Environmental Public Health Tracking Network

VISION

Version 1.0
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PREFACE

The Centers for Disease Control and Prevention (CDC) has selected the Rational Unified Process (RUP) as the framework for all development projects. RUP is a comprehensive, flexible, software engineering methodology created by the Rational Software Corporation. It divides the lifecycle of a project into four distinct phases: 1) Inception, 2) Elaboration, 3) Construction, and 4) Transition. This Vision Document is an artifact from the Inception phase.

The document is organized using a standard document template provided by the CDC Information Resource Management Organization (IRMO) for the CDC development process. It is the first formal document that describes the features that will be proposed to stakeholders to support environmental public health tracking nationwide. Additional discussions will continue with stakeholders to further resolve features of the Environmental Public Health Tracking (EPHT) Network. To develop consensus for a project of this scope, this Vision Document will be reviewed by stakeholders and updated, perhaps many times, until general agreement is reached to move forward with development of the EPHT Network.

The document review process:

1. The first draft is reviewed by the CDC Environmental Health Tracking (EHT) Branch;

2. The document is reviewed by the EPHT Network workgroup members;

3. The document is reviewed and approved by the EPHT Network Change Control Board (CCB).

CCB members are listed in the Appendix. Future versions of this document may be drafted as necessary.

EXECUTIVE SUMMARY

This document provides a vision for the Environmental Public Health Tracking (EPHT) Network. The document is designed to 1) describe, at a conceptual level, the function and purpose of the EPHT Network, 2) provide a profile of the stakeholders and users of the Network, and 3) outline the major features of the EPHT Network.

Linking environmental and public health systems is currently very complex and time-consuming due to a lack of coordination, communication, and standards. The EPHT Program has been established to address the issues of environmental public health tracking. The EPHT Network will make data and tools available to support the EPHT Program and other public health and environmental health programs. It will be a distributed, secure, web-based network that will provide access to environmental and health data that are collected by a wide variety of agencies. The Network will comprise of individual state networks and a national network, and will comply with Public Health Information Network (PHIN) standards and be able to exchange data with the Environmental Protection Agency (EPA) Exchange Network, where applicable. It will also implement a common data "vocabulary" for environmental public health tracking to improve collaboration and allow direct electronic data sharing. The EPHT Network will provide access to environmental, health, and linked environmental-health data from both centralized and de-centralized data stores and repositories, and it will support data exchanges and data linkages at local, state, regional, and national levels.

The primary feature of the EPHT Network is its capability to provide access to a variety of widely dispersed environmental and public health data and to support the two-way exchange of data between partners. Various levels of access will be provided to users depending on their role and purpose. Another feature is its capability to enable the systematic linking of health effects, exposures, and/or hazard datasets on an ad-hoc or ongoing basis, depending on the user's data access rights. The Network will also provide a toolset for data analysis, visualization, reporting, and monitoring and will provide the necessary security and protection to sensitive or critical data and systems.

Key benefits of the Environmental Public Health Tracking Network include the capability to 1) provide timely information to all users; 2) integrate local, state, and national databases of environmental hazards, environmental exposures, and health effects; 3) allow broad analysis across geographic and political boundaries; 4) promote interoperable systems via compliance with standards; 5) increase environmental public health capacity at the state and local levels; 6) provide the means to enhance and improve data; and 7) provide a secure, reliable, and expandable means to link environmental and health data.

A variety of stakeholders and users was identified by members of the CDC Environmental Health Tracking (EHT) Branch and a cross section of grantees. These stakeholders and users include federal, state, local, and tribal public health and environmental agencies and staff, universities, health care providers, laboratories, legislators, advocacy groups, industry and trade groups, and the general public.

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1   INTRODUCTION

This section provides an overview of the entire document. It includes the objectives, definitions, acronyms, abbreviations, and references of the Vision document. The document is based on work accomplished by the Centers for Disease Control and Prevention (CDC) Environmental Health Tracking (EHT) Branch and the Standards/Network Development (SND) and Program Marketing workgroups.

This Vision document serves as the primary means of communication between stakeholders and project teams. It is intended for all project stakeholders, including general managers, funding authorities, and developers.

In the sections that follow, the terms *Network* and *System* will be used to denote a secure Internet-based information system that supports environmental public health tracking. The term *Program* will be used to denote the people, data, standards/vocabularies, policies, funding, research, methodology, education and training activities, environmental public health marketing, and technology that support the ability to conduct environmental public health tracking.

1.1   OBJECTIVES

This Vision Document is designed to:

- Describe, at a conceptual level, the vision and purpose of the Environmental Public Health Tracking (EPHT) Network,
- Identify potential users and stakeholders whose needs will be met by the EPHT Network; and
- Outline major features of the EPHT Network.

1.2   DEFINITIONS, ACRONYMS, AND ABBREVIATIONS

See the "Environmental Public Health Tracking Network: Technical Glossary" [1] for a definition of terms used in this document.

1.3   REFERENCES

[1] Environmental Public Health Tracking Network Standards/Network Development Workgroup. Environmental public health tracking network: technical glossary. 1.0, TBD

[2] Pew Environmental Health Commission, Johns Hopkins School of Public Health. America's environmental health gap: why the country needs a nationwide health tracking network. 2001.

[3] Thacker S, Stroup D, Parrish G, Anderson H. Surveillance in environmental public health: issues, systems, and sources. American journal of public health, May 1996; 86(5): 633-8

[4] Hertz-Picciotto I. Comment: toward a coordinated system for the surveillance of environmental health hazards. American Journal of Public Health May 1996; 86(5):638-41

[5] Macdonald S, Pertowski C, Jackson R Environmental public health surveillance. Journal of public health management practice 1996; 2(4), 45-9.

[6] US Department of Health and Human Services, Healthy people 2010: Understanding and Improving Health, 2nd ed. Washington: US Department of Health and Human Services November 2000

2   PROGRAM/NETWORK CONTEXT

2.1   PROBLEM STATEMENT

The environment plays an important role in human development and health. Researchers have identified associations between exposures to some environmental hazards and specific diseases, such as exposure to asbestos and lung cancer. Other interactions between environmental exposures and health effects are suspected but need further research, such as the association between exposure to disinfectant by-products and bladder cancer.

Surveillance systems that capture data on public health effects and monitoring systems that capture environmental data currently exist. They are, however, separate systems, often developed by different agencies and for different purposes, making it difficult to track environmental hazards and investigate possible associated health effects. The environmental monitoring and health/exposure surveillance systems that exist currently are generally not compatible with each other because of differences in the purposes of the systems. There is a lack of common standards in how data are collected, including where data are collected, frequency of collection, characteristics collected, and data formats. Therefore, linking environmental and health systems can be very complex and time-consuming.

The issue of environmental public health tracking was identified in a 2001 Pew Environmental Health Commission report called "America's Environmental Health Gap: Why the Country Needs a Nationwide Health Tracking Network" [2]. In this report, the Commission stated that the existing environmental health system was inadequate and fragmented, and they recommended a "Nationwide Health Tracking Network for disease and exposures."

Surveys conducted by the Pew Commission in the 50 states and selected local jurisdictions found that many of the public health departments have little capacity for environmental public health tracking. As a result, fundamental information about community health status and environmental exposures is often not available for disease prevention, policy, and scientific purposes. Congress responded in 2002 by appropriating funding for CDC to begin developing and implementing a nationwide environmental public health tracking program and to develop environmental health capacity in state and local health departments. CDC has issued solicitations for two rounds of cooperative agreements with state, university, and local partners to begin developing the Environmental   Public   Health   Tracking   Network   (the   Network). (http://www.cdc.gov/nceh/tracking/). This focuses on both noninfectious conditions with long latency (chronic diseases) and noninfectious conditions with short latency (toxic effects, such as acute poisoning) that may be related to environmental exposures.

Environmental public health issues exist nationally and locally. In some cases, states are responsible for public health, but in other cases, the responsibility is shared between federal and state agencies. Some environmental hazards are specific to local or state areas, but other environmental hazards have no boundaries and are regional or national. Therefore, the need for coordination and data sharing is essential. Developing a national Network together with state efforts will improve awareness, communication, and standards.

2.2   PURPOSE

The EPHT Program has been established to address the problems outlined above. The EPHT Network will support the purposes of the EPHT Program. This Network will make data and tools available to support activities of the EPHT Program and other public health and environmental health programs.

The Environmental Public Health Tracking Program has three purposes:

- Provide information to initiate public health actions, both immediate or long term, as warranted
- Conduct planning and evaluation (e.g., estimate the magnitude of the problem, track trends, identify high risk groups and modifiable risk factors, and evaluate the effectiveness of interventions) and
- Establish a basis for etiologic studies

The EPHT Program will facilitate the integration of data on environmental hazards, environmental exposures, and health effects to protect and improve public health. The EPHT Network will support data integration by both owners and users. Integrated data will provide public health agencies with information that can be used to plan, apply, and evaluate actions that prevent and control environmentally related diseases. The Program will provide the flexibility to address national, regional, state, and local environmental public health needs.

2.3   SCOPE

The EPHT Network will be a distributed, web-based network that provides access to environmental and health data collected by a wide variety of agencies. It will be comprised of individual state networks and a national network, will comply with PHIN standards, and will be able to exchange data with the EPA Exchange Network, where applicable.

The scope of the EPHT Network is characterized by the following set of principles developed as part of the Standards and Network Development Workgroup efforts:

- The EPHT Network provides access to and support of both centralized and de-centralized data stores and repositories
- The EPHT Network supports data exchanges and data linkages within states, across states and regions, and nationally
- The EPHT Network enables the discovery and access to environmental data, health data, and linked environmental-health data
- The EPHT Network provides access to centralized and decentralized tools (e.g., methods, software, and algorithms to link data).

3   STAKEHOLDER AND USER DESCRIPTIONS

The Rational Unified Process (RUP) requires that all stakeholders' and users' needs be identified to effectively implement, develop, or enhance a system that meets those needs. This section provides a profile of the stakeholders and users involved in the project and the key problems that they perceive should be addressed by the proposed solution.

3.1   STAKEHOLDER SUMMARY

A stakeholder is an individual or group that has a stake or interest in the development of the Network. Identified system stakeholders are listed in the table below along with governmental and nongovernmental affiliation or agency. In some cases, groups of individuals, such as teams or grantees associated with a particular governmental affiliate or agency, are listed below the applicable governmental affiliate or agency. For example, the office of the Director, Public Health Information Network (PHIN) Program Management Office is an affiliate of the CDC, and the associated team is the PHIN Development Team. The table includes a description of some stakeholders and a summary of responsibilities with regard to the system.

Stakeholders of the Environmental Public Health Tracking Network		
Name	**Description**	**Responsibilities**
CDC Information Council (CIC)	CDC Council that develops agency-wide standards, guidance, and procedures and generates new crosscutting information and IT proposals.	Serves as the primary forum to coordinate review and engagement on agency information and IT issues, such as Health and Human Service data council and Health Insurance Portability Accountability Act (HIPAA). CIC has oversight of the public health information network and is responsible for its development practices for the EPHT Network.
CDC/Office of the Director/Public Health Information Network (PHIN) Program Management Office	CDC Office overseeing design and development of the Public Health Information Network.	Coordinates design and development of necessary standards across all building blocks of the PHIN such as standards and messaging for use with the EPHT Network.
PHIN Development Team (including contractors)	Developers of systems and tools based on PHIN IT standards (e.g., Computer Sciences Corporation (CSC), Scientific Applications International Corporation (SAIC), Scientific Technologies Corporation (STC).	Develops relevant public health tools for data collection, messaging, and maintenance for the EPHT Network.

Stakeholders of the Environmental Public Health Tracking Network		
Name	**Description**	**Responsibilities**
CDC/Office of Integrated Health Information Systems	CDC Office overseeing design and development of the National Electronic Disease Surveillance System (NEDSS) Program Area Modules (PAMs).	Coordinates design and development of standards necessary across all PAMs.
CDC Centers, Institutes, Offices (CIOs)	National Center for Birth Defects and Developmental Disabilities (NCBDDD); National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP); National Center for Health Marketing (NCHM); National Center for Health Statistics (NCHS); National Center for Public Health Informatics (NCPHI); National Center for Environmental Health/Agency for Toxic Substances and Disease Registry (NCEH/ATSDR); National Institute for Occupational Safety and Health (NIOSH); National Center for Injury Prevention and Control (NCIPC).	EPHT Network Project Team Members and/or EPHT Network Project Change Control Board (CCB) Members or internal EPHT workgroup responsible for providing feedback and input on EPHT Network Project Team deliverables.
CDC Environmental Health Tracking (EHT) Branch	CDC Branch sponsoring the EPHT Network Project.	Monitors and directs progress toward development of the EPHT Network.
EPHT Project Team	EHT Branch staff, some CDC CIOs, SAIC, and STC contract staff.	Provides technical and programmatic support for planning and future design of the National EPHT Network.
EPHT Program's state and local grantees	Grantees of the EPHT Program (21 state grantees and 3 local grantees).	Provide feedback and input on EPHT Network Project Team deliverables to ensure state and local grantees are involved in the process. Also responsible for building Network infrastructure at the state and local levels.

Stakeholders of the Environmental Public Health Tracking Network		
Name	**Description**	**Responsibilities**
EPHT state grantee planning consortiums	Consortium consisting of technical experts, community members, and other key stakeholders.	Provide substantive recommendations to associated EPHT state grantees on planning and implementing coordinated and integrated environmental public health tracking.
EPHT Network – Standards and Network Development Workgroup and Subgroups	Workgroup consisting of representatives of grantee states and universities, CDC, and contractors	Provide substantive recommendations on aspects of the EPHT Network, including architecture, data access, metadata, data quality, and geographic locations
Other state and local environmental and public health agencies	State, tribal, and local public health agencies that implement public health intervention programs to educate and control environmental exposures.	Provide feedback and input on disseminated documents by the EPHT Network Project Team to ensure state and local environmental and public health agencies are involved in the process.
EPHT Program's Centers of Excellence grantees	Grantees of the EPHT Program (3 grantees).	Provide feedback and input on the EPHT Network Project Team deliverables to ensure Centers of Excellence grantees are involved in the process.
Environmental Protection Agency (EPA)	Federal agency providing leadership in the nation's environmental science, research, education, and assessment efforts.	Shares timely and reliable environmental data via a partnership with CDC/National Center for Environmental Health (NCEH)/ Environmental Health Tracking (EHT) Branch to ensure informed decision-making and appropriate response to environmental and public health emergency situations. In addition, a representative from this organization will participate on the EPHT Network Project Change Control Board (CCB) to ensure the agency is involved in the process.
National Aeronautics and Space Administration (NASA)	Federal Administration that uses various tools such as satellite imaging to further mankind's knowledge of the universe.	Shares data and tools via a partnership with CDC/NCEH/EHT Branch to facilitate public health in understanding of environmental exposures and health effects.
Other federal agencies including, but not limited to, National Oceanic and Atmospheric Administration (NOAA) and U.S. Geological Survey (USGS)	Federal agencies that collect, monitor, analyze, and conduct research on the earth and natural resource conditions.	Provide feedback and input on disseminated documents by the EPHT Network Project Team.

Stakeholders of the Environmental Public Health Tracking Network		
Name	**Description**	**Responsibilities**
National Organizations (Association of Public Health Laboratories [APHL], Association for State and Territorial Health Officials [ASTHO], Council of State & Territorial Epidemiologists [CSTE], Environmental Council of the States [ECOS], National Association for County and City Health Officials [NACCHO], and National Environmental Health Association [NEHA])	Non-profit and limited membership professional organizations representing professionals in various disciplines, such as laboratory, epidemiology, and environmental health.	Provide guidance to EPHT Network project team. Provide feedback and input on disseminated documents and other tracking work output by the EPHT Network Project Team to ensure state and local environmental and public health members' comments are represented. In addition, a representative from these organizations will participate on the EPHT Network Project Change Control Board (CCB) to ensure that their organization is involved in the process to inform their membership.
State and local public health and environmental laboratories	State and local laboratories that provide diagnostic, human bio-monitoring, and environmental testing.	Provide feedback and input on disseminated documents by the EPHT Network Project Team and participate in the development process for the EPHT Network.

3.2 USER SUMMARY

A user is a person or group for whom the system is designed. System users are listed in the table below. The table describes each user and a summary of responsibilities with regard to the system. To identify users of the system, a joint application development (JAD) session was convened with a cross section of grantees. In addition, a matrix provided by the Network Architecture Subgroup was used as a cross-reference to ensure all users were identified with consistency. Users are anticipated to use the Network in the following ways: 1) Data Seeker – searches for data within the Network, 2) Data Discoverer – uses the Network without an intended data purpose but finds data of interest, 3) Data Owner – provides data to the Network, or 4) Data Steward – shares data with the Network but not as the original provider. Examples listed in the table are not exclusive.

Users of the Environmental Public Health Tracking Network			
Name	**Description**	**Anticipated responsibilities**	**Stakeholders**
Federal, State, Local, and Tribal government agency staff			
Public health and environmental agencies and staff	Individuals working at the federal, state, and local public health and environmental agencies that collect and maintain environmental and public health data to implement public health interventions and polices. They may provide environmental public health leadership, consultation and education.	Use the Network to seek, discover, and share data.	Federal agencies, state and local departments of public health, and tribal agencies
Health Care Providers			
Hospitals, health maintenance organizations, insurers	Medical practitioners and their institutions, including persons and organizations that collect and maintain data from patient visits to their medical provider.	Use the Network to seek and share data.	Health care providers
Laboratories			
Public health, environmental, and clinical laboratories	State, local, and clinical laboratories that provide diagnostic, human bio-monitoring, and environmental testing; disease surveillance; applied research; laboratory training; and other essential services to the communities they serve.	Share data with the Network as either data owners or stewards.	State and local public health, environmental, and clinical laboratories

Users of the Environmental Public Health Tracking Network			
Name	**Description**	**Anticipated responsibilities**	**Stakeholders**
Universities			
Researchers, instructors, students	Individuals at state and local universities conducting scientific studies regarding environmental exposures and health effects.	Use the Network to share and seek data.	State and local university environmental and public health programs
General users			
Legislators/executive branch	Individuals operating inside federal, state, and local governments representing their constituencies through development and implementation of law.	Use the Network to seek and discover data.	State and local government
Advocacy groups and industry and trade groups (e.g., trade organizations)	Representatives that provide information, consultation, and support on environmental hazards and health effects.	Use the Network to seek and discover data.	State and local advocacy groups
General public	State and local citizens and media agencies that search for information related to environmental public health issues.	Use the Network to seek and discover data.	
Other networks and systems			
National Environmental Information Exchange Network (NEIEN or the Exchange Network), National Electronic Disease Surveillance System (NEDSS), bioterrorism programs, and health care systems	Systems and Networks that facilitate electronic transfer of appropriate information.	Share data with the Network as either data owners or stewards.	Environmental Protection Agency (EPA), federal/state/local NEDSS programs, federal/state/local bioterrorism programs, and state and local health care systems.

3.3   KEY NEEDS OF STAKEHOLDERS AND USERS

The key anticipated needs and problems as perceived by a sub-set of stakeholders and users are listed below. The list encompasses the needs of stakeholders and users at all levels (national, state, regional, tribal, and local). It should be noted that the stakeholder needs may not be all inclusive because complete stakeholder input is forthcoming. The list will expand as necessary to include additional needs as they are identified.

- Integrated data
- Compatible data[1]
- Ability to expand
- Linkable data[2]
- Ability to assess data quality
- Ability to secure (to protect confidentiality)
- Reliability
- User friendliness
- Usefulness for environmental public health actions (such as immediate response, planning and evaluation, policy making, and etiologic studies)
- Provisions for access to and reporting of data at multiple time scales (e.g., multi-year for trend data and real-time)
- Tools to support various types of analyses (e.g., trend analysis, geo-coding) and communication of results from those analyses
- Tools to search for and find data (e.g., inventories, metadata, search engines)

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[1] Compatible data are data that can be exchanged among different systems and work together.

[2] Linkable data are data that can be associated epidemiologically. Linked data may also refer to data that are created when two or more datasets are physically combined using a common data element.

4   SYSTEM OVERVIEW

This section provides a high level view of system capabilities and interfaces to other applications.

4.1   SYSTEM PERSPECTIVE

The Environmental Public Health Tracking (EPHT) Network will be a nationwide network that integrates environmental and public health systems at the national, state, and local levels. It will consist of both national summarized data repositories and a system of distributed, diverse data sources that can allow data owners to share their data. By integrating various hazard, exposure, and health effect information systems, the EPHT Network will allow data to be linked at local, state, regional, or national levels. The Network will also protect sensitive data (such as data that include individual identifiers) from unauthorized use and allow the secure exchange of data within and between local, state, and federal agencies. Through use of standards, such as PHIN standards and the EPA Exchange Network, the EPHT Network will implement a common data "vocabulary" for environmental public health tracking that will improve collaboration and allow direct electronic data sharing. The Network will include an extensive security model, based on PHIN standards, to ensure that appropriate protections for data are provided.

4.2   SYSTEM BENEFITS

The key benefits of the Environmental Public Health Tracking Network are shown in the table below.

Benefits of the Environmental Public Health Tracking Network	
1.	Provide timely information to all users.
2.	Integrate local, state, and national databases of environmental hazards, environmental exposures, and health effects.
3.	Enable the ongoing analysis, integration, and interpretation of environmental hazards, exposure, and health effects data to control and prevent environmentally related health problems in the community.
4.	Allow broad analysis across geographic and political boundaries.
5.	Aid research by providing easier access to environmental and public health data (e.g. the Institutional Review Board (IRB) and secondary data contact look-up information).
6.	Promote interoperable systems via compliance with standards.
7.	Identify gaps in environmental and public health data systems through network development and use.
8.	Increase environmental public health capacity at state and local levels.
9.	Increase collaboration and partnerships among traditional health and environmentally focused entities at the federal, state, and local levels via network development and use.
10.	Provide a means to enhance and improve data (e.g., geo-coding).
11.	Contribute to PHIN by helping define standards to better integrate environmental and public health data.
12.	Provide a secure, reliable, and expandable means to link environmental and health data.

4.3 ASSUMPTIONS AND DEPENDENCIES

The following assumptions and dependencies are related to the Environmental Public Health Tracking Network:

- The EPHT Network will be compliant with the architecture and data/messaging standards of the Public Health Information Network (PHIN).
- The EPHT Network will be compliant with federal privacy provisions of the Health Insurance Portability and Accountability Act (HIPAA).
- The EPHT Network will respect state regulations.
- The EPHT Network must adhere to regulations and standards of the Family Educational Rights and Privacy Act (FERPA).
- The EPHT Network efforts may contribute to the development of PHIN standards.
- The EPHT Network will be compatible with EPA Exchange Network data and messaging standards, where applicable.
- The EPHT Network must have the capability to accept, route, and process HL7 version 3 messages.
- The EPHT Network must be independent of a specific technology platform.
- The EPHT Network will comply with the Americans with Disabilities Act (ADA) – section 508(a).
- Stakeholders will be available to provide appropriate input to define requirements.

4.4 LICENSING AND INSTALLATION

Licensing and installation requirements to implement the EPHT Network are unknown. These will be identified in a later release of this document.

4.5 PROPOSED OPERATING ENVIRONMENT

Some key features of the operating environment are:

- browser-based interfaces,
- secure Internet-based network,
- distributed data sources and a central summary data repository,
- data access within states, and across state and regional boundaries,
- tools for data visualization, analysis, and reporting.

4.6 ALTERNATIVES

This section identifies additional options that were considered as possible alternatives for the solution described in this document, but are no longer thought to be feasible. Strengths and weaknesses for each alternative considered are presented.

4.6.1 Commercial Off-The-Shelf (COTS) System

An alternative to the EPHT Network is to use a single commercial off-the-shelf (COTS) system to track environmental and public health data and manage the release and sharing of data according to the agreed-upon guidelines for data exchange (Trading Partner Agreement (TPA)). However, no

such system exists. A slight variation to this would be to use components of the COTS software, along with messaging software, to implement various portions of the Network. This would involve using the EPHT Program's development standards and customizing the COTS software package to create a network that can send environmental and public health data by the TPA data-exchange process. Components of COTS software will most likely be used as part of the Network.

4.6.2 National data warehouse of all EPHT data

The proposed solution of a central data warehouse or repository of all EPHT data was discussed, but the volume of data was thought to be too large to make this a practical alternative. Privacy issues also make this a non-viable alternative. Although the EPHT Network will not comprise of a single data repository, several other smaller data repositories may exist within the Network, including one or more national databases.

5   FEATURES

Features are the key capabilities of the Environmental Public Health Tracking Network that deliver benefits to the users. These features provide a fundamental basis for defining the EPHT Network so that the process of building the network can begin. Features described in the following sections were collected during discussions with a wide variety of stakeholders from many different organizations, including some of the stakeholders listed in Section 3.1. These discussions included regular conference calls with the Standards and Network Development Workgroup (SND) and the Network Architecture Subgroup (NASG), concurrent sessions at the Kickoff meeting in February 2003, and the National Center for Environmental Health (NCEH) pre-conference meeting in December 2003. The features do not include support processes, such as systems administration, systems engineering, or programming.

5.1   DATA ACCESS

The primary feature of the EPHT Network is that it allows access to a variety of environmental and public health data that are distributed in widely dispersed databases and repositories. The Network will provide access to both "linkable" and "linked" data and will also support the two-way exchange of data between partners.

Some data available through the EPHT Network will be stored at a central physical location. The Network will provide expandability to access new data sources as they become available. Data available in the Network will be accessible in standard formats, and data of varying vintage (e.g., historic, trends, "real-time") will be accessible in the EPHT Network.

The Network will provide various levels of access to users depending on their role and purpose. Access to data will be granted by the data provider, with different rights of access possible. Access to data will be granted to the maximum extent possible, considering confidentiality, legality, and technical feasibility. Some data sets will be accessible without constraint, but other data sets will be accessible using tools such as a Trading Partner Agreements (TPA) to specify details of access. Components of TPAs will be implemented through technology to manage access to and use of data sets (e.g., set security levels). The EPHT Network will provide the capability to facilitate and manage electronic TPAs and provide an authentication process when data are requested. Data owners will have the ability to restrict the release of data because of reliability or privacy concerns.

The EPHT Network will provide access to national, state, regional, and local data. Metadata are required for all data sets that will be available through the EPHT Network, and metadata will consist of a standard set of elements. Metadata will be presented in a manner to allow easy searching and discovery of data (e.g., through the use of key words).

5.2   LINKAGES

The EPHT Network will enable the systematic linking of health effects, exposures, and/or hazard datasets. This will consist of standardized protocols, methodologies, and toolsets that are generic and flexible enough to account for varying linkage scenarios on datasets that are distributed across the Network. Network users can use these tools to link data on an ad-hoc or ongoing basis, based on data access conditions described in Section 5.1. Linkages will take into account text-based, spatial, and temporal attributes.

5.3   VISUALIZATION, REPORTING, AND ANALYSIS

The EPHT Network will support the means to generate visual displays of data (e.g., maps, charts, tables, and graphs), to perform pre-defined routine types of analyses, and to assess data quality. The Network will also provide the capability that allows users to download data to perform more complex analysis using external statistical, analytic, and visualization (e.g., Geographic Information System [GIS]) tools.

The Network will provide the capability to disseminate information in various formats, including standardized reports, web-based query results, emails, and alerts. It will expand on the functionality provided through PHIN to provide a configurable method that will trigger an alert when a pre-determined parameter exceeds a given threshold. The Network will monitor continuously to determine whether a pre-defined alert state has occurred. If so, an alert or notification will be issued using a various techniques, including electronic mail, electronic paging, manual telephony, and automated voice-synthesized telephony. The Network will also have the capability of either sending or receiving data. A communications planning effort by the EHT Branch is identifying the information needs of potential users to determine how to package the data for a various audiences (e.g. summary tables, graphs, interpretation of trends, or web design).

To determine patterns of use, the EPHT Network will also provide a means for monitoring queries and database access. This could be used in a various ways, such as providing statistical information on network usage (e.g., the most accessed databases), suggesting the creation of new reports, or keeping track of past queries that users have run so that they can be run again.

5.4   IT SECURITY AND CRITICAL INFRASTRUCTURE PROTECTION

The EPHT Network will provide the necessary security and protection to ensure, as required by PHIN specifications, that sensitive or critical data and systems are not lost, destroyed, corrupted, or misappropriated.

6   CONSTRAINTS

The following presents external constraints that may affect the design and development of the EPHT Network:

- Certain state and local regulations may prevent access to various data
- Concerns regarding privacy and confidentiality may restrict the contents of data sets provided to the network
- Stakeholder agreements may be challenging because of different backgrounds and conflicting needs
- Data owners may fear that greater access to their data could result in misinterpretation or misuse of the data, resulting in an increased possibility of lawsuits (liability risk).
- Data access may be delayed while Trading Partner Agreements are negotiated and finalized
- Aggregated data may be inconsistent because of incompatibility and lack of standardization among data owners.

7   APPENDIX – EPHT NETWORK CCB MEMBERS

Name	Organization
Christine Eppstein	ECOS
Becky Smullin	ASTHO
Jennifer Li / Marc Horton	NACCHO
Judy Qualters	EPHTN
Patrick Wall	EPHTN
Akaki Lekiachvili	NCCDPHP
Vacant	NCBDDD
Robert Harrison	CSTE
Debra Brody	NCHS
Susan Schober	NCHS
Julianne Nassif	APHL
Tim Broadbent	CDC/OIHIS
Margaret Conomos	US-EPA
Tom Johnson	SAIC
Lee Sanderson	NIOSH
Steve MacDonald	EPHT Grantee (WA)