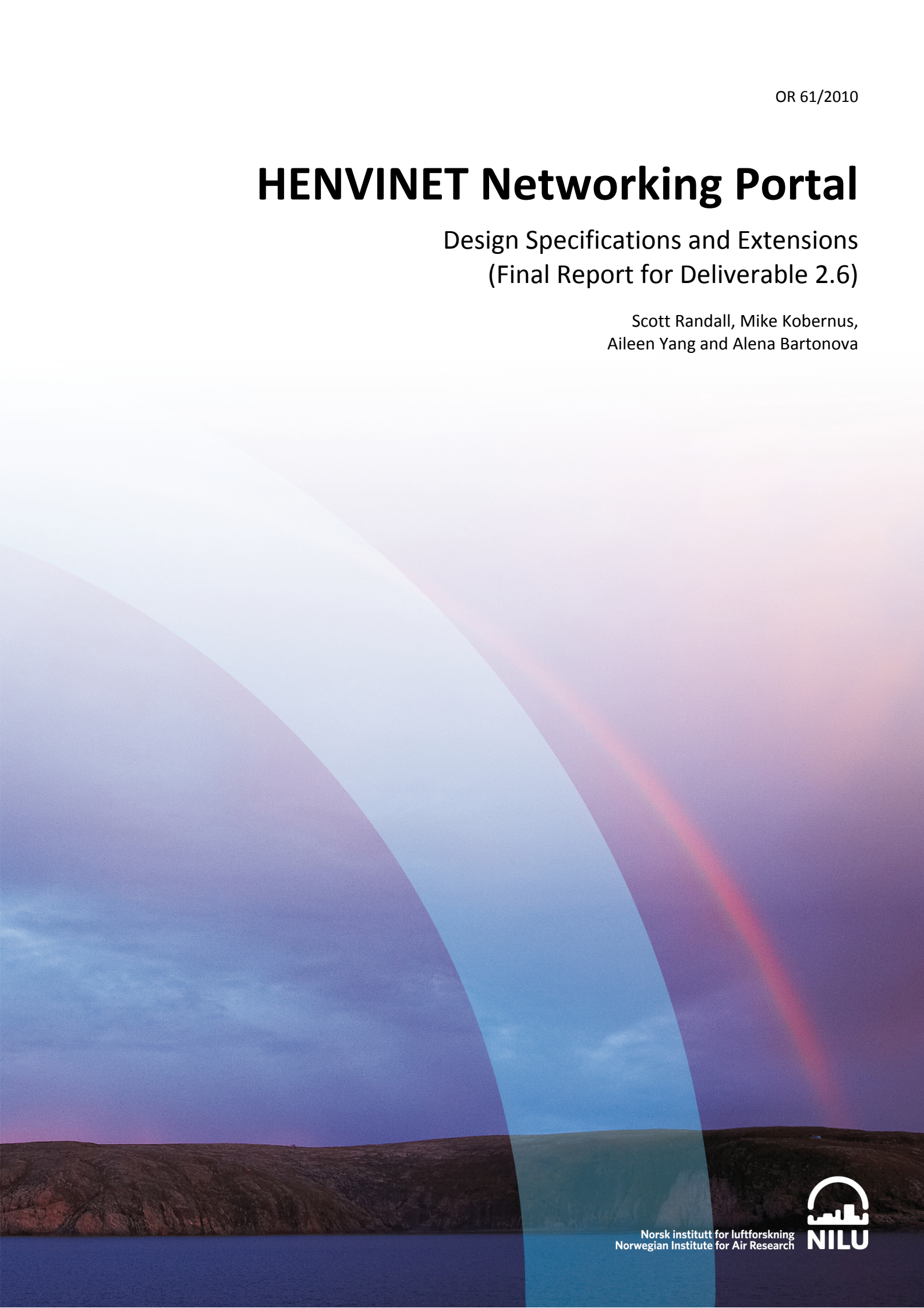
OR 61/2010

HENVINET Networking Portal

Design Specifications and Extensions (Final Report for Deliverable 2.6)

Scott Randall, Mike Kobernus,
Aileen Yang and Alena Bartonova



Norsk institutt for luftforskning
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HENVINET
Health & Environment
Networking Portal

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Executive Summary

The primary goal of HENVINET is to establish a long-term co-operation between researchers, policy makers and other stakeholders in the area of environment and health research, policy, and assessment. The HENVINET networking portal (www.henvitnet.eu) is the main deliverable for WP2 of the project which focuses on the development of a web-based tool to facilitate information gathering and access to information for the purposes of the project. This Portal Design Specifications document is the **final** report regarding the design description of the portal structure and functionalities.

In addition to the social networking functions, the portal also allows access to other web applications developed within the project: an interactive causal chain diagrams with questionnaires, a database of decision support tools, a database of projects, and an internal document management system.

The Portal is based on social networking principles. The main features of the Portal are contained in the following sub-pages: About, My Profile, Members, Groups, Forum, Events, Tools, Help, Documents, Newsletter, and Search.

The HENVINET portal design and structure met the goals of the project to provide such a online networking tool. However, the Portal has not yet entirely met its own goal of being a self-sustained online network. The following four issues must first be addressed in order to complete this goal:

1. **Recruitment**. More members must be recruited to establish a solid base of registered users in the health and environment field.
2. **Participation**. Existing members and new members must be encouraged to use the network to find contacts and find and provide information.
3. **Content**. More content must be available on the Portal to attract new users and give a solid base of information that is useful to the members.
4. **Network**. The Portal must be seen as "the" network to turn to when particular issues arise in the Health and Environment field.

The Portal design and structure are fundamentally established to handle the four issues mentioned above. We have also indications that the portal is well known within the European environment and health community. The main challenge thus lies in generating content. This can be done by own editorial contributions, increasing contacts with existing activities, and through continuous administration and marketing. These issues are heavily dependent on available resources, as access to many professionals and their networks has been established, and we also managed to build their interest and expectations.

It is hoped that future funding can be granted to address these issues in order to make the HENVINET Portal, "the" network for Health and Environment professionals.

HENVINET Networking Portal
Design Specifications and Extensions (Final Report for Deliverable 2.6)

1 Introduction

The main objective of the HENVINET project (a coordination action funded by the EU 6th Framework Program, grant nr. 037019) 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. The objective of Work Package 2 of the project 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.* As a part of these "technical solutions", it was determined through the progress of the project that a Networking Portal could be a valuable tool to provide a part of these solutions. Deliverable 2.6 dealing with portal development and extensions was deemed the necessary deliverable to address this new tool to be developed.

This report is the final deliverable for Deliverable 2.6 for the project. This report is also a document of the ***final*** design specifications for the portal, thus building upon the previous ***initial*** design specifications which are documented in the report "HENVINET networking portal. Design specifications. (Planning document)" (Kobernus et al., 2009). The Portal can be found at www.henvinet.eu.

1.1 Purpose

The purpose of the portal is to bring together professionals within the health and environment field to improve communication and collaboration. Enhanced communication between these professionals (representing various organizations) from the differing scientific background/fields and different policy perspectives hopes to lead to improved dissemination and information flow. This may in turn contribute to environment and health policy interpretation in order to encourage better informed and substantiated political decision making. More powerful and integrated environment and health issues and policies based upon wide-spread collaborative efforts and well informed argumentative debate on policy interpretation may result in policy relevant environment and health assessments - and ultimately better protection for populations and individuals.

1.2 Goals and Objectives

The objective of the portal is to provide a platform to facilitate networking for professionals within and mostly between the health and environment fields. The portal will facilitate networking through providing a professional virtual meeting place to make new contacts, maintain contacts, discuss issues, and share information for the purpose of better informed policy making. An additional

objective of the portal is to provide a networking platform which contains new added-value above other more general portals currently available. Different modules will be presented in this document which contributes to the added-value, but most importantly the portal will not only just *establish* a site for networking, but utilize modules/components that *encourage* links between various professionals and their interests.

The goals and objectives of the Networking Portal were laid out in the created "Vision Statement" which reads as follows:

The HENVINET is a powerful new networking portal designed specifically for the global Environment and Health community. With a range of innovative tools for locating and accessing expertise, sharing knowledge, views and networking with peers, HENVINET empowers a multi-stakeholder approach to addressing the most pressing Environment and Health issues at hand. The HENVINET portal provides 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.*

1.3 Audience

The broader audience for the portal is environment and health professionals with common associations between environment-health, and health-environment. These individual professionals shall also represent their respective employer (Institute, University, authority, consulting firm, etc.) within the portal. A primary focus of the portal audience is to link Policy-makers to the Scientists/Researchers in these fields, where the portal is specifically designed to encourage relationships and information flow in this direction.

1.4 Incorporation of HENVINET products

The Portal is designed to incorporate/utilize the core HENVINET products:

- Decision Support Tools (DST's). Links to the HENVINET DST's are made under the "Tools" subheading. A summary of this project outcome is also given on this page.
- Causal diagrams. Links to the HENVINET causal diagrams are made under the "Tools" subheading. A summary of this project outcome is also given on this page.
- Policy Briefs.
- Website and intranet. The Portal makes links to the HENVINET project website and intranet where appropriate.

The tools and products are further explained in the Tools Integration section (Section 7). Other specific extensions and applications of the Portal in regards to the HENVINET project are discussed in Section 6 of this report.

2 Overall Design and Platform

The networking portal is designed using a modern social networking platform based on open source software. The general design is based on Facebook principles, which are geared towards professionals in the Health and Environment community.

2.1 Basic Sitemap (Portal Structure)

The basic structure of the Portal can be seen in the sitemap presented in Figure 1.

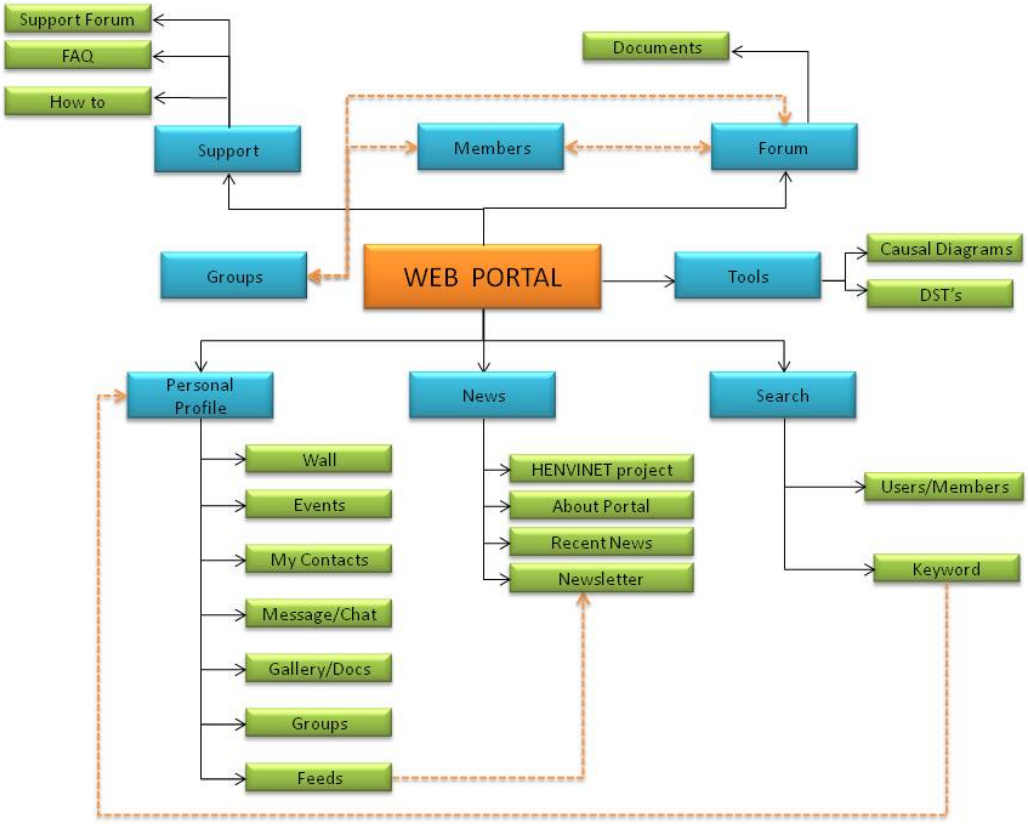

Figure 1: HENVINET Portal Sitemap

2.2 DNN framework

HENVINET project guidance suggested that the platform selected to host the portal should be an industry leading solution; open source and available without restriction. To this end, DotNetNuke (DNN) has been selected, since it meets the various requirements stated above. In addition, DNN is:

Versatile – It is an open source web application framework ideal for creating, deploying and managing interactive web, intranet and extranet sites.

User-Friendly – It is designed to make it easy for administrators, content editors, developers, and designers to manage all aspects of their web assets. Wizards, content-sensitive help, and a well-researched user interface provide a superior user experience.

Feature-Rich – It comes loaded with a set of built-in features that provide exceptional functionality. Site hosting, web design, content management, security, and membership options are all easily managed and customized through simple, browser-based tools.

Supported - It is managed and supported by It Corporation, a legal entity which provides production Service Level Agreements as well as other professional services for the platform. It is also supported by its Core Team of volunteer developers and a dedicated international community. Through user groups, online forums, resource portals and a network of companies who specialize in DNN®, help is always close at hand.

Open Source – It is provided for free, with full source code, licensed under a standard BSD open source license agreement. It allows individuals to do whatever they wish with the application framework, both commercially and non-commercially, with the simple requirement of giving credit back to the It community.

Cutting-Edge - It provides developers with an opportunity to leverage best-practice software development concepts by utilizing cutting-edge technologies like ASP.NET 2.0, Visual Studio, SQL Server, Windows Server, and IIS.

Extensible – It has a pluggable architecture which allows additional functionality and presentation elements to be dynamically added to the application at run-time. By leveraging the base functionality exposed through the built-in content management system, developers and site administrators can be immediately productive and more focused on delivering optimal solutions to their own unique business requirements.

Recognized – It is a trademarked name, and a brand widely recognized and respected in the open source community. With over 600,000 registered users and a talented team of developers, it continues to evolve its software through participation, real world trial, and end-user feedback.

2.3 Active Social

In order to build the portal with many of the modern social networking features available, the Active Social solution from ActiveModules was installed on the portal. Active Social is customizable and user-friendly social networking solution which works within the DNN framework. Most of the features presented in Section 3 below are being run by or supported by the Active Social solution.

2.4 Frontpage

It was ensured that the frontpage of the portal maintained a user-friendly design, where all main features of the portal could easily be accessed from (Figure 2).

The frontpage also contains updated news items, as well as automatic feeds for related news.

Figure 2: HENVINET Portal frontpage.

3 Main Features and Sub-pages

The main features of the portal are found in the separate sub-pages which are accessible from the front page. A non-registered user of the portal has access to the following sub-pages: Frontpage, About, Groups, Forum, Events, Tools, How to, FAQ, and Documents. A registered user which is logged in has access to the aforementioned pages, and in addition has access to their Profile page, and the Members page. These sub-pages are presented in the sections below.

3.1 About

The About page (Figure 3) lists the goals/objectives of the portal; this text comes from the established Vision Statement (see also Section 1.2).

Figure 3: About page.

3.2 My Profile

The My Profile page (Figure 4) lists the user's profile, recent activity, contacts, groups, and settings.

Figure 4: My Profile Page.

3.3 Members

The Members page (Figure 5) lists the registered users of the portal and basic information to begin networking with them.

Figure 5: Members Page.

3.4 Groups

The Groups page (Figure 6) lists the established groups within the portal, where the HENVINET groups are listed first, and other H&E related groups follow.

Figure 6: Groups Page.

3.5 Forum

The Forum page (Figure 7) is the place where content is posted and generated. All users can post information and comment on other posts.

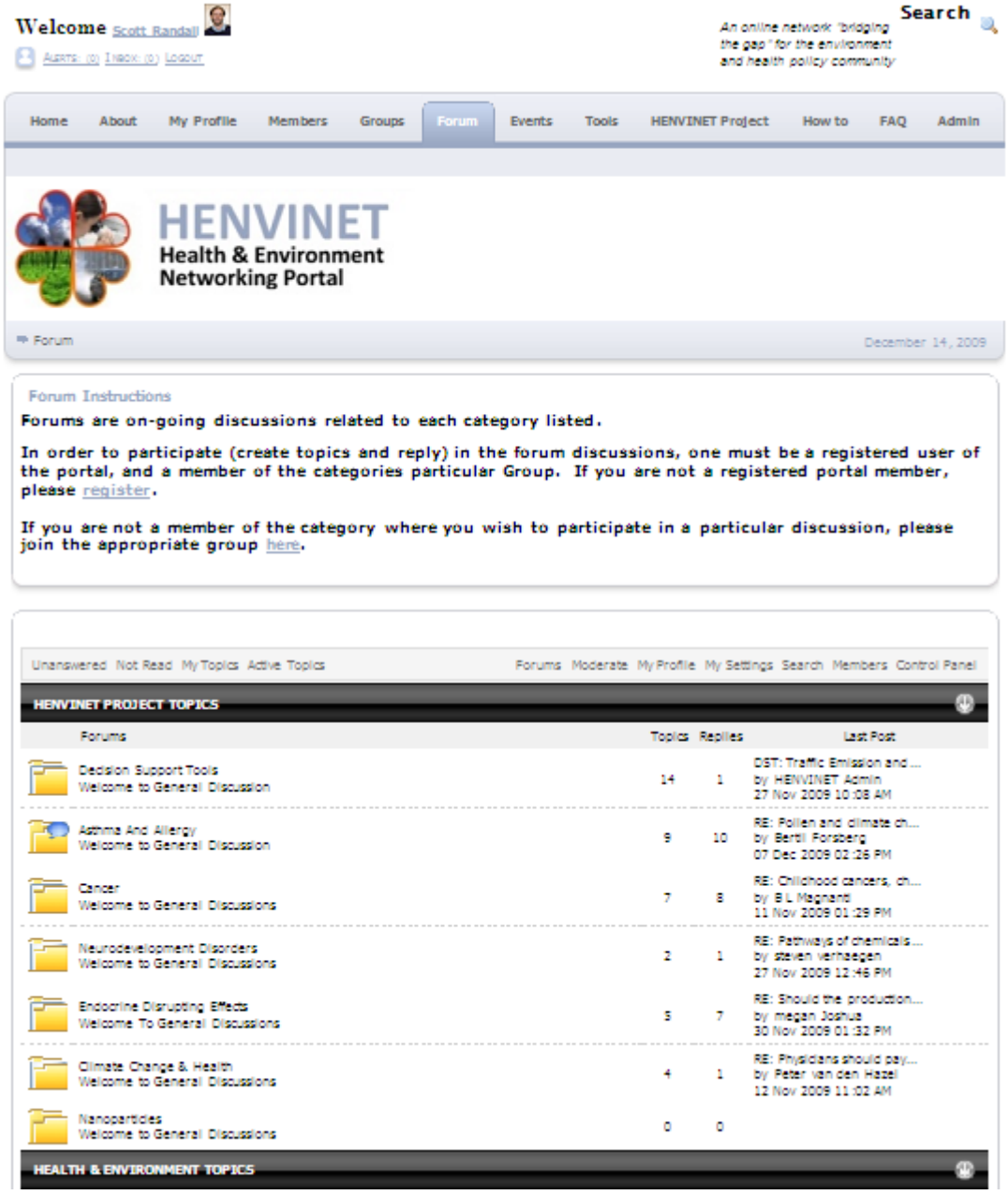

Figure 7: Forum Page.

3.6 Events

The Events page (Figure 8) is a compilation of current events (conferences, meetings, symposiums, etc.) which found here across the entire H&E field.

Figure 8: Events Page.

3.7 Tools

The Tools page (Figure 9) contains a description (with links) of the main HENVINET project tools of DST's and Causal Diagrams.

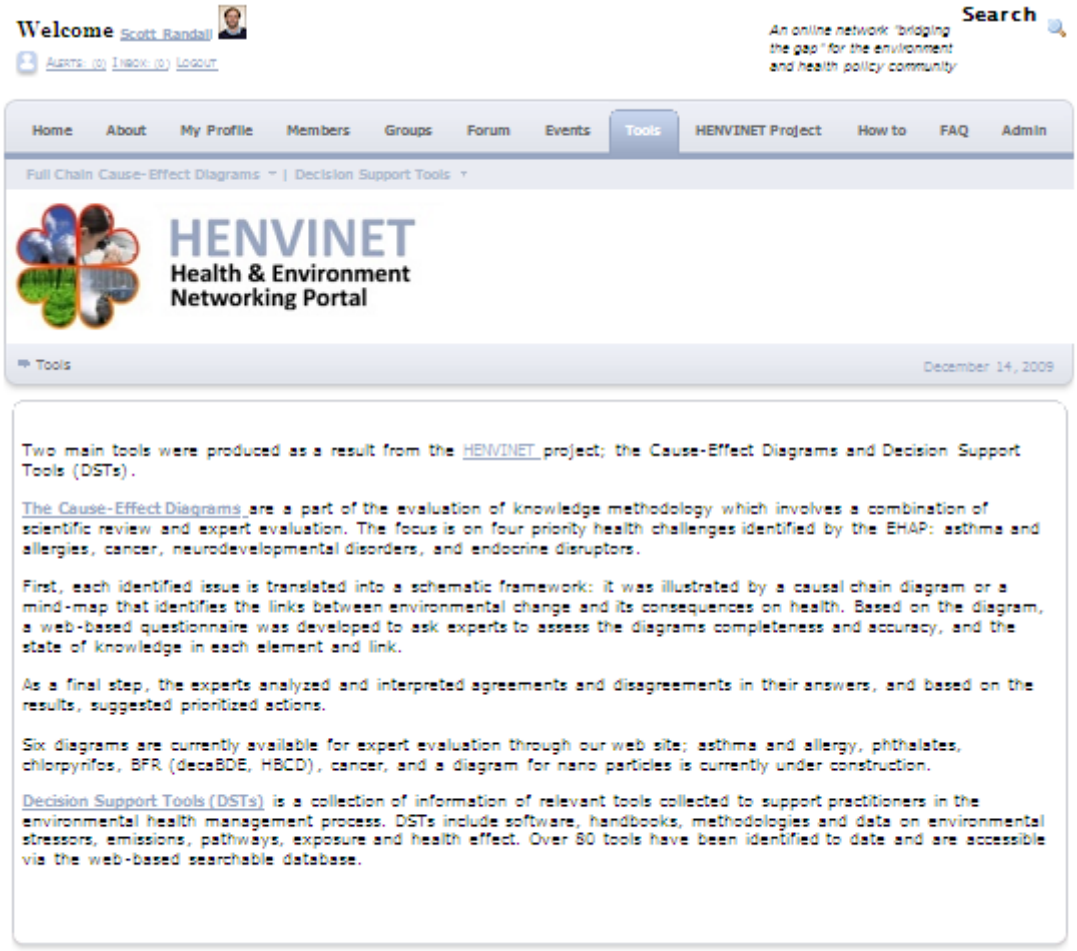

Figure 9: Tools Page.

3.8 HENVINET Project

The HENVINET Project page (Figure 1) is available from the "HENVINET Project" heading in the tool bar. The Project page contains external information, as well as internal information for project partners by clicking "login".

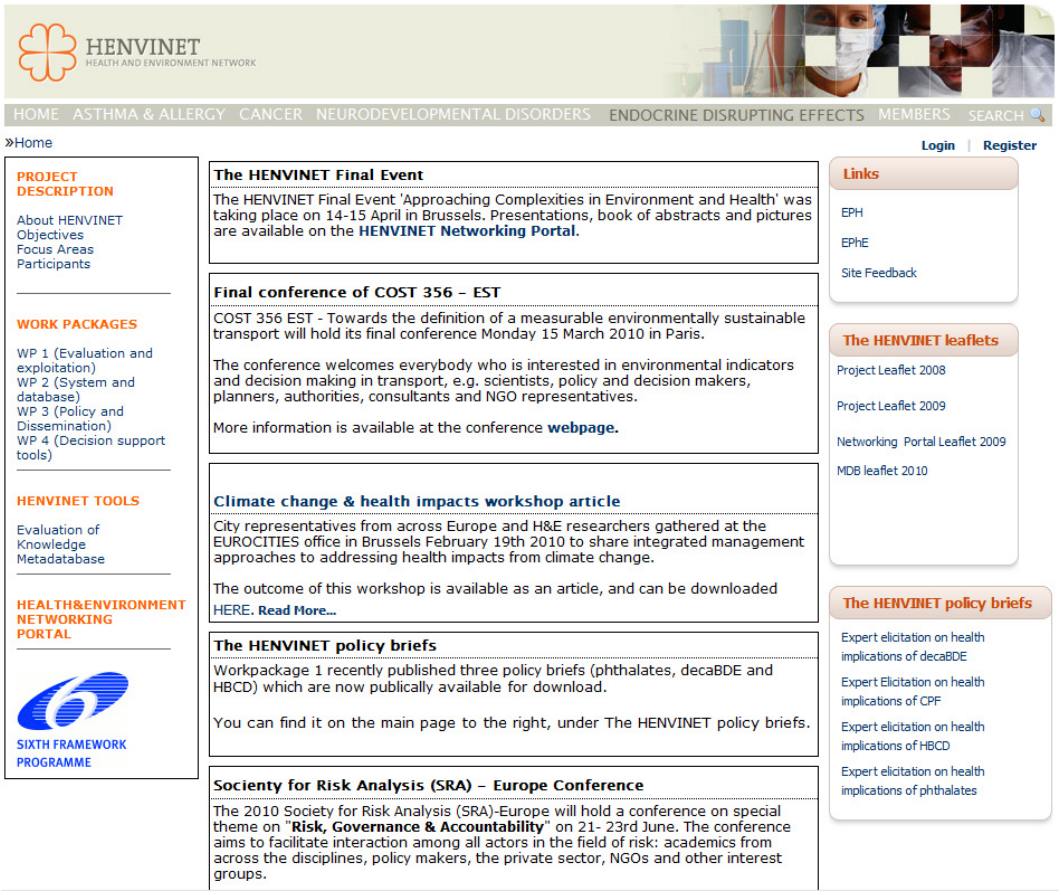

Figure 10: HENVINET Project Page

3.9 Help

A tutorial for how to navigate the portal is available on the How To Page (Figure 11), and frequently asked questions are available on the FAQ Page (Figure 12).

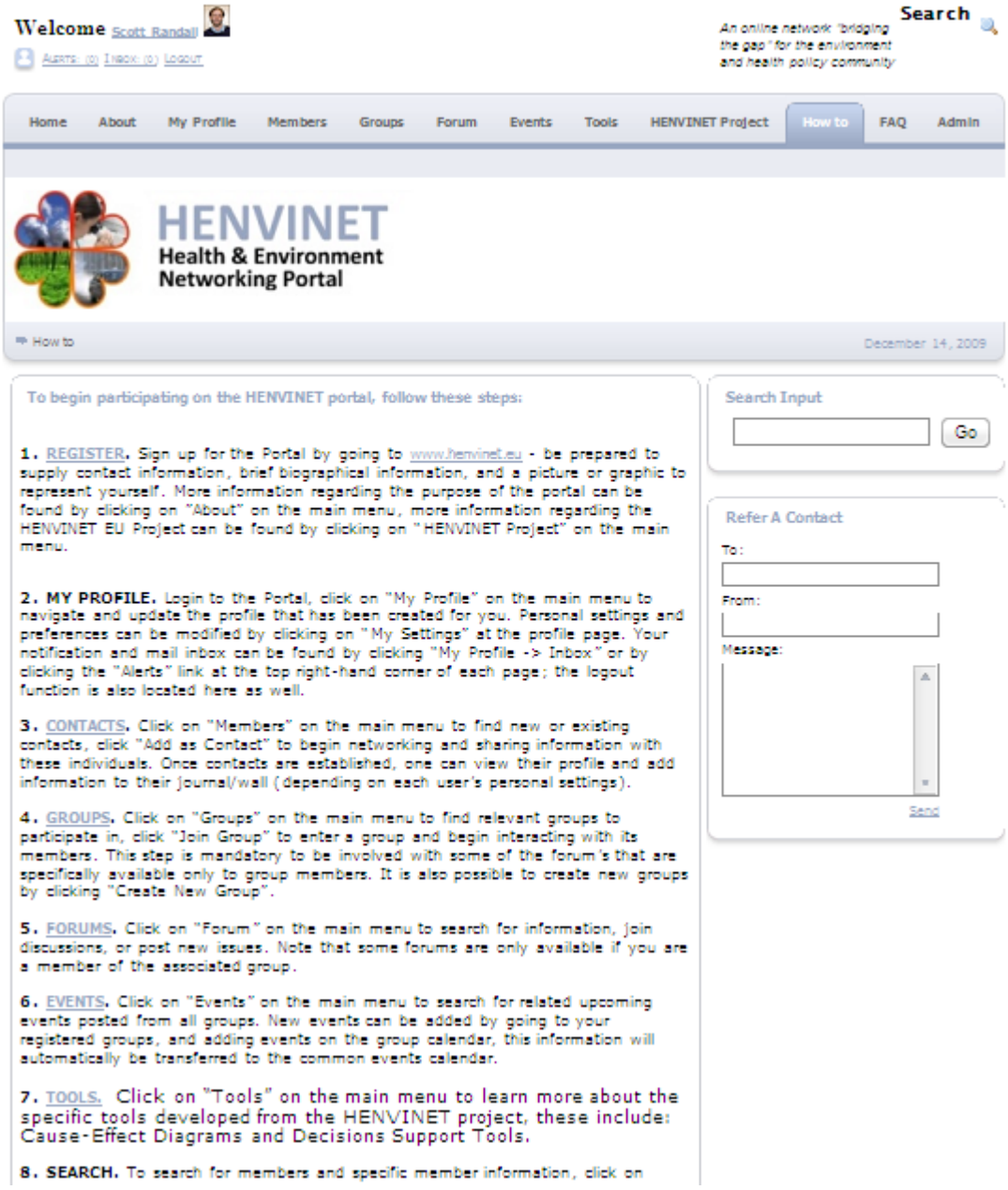

Figure 11: How To Page.

Figure 12: FAQ page.

3.10 Documents

Documents can be found within individual forum posts, or on the Documents page (Figure 13).

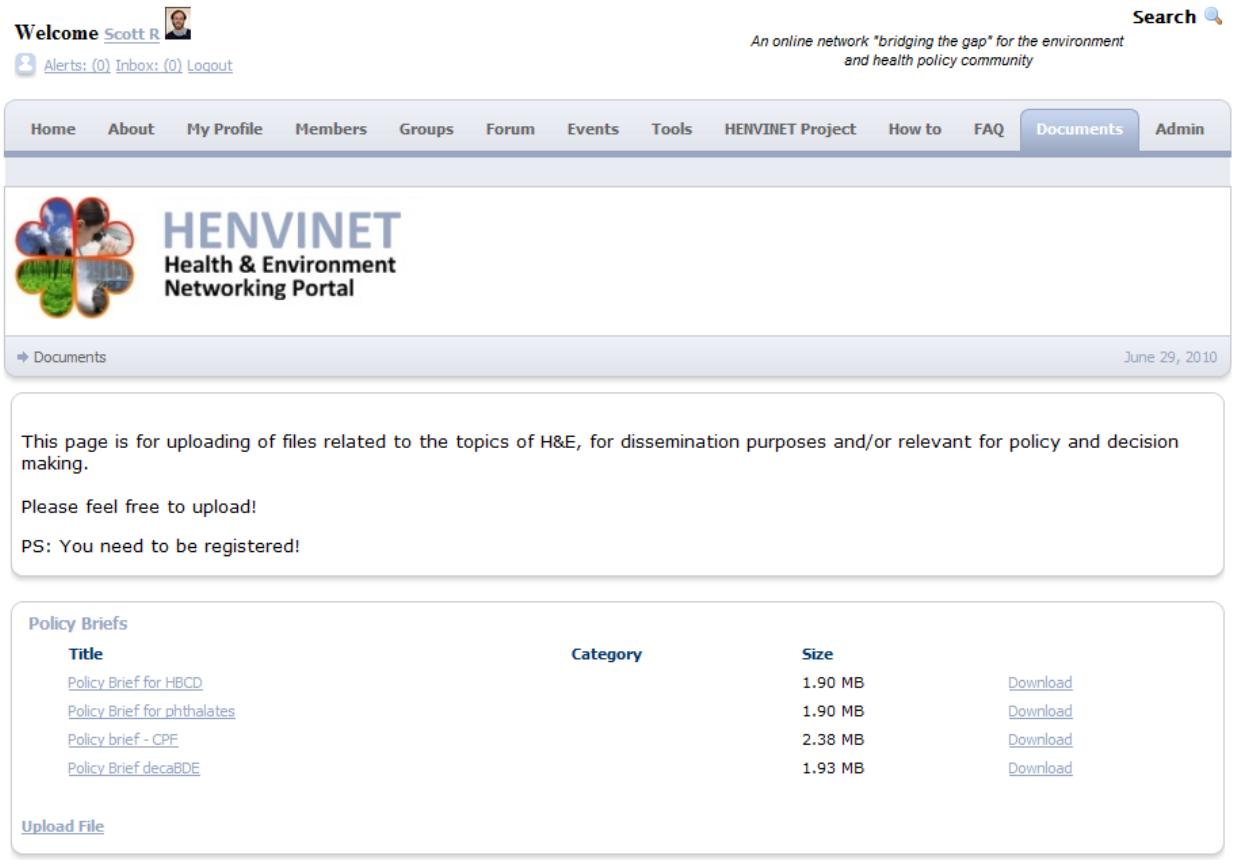

Figure 13: Documents Page.

3.11 Newsletter

Registered users are automatically subscribed to a newsletter containing all the most recent site activity. An example of this newsletter can be seen below (Figure 14).

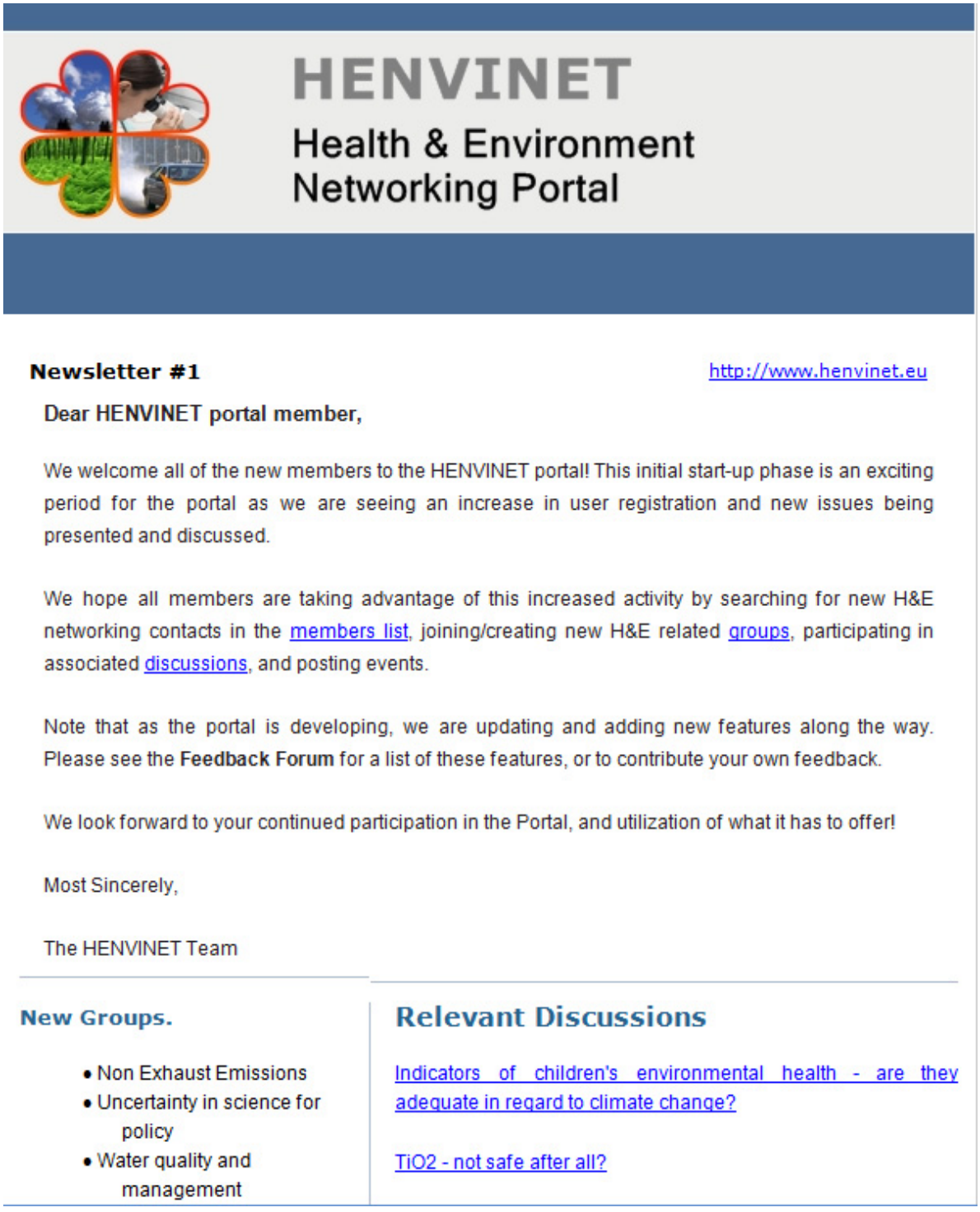

Figure 14: HENVINET Newsletter example.

3.12 Search

A user is able to find portal information through using the search function (Figure 15). A user can find registered users, forum topics, news information, or even data within the DST database. This can all be done through free text keyword search that available on each page of the portal.

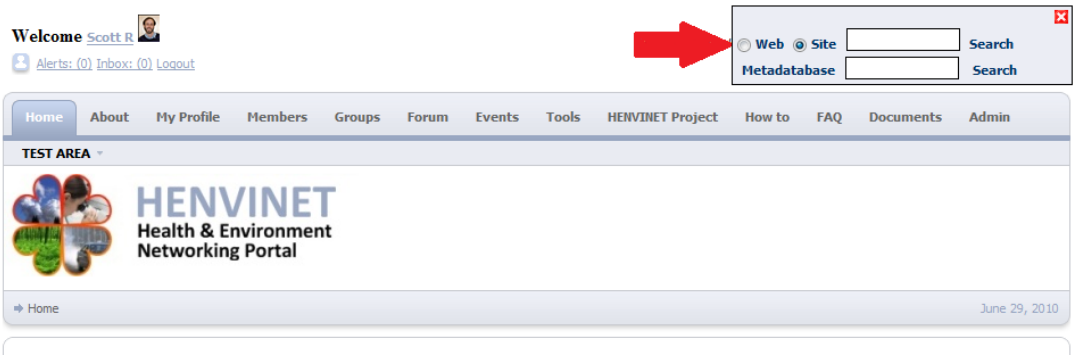

Figure 15: Search Function.

4 User Interface

The user interface is based on the standard DNN layout, and is composed of the following pages: Registration, Login, Profile Management, Account Settings, and Personal Settings.

4.1 Registration

New users can register directly from the portal (Figure 16). They will receive an email requiring them to validate their email address and to confirm their identity, allowing them basic access to the portal.

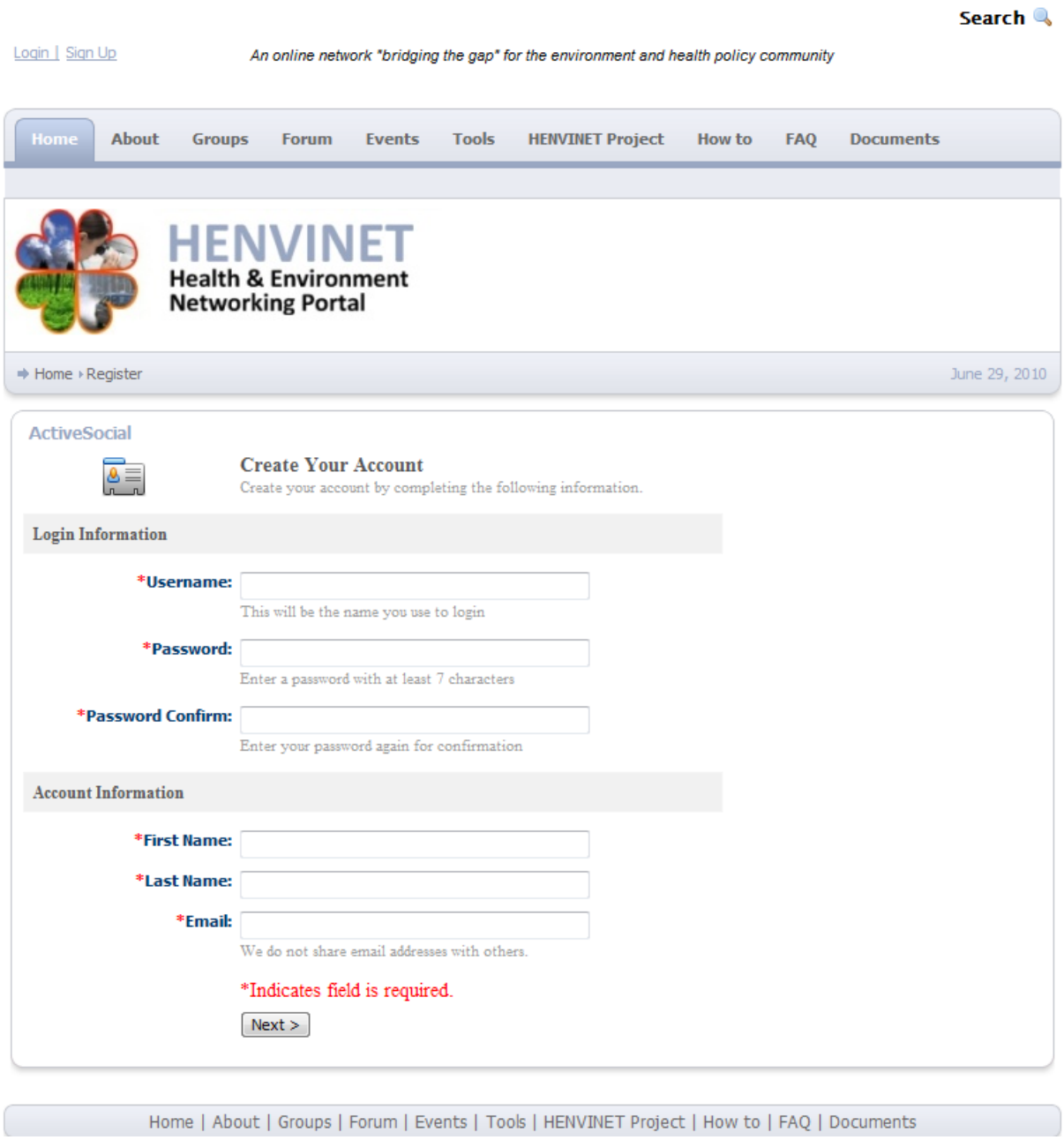

Figure 16: New User Registration

4.2 Login/Logout

Users can login to the portal to access advanced features (Figure 17) . This is necessary in order for them to make new contacts, communicate with others within the portal, upload documents, and to comment on forum posts, etc.

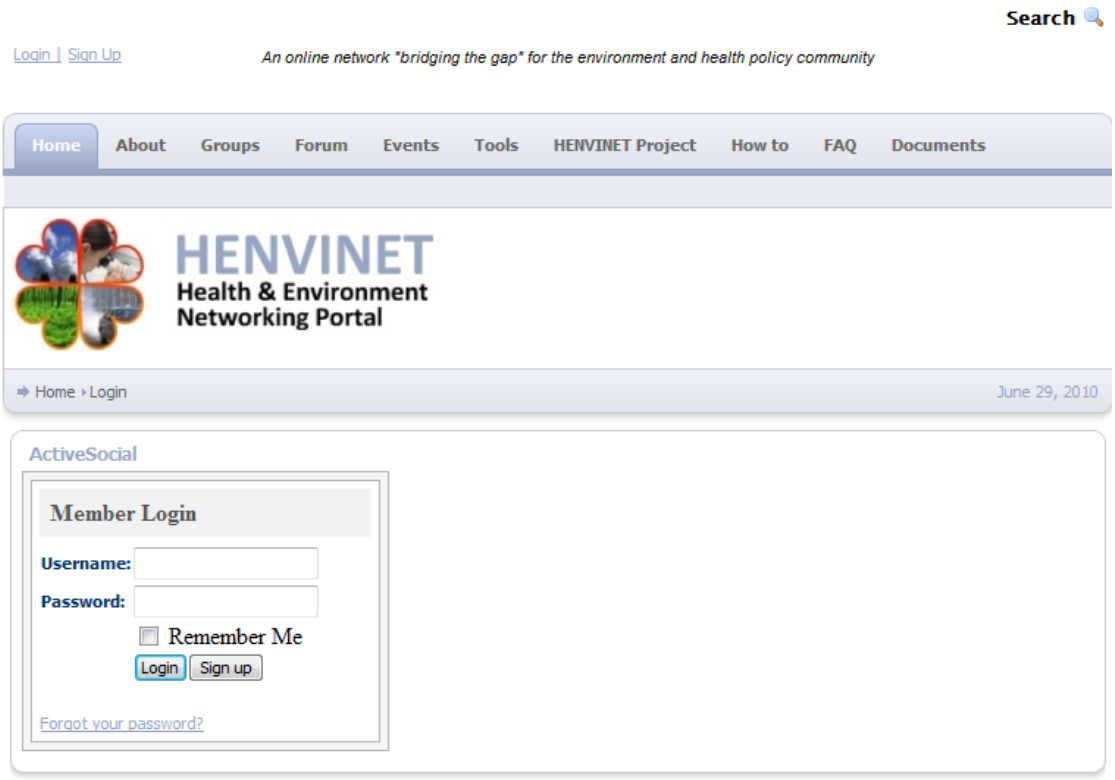

Figure 17: Login Page.

4.3 Profile Management

Users can manage their profile by clicking “Edit Profile” within their profile page (Figure 18).

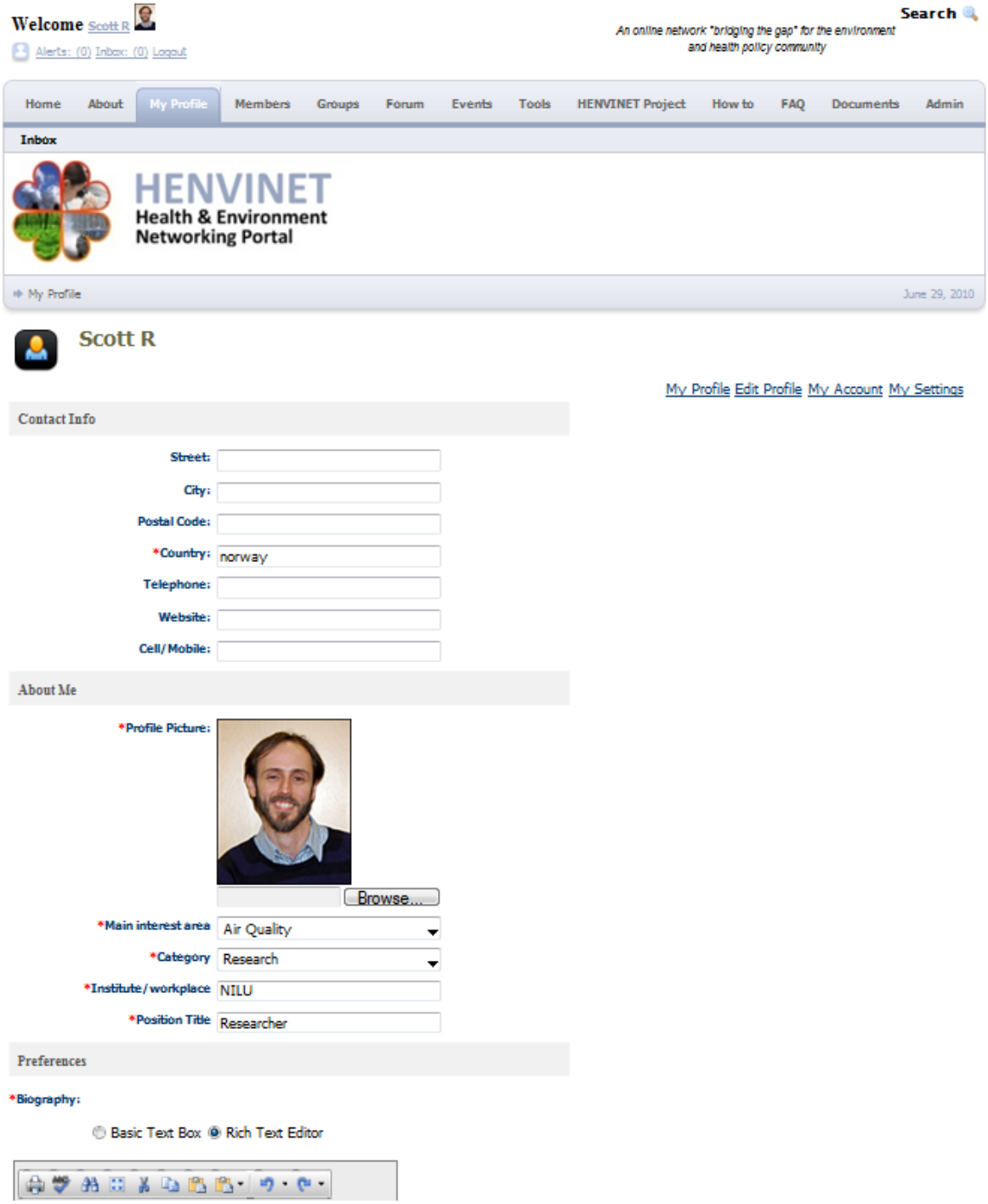

Figure 18: Profile Management.

4.4 Account Settings

Registered users can change basic account information by clicking “My Account” on their profile page (Figure 19).

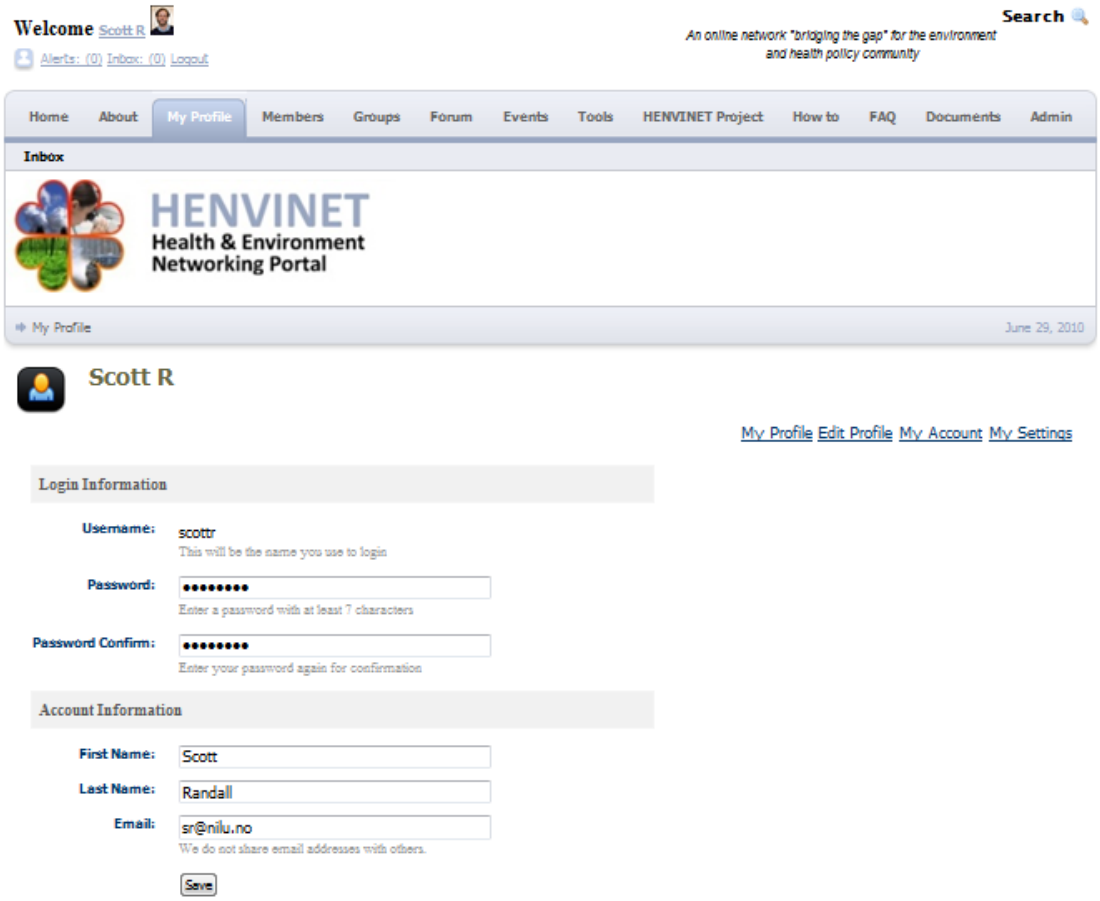

Figure 19: Account Settings Page.

4.5 Personal Settings

User can change personal settings related to visibility, notifications, and special preferences within the portal by clicking ”My Settings” on their profile (Figure 20).

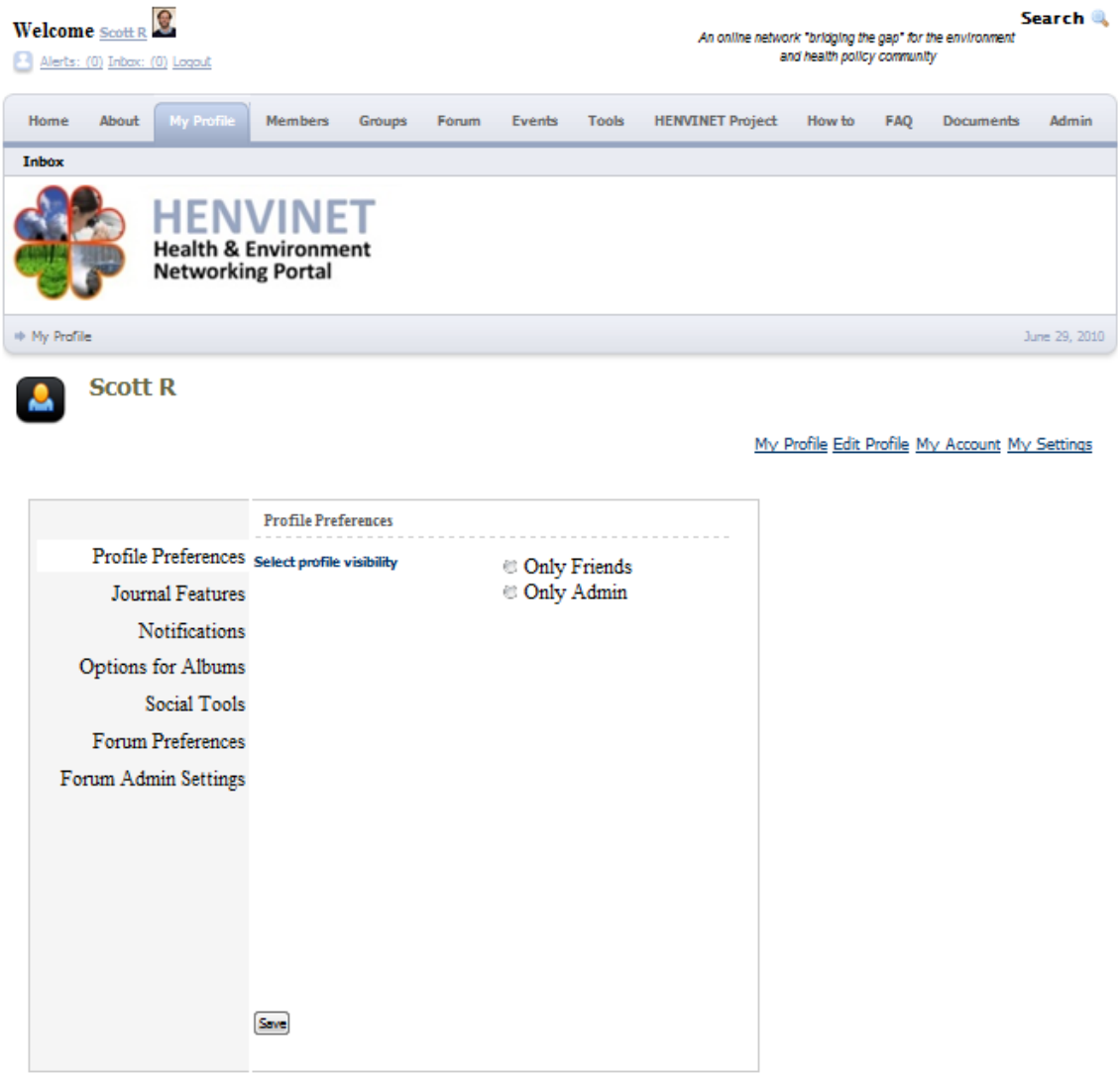

Figure 20: Personal Settings Page.

4.6 Bread crumb

The DNN bread crumb feature allows users to navigate up and down a hierarchical structure rapidly and intuitively (Figure 21). It allows them to jump to a different location with the file structure of the site and also presents an intuitive visual representation of the structure.

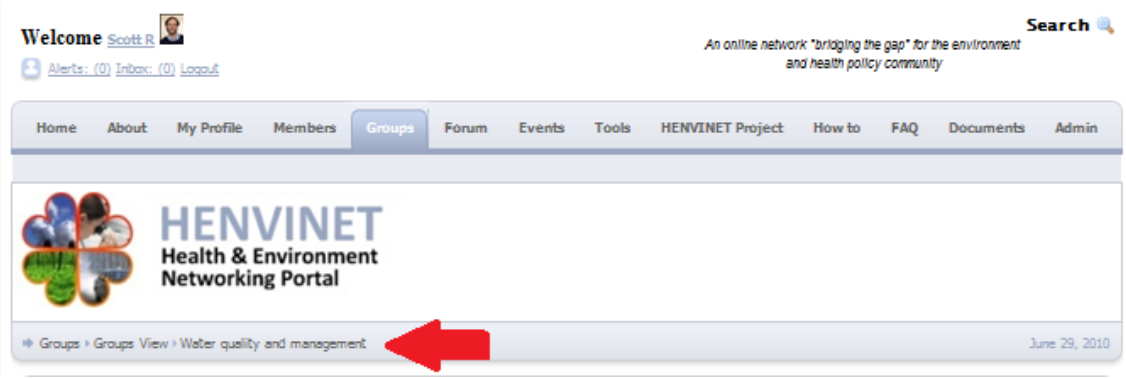

Figure 21: Bread Crumb Feature.

5 Site Management/Administration

Administration of the Portal is a critical function to maintain stability and creditability of the portal and its contents. Portal management is done through the following top-level administration features: Module, Site, Page, User, Role, and File.

5.1 Module Selection and Administration

Each page can host multiple modules (Figure 22). DNN is module driven meaning that every data type or content type is housed in a module. These modules can take many forms, such as a text module, links module or documents module.

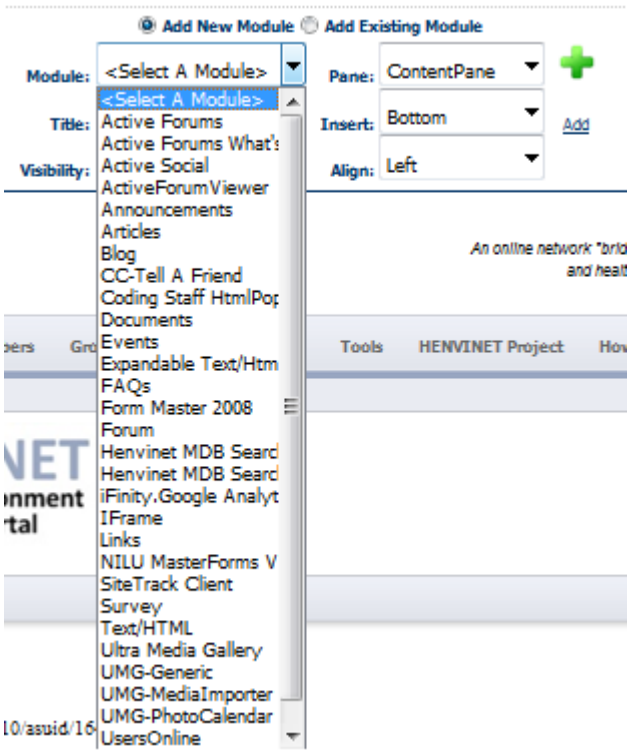

Figure 22: Module Selection.

5.2 Site Administration

Basic site information and settings can also be administered through the site administration feature (Figure 23).

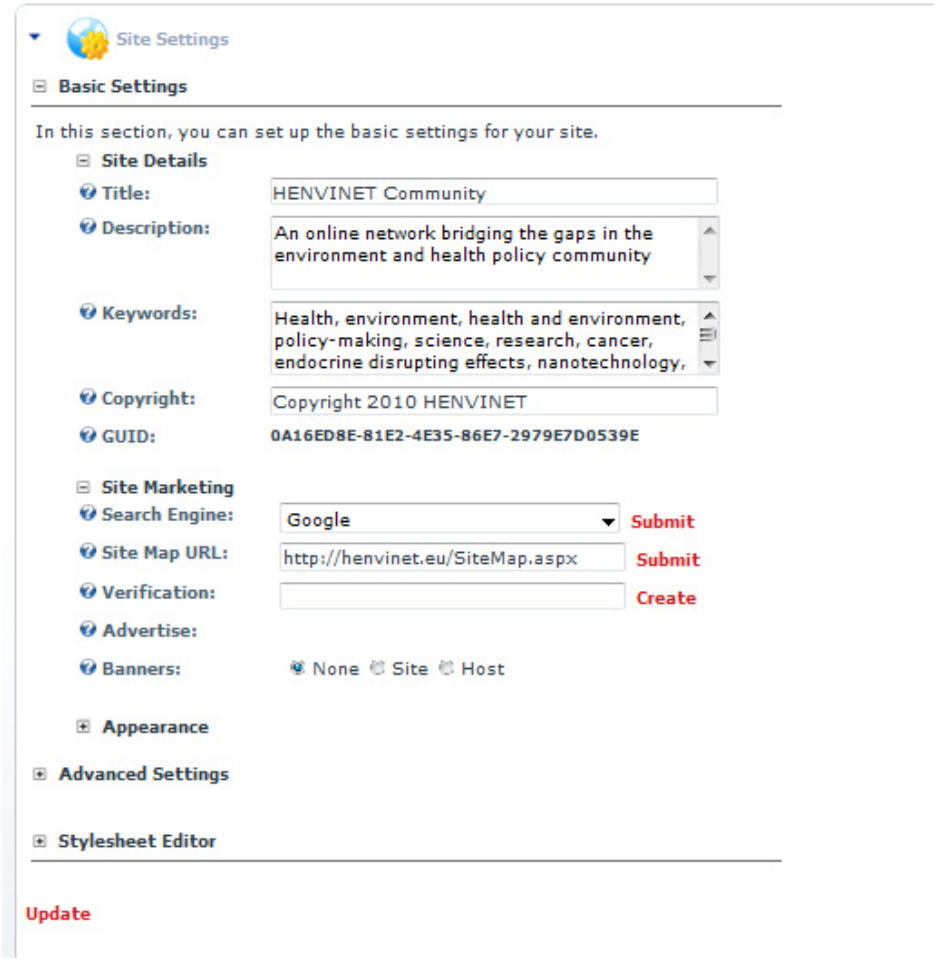

Figure 23: Site Administration Page.

5.3 Page Administration

Pages and sub-pages of the Portal can be modified, added, and deleted from the Page Administration feature (Figure 24).

Figure 24: Page Administration.

5.4 User Administration

Registered users of the Portal can be modified, added, and deleted from the User Administration feature (Figure 25).

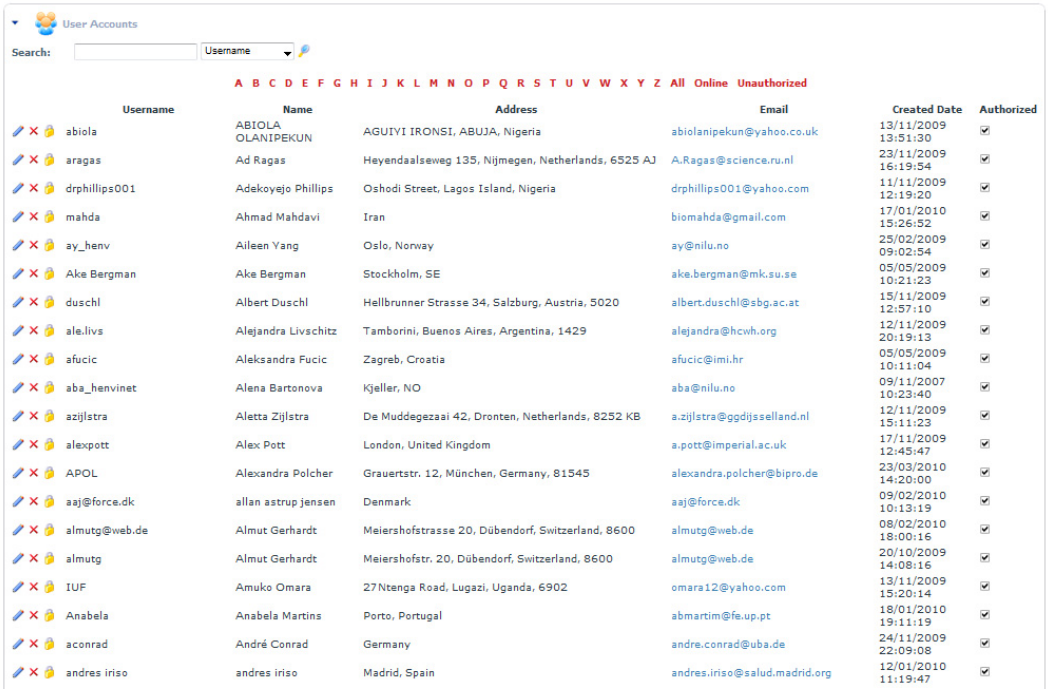

Figure 25: User Administration.

5.5 Role Administration

Specific roles can be assigned to specific users to determine access to varying portal features on the Role Administration page (Figure 26).

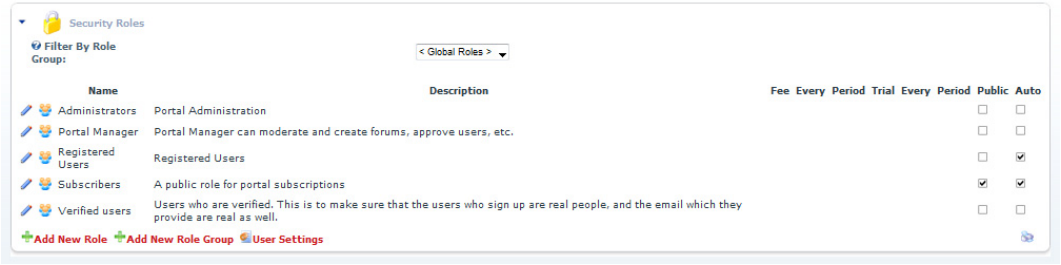

Figure 26: User Role Administration.

5.6 File Administration

All files associated with the portal can be viewed, deleted, or modified from the File Administration feature (Figure 27).

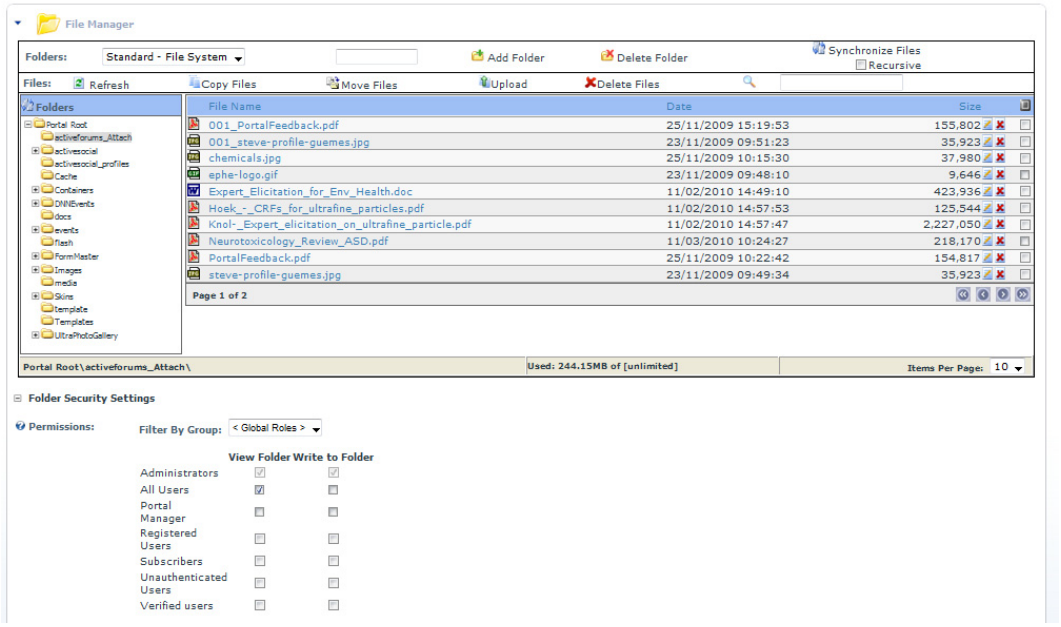

Figure 27: File Administration.

5.7 Daily Management

A portal Task force group was establish in order to take care of the daily administrative tasks on the portal. The tasks consisted of the following:

- Scanning various relevant health and environment related websites for news to post on the forums for content generation.
- Posting announcements/news related to conferences, workshops and other relevant events.
- Keeping up to date with the newest releases of modules.
- Fixing bugs related to updates of modules.
- Scanning the portal for spammers.

6 Portal Extensions

The HENVINET portal supported the other project WP's in the final year of the project. This support came in the form of extending the functionality of the portal to include WP outputs, as well as developing the portal towards a more refined product.

This development and extension of the portal in support of the other project WP's included:

1. Adding new groups based on specific H&E topics covered in the project to the portal Groups.
2. Adding WP outputs in user-friendly disseminated posts to the portal Forum.
3. Adding events generated from WP work to the portal Events page.
4. Adding the two primary project tools (causal diagrams and decision support tools) to the portal Tools page.

7 Integration of HENVINET Tools

Numerous HENVINET tools and products were integrated into the portal. These tools are:

- Decision Support Tools (DST's)
- Causal Chain Diagrams with evaluation
- Policy Briefs
- Project website (internal and external)

The DST database is a collection of information of 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. Over 80 tools have been identified to date. The portal allowed easy access to the web-based searchable database, under the "Tools" heading in the menu bar, see Section 3.7 above.

The Causal Chain diagrams are evaluations of the quality of scientific knowledge of various aspects of the cause-effect relationship within specific health related areas. 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. There are currently seven causal diagrams available to view at the portal: Asthma and allergy, BFR's, Cancer, CPF, Phthalates, Traffic, and Nanoparticles. In addition to viewing the diagrams (under the "Tools" heading in the menu bar, see Section 3.7 above), experts could also evaluate the entire causal change, this possibility was also available from a link on the Tools page.

Policy Briefs are short documents (less than 4 pages) about a single specific H&E topic, geared towards policy-makers. The briefs explain the problem, current research results, and simple recommendations from the scientists. Some of the briefs also contain outcomes from expert workshops conducted through the project. The following briefs are available on the portal (under the "Documents" heading in the menu bar, Section 3.10 above): CPF, decaBDE, HBCD, and phthalates.

A final project tool was also integrated into the portal: the project website (http://henvinet.nilu.no/). The project website contains internal and external information related to HENVINET. The HENVINET portal eventually also became the front page for the project, making the internal/external project pages as a sub-heading to the portal. (under the "HENVINET project" heading in the menu bar, see Section 3.8 above).

8 Conclusion

The HENVINET portal design and structure met the goals of the project to provide such a online networking tool. However, the Portal has not yet entirely met its own goal of being an established online network. The following four issues must first be addressed in order to complete this goal:

1. **Recruitment**. More members must be recruited to establish a solid base of registered users in the health and environment field.
2. **Participation**. Existing members and new members must be encouraged to use the network to find contacts and information.
3. **Content**. More content must be available on the Portal to attract new users and give a solid base of information that is useful to the members.
4. **Network**. The Portal must be seen as "the" network to turn to when particular issues arise in the Health and Environment field.

The Portal design and structure are fundamentally established to handle the four issues mentioned above – where the effort to tackle these issues mainly lies in **marketing**, as well as administration. A successful marketing campaign can drive new users to the portal, and at the same time continuous administration can encourage participation and content input from these new users. The persistence of this work will eventually lead the Portal to be "the" online network for the Health and Environment field.

9 References

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

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ABSTRACT
The HENVINET.EU is a powerful networking portal designed specifically for the global Environment and Health community. With a range of innovative tools for locating and accessing expertise, sharing knowledge, views and networking with peers, HENVINET.EU empowers a multi-stakeholder approach to addressing the most pressing Environment and Health issues at hand. This document outlines the final design specifications for the HENVINET.EU portal.

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