



KEIN POLICY

FIRST DRAFT

Prepared by

The Kenya Environmental Information Network (KEIN) a project initiated by United Nations Environment Programme (UNEP)

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EXECUTIVE SUMMARY

PREAMBLE

The Kenya Environmental Information Network (KEIN) is a project initiated by United Nations Environment Programme (UNEP) together with the National Environment Management Authority (NEMA). It is a multi-stakeholder capacity building process whose goal is to assist in enhancing access to environmental information in the country.

KEIN, which is part of Africa Environmental Information Network (AEIN), is a capacity building network which aims at harnessing and enhancing access to information and knowledge so as to support the management of Kenya’s environmental resources as assets for sustainable development. The overarching goal is to strengthen the capacity of Kenyan institutions to use good quality information on environmental assets to make informed investment choices at national and sub-national levels, and manage these assets on a sustainable basis. KEIN will help to inform AEIN on the status of data and information in regard to sustainable utilization of Kenya’s resources.

The main objective of the project is to build capacity for the development and management of core datasets in integrating environmental assessments and reporting. It will further support and catalyze institutional networking and capacities related to the management of data and information at the national, sub-regional, and regional levels.

Rationale

Environmental Information (EI) is very essential to national development issues under the Economic Recovery Strategy for Wealth and Employment Creation programme . It also plays a significant role in the realization of the Millennium Development Goals. (MDGs) In many developed countries, over 80 percent of planning and decision-making processes are based on EI, which is now applied to obtain solutions to a wide variety of economic, social and environmental problems.

In Kenya at the moment, EI is acquired and stored mostly in analogue form by various agencies of government such as Ministries of Environment and Mineral Resources, NGOs and by the private sector for their own use and applications with problems of unnecessary duplication, lack of accessibility, and varying

standards and formats. There is no coordinated production, management and dissemination of geospatial datasets and other forms of information that are commonly used by many agencies. Neither is there any policy for data quality, access, sharing and exchange.

The country has realized the need to adopt policies for promoting greater awareness and public access to standard and coordinated data production, management and dissemination by all sectoral institutions and the need for the establishment of a Data Clearinghouse at various levels in the country and linkages with the private sectors.

The establishment of a KEIN Infrastructure backed by KEIN Policy will certainly eliminate most of the problems experienced by environmental information producers and users in Kenya today.

KEIN Policy should be regarded as vital requirements for sustainable national development, achieving the millennium development goals and vision 2030

Vision Statement

A vibrant network of Environmental Information enhancing optimal use of environmental Information as a vital resource to inform decision making at all levels of national planning to promote sustainable development.

Mission

To enhance accessibility of environmental information in Kenya across all stakeholders to promote environmental, social and economic sustainability.

Policy Statements

The policy statements to guide the operations of KEIN cover the following items:

- Production, ownership/custodianship, archiving and maintenance of fundamental and thematic EI datasets.
- Standardization of data transfer, exchange, hardware and software.
- Provision and maintenance of metadata for every EI data holding in the KEIN.
- Legal issues pertaining to ownership /custodianship of datasets, copyright /intellectual property, confidentiality, privacy and liability.
- Modalities for data access and data security.
- Modalities for the organizational arrangement of KEIN, which takes cognizance of the fact that management of EI datasets should be done as

close as possible to source and it is non-threatening to the mandate of stakeholders.

- Funding of the KEIN with a provision for a KEIN fund,
 - Commercial aspects with provision and guidelines for access and data fees, on differential basis, for research/educational, government to government, and commercial/private use of community, private and value-added datasets.
- /• Capacity building in terms of manpower and technology transfer
- Promotion of synergy and amicable resolution of possible conflicts, among EI-related national policies and legislation.

General Objectives

- To facilitate coordinated production and utilization of Environmental data in order to eliminate duplication of efforts and wastage of resources.
- To facilitate rapid socio-economic growth of the nation through widely available, accessible, current, reliable and authoritative Information for planning and decision-making.
- To encourage data providers to use KEIN-endorsed standards in order to create and maintain data at a high level of quality and consistency, which can improve value of the data in decision-making.
- To provide a legal framework for the production, management, distribution and use of EI datasets.
- To promote relationships among organizations to support the continuing development of KEIN.
- To develop common solution that will enable discovery, evaluation, access and exploitation of EI data.
- To promote the awareness of EI and its applications.
- To ensure adequate funding to maintain the momentum of change towards the KEIN vision and sustain the spirit of cooperation and collaboration.
- To ensure effective technology transfer in EIT in the country.

Strategies

- Carry out User Requirements Survey and Analysis (Data Needs Assessment) including an inventory of the existing datasets and resources, and their standards.
- Make provision for immediate production of non-existent but essential fundamental datasets by the agency legally mandated to produce the dataset, in accordance with the KEIN standards.
- The custodian shall keep the dataset(s) it produced while making the metadata available to the KEIN Clearinghouse.
- Develop data standards for the KEIN, which shall strive to conform to the ISO standards.
- Facilitate the creation of preliminary standard services to help users understand and apply standards, at the initial stage of KEIN development and promote the benefits of using the KEIN supported standards.
- Define the metadata content and structure including practical advice on maintenance and use of metadata.
- Establish Clearinghouses by creating Data Catalogues in the KEIN data centers and enter the certified metadata of data producers.
- Facilitate adoption and legalization of all agreements and protocols relating to KEIN operations.
- Put in place high-speed and high-bandwidth backbone carrier in the apex Clearinghouse as the main gateway and master server and implement a database server at each KEIN center agency.
- Set up thematic groups to work on the implementation of the KEIN in collaboration with NEMA as lead node agency and set up KEIN focal unit (contact person) in each data center.
- Promote submission and early passage of the bill to establish KEIN, which shall include the policy items and funding.

- Encourage personnel with relevant skills in acquisition and analysis of Information.
- Put in place modalities to ensure that Information producers give evidence of local contents of their production activities.
- Promote synergy among Environmental Information-related policies.
- Ensure adequate fiscal provisions and funding of the KEIN.

Policy Implementation

(a) Institutional Framework

1. **The National Environment Council (NEC)** established under EMCA shall also act as the top policy body is expected to function at the highest level of decision making. Its work shall be to provide political leadership and authority for KEIN. Members consist of :
 - (a) the Minister who shall be the chairman;
 - (b) the Permanent Secretaries in the Ministries for the time being responsible for the matters specified in the First Schedule of EMCA;
 - (c) two representatives of public universities in Kenya to be appointed by the Minister;
 - (d) two representatives of specified research institutions in Kenya to be appointed by the Minister;
 - (e) three representatives of the business community, to be appointed by the Minister, one of whom shall be a representative of oil marketing companies;
 - (f) two representatives of Non-Governmental Organizations active in the environmental field to be appointed by the Minister;
 - (g) the Director-General who shall be the secretary; and
 - (h) such number of other members as may, from time to time, be co-opted by the Minister to be members of the Council.
2. Government shall establish a **National Steering Committee (NSC)** on KEIN whose activities shall be coordinated by NEMA as the lead agency (KEIN node)
The KEIN National Steering committee, hosted by NEMA, shall be composed of not more than 20 persons.

The functions of the Committee shall be as follows:

1. Provide technical leadership and guidance for policy formulation and implementation.
2. Ensure KEIN responds to national priorities and needs

3. Facilitate establishment of linkages with on-going environment and sustainable development initiative and patterns in the country.
4. Coordinate resource mobilization to further the interest of KEIN.
5. Coordinate identification of environmental indicators and delegate implementation to relevant institutions.
6. Establish data management and exchange standards and protocols.
7. Enhance collaboration and partnerships with other networks.
8. Coordinate capacity building for KEIN partners.
9. Coordination of KEIN activities at the data centers.
10. Communicate create awareness of KEIN activities to promote participation.
11. Enhance the monitoring and evaluation of overall KEIN activities.
12. Appraise the manpower potentials of the nation in all sectors for a successful realization of the KEIN.
13. Collate the inventory of data sets from various producers and agencies.
14. Mobilize local funding as well as foreign assistance whether technical or financial.
15. Create sub committees within it for specific tasks as necessary.
16. Co-opt any persons (s) it considers relevant in its functions.

3. Thematic workgroups. The various data themes of KEIN are grouped into:

- Water and Sanitation
- Health
- Energy
- Agriculture
- Biodiversity
- Climate Change
- Waste

The functions of the workgroups shall be as follows:

1. Establish and promoting the themes information network
2. Discover, gathering, collate and disseminate thematic information
3. Identify Information gaps, suggest mechanisms for filling the gaps
4. Identifying thematic issues, parameters and indicators
5. Enhance access to thematic information.
6. Monitor and evaluate the activities of the thematic area
7. Establish linkages with similar initiatives
8. To contribute to the production of the state of the environment report and reporting under the various MEAs.
9. Assist any other relevant duties that may arise from the NSC

4. KEIN Data Centers: The institutions that have the mandates for the collection, processing and maintenance of data and information related to the environment constitute a network of National EI centers. These centers will ensure the maintenance of a record of the location of the official data.

5. **KEIN Secretariat:** NEMA shall be the coordinating (lead) agency (National node) of KEIN. It will also serve as the secretariat which is designated to be independent will serve as the primary contact point for EI community members. The secretariat services the NEC and facilitate the development of policies, guidelines and procedures to ensure the harmonization of environmental datasets., NEMA, shall work in close collaboration with Organizations at all levels and shall have powers to enforce rules and standards.

The stake-holders that would collectively ensure the successful realization of the KEIN vision shall include but are not limited to: Government at all levels; Private Sector Agencies; Non Governmental Organizations (NGOs); Academic and Research Community; Service Providers / Vendors and End users; Public Sector Agencies.

Legal Framework

Legislation shall be enacted to support the KEIN policy to ensure the realization of the KEIN vision.

CHAPTER ONE: INTRODUCTION

1.1 Background

The Kenya Environmental Information Network (KEIN) is a project initiated by United Nations Environment Programme (UNEP) together with the National Environment Management Authority (NEMA). It is a multi-stakeholder capacity building process whose goal is to assist in enhancing access to environmental information in the country.

KEIN, which is part of Africa Environmental Information Network (AEIN), is a capacity building network which aims at harnessing and enhancing access to information and knowledge so as to support the management of Kenya's environmental resources as assets for sustainable development. The overarching goal is to strengthen the capacity of Kenyan institutions to use good quality information on environmental assets to make informed investment choices at national and sub-national levels, and manage these assets on a sustainable basis. KEIN will help to inform AEIN on the status of data and information in regard to sustainable utilization of Kenya's resources.

The main objective of the project is to build capacity for the development and management of core datasets in integrating environmental assessments and reporting. It will further support and catalyze institutional networking and capacities related to the management of data and information at the national, sub-regional, and regional levels.

Specific objectives of KEIN include;

- assessment of the status of environmental information networking activities in the country
- strengthening networking (data/information exchanges, knowledge/expertise sharing) at the national and sub-regional levels
- developing information management tools, collate data, and develop compendia and other data products from existing data sources
- developing quantitative indicators of environmental change for use in characterizing emerging issues, and assessing impacts of such changes on human vulnerability at national and sub-regional levels
- building capacity for using information management tools and methodologies for producing or (re-)packaging information for various target groups.

Environmental Information (EI) is very essential to national development issues such as poverty alleviation, food security, economic planning and natural resources management under the Economic Recovery Strategy for Wealth and Employment Creation programme . It also plays a significant role in regional integration and international cooperation. Consequently, EI is very critical to the development of various sectors of the economy such as Mining, Forestry, Agriculture, Transport and Aviation, Environment, Security and Defense, Tourism, Population Census, Education, Health and Water Resources. Indeed EI crucial in the realization of the Millennium Development Goals. In many developed countries, over 80 percent of planning and decision-making processes are based on EI, which is now applied to obtain solutions to a wide variety of economic, social and environmental problems.

EI is regarded as a critical national resource considering its vital role in monitoring of desertification, erosion, flooding, pollution, degradation etc. The effective use and application of EI to our national development as indicated in Table 1 will assure among others:

- . Efficient and sustainable national planning and development;
- . Improved national revenue generation;
- . Effective inventory and monitoring of the environment;
- . A boost in agricultural production and food security;
- . Efficient exploration and distribution of Energy petroleum resources;
- . A boost in Tourism;
- . Efficient political administration of the nation;
- . Improved Health-Care, Educational and Sports facilities planning, development and delivery

Table 1: SOME SECTORAL USAGE OF ENVIRONMENTAL INFORMATION

<u>Sector</u>	<u>Typical Usage of Information</u>
Agriculture & Livestock	Crop production Cultivation inventory, vegetation cover, soil study, River dams and irrigation, land use monitoring, crop yield monitoring, marine & other waters resources. Livestock census , type and distribution
Forestry	Forest Mapping, forest inventory, change detection change, timber production for export and domestic uses.
Political/Administration	District, provincial, National , Regional International, Interstate and LGA boundary demarcation, development of

Transport and Aviation	boundary settlements. Road , seas and air Roads and airport runway design, railways design, Aeronautic charts for navigation, search and rescue operation.
Geology and minerals	Photo geology, reconnaissance, soil study, solid mineral exploration, exploitation, distribution, marketing and monitoring.
Planning	Urban and regional planning, urban renewal and change studies, feasibility study, land use mapping, land administration, location of industries.
Environment	Risk zone mapping, environmental inventory and monitoring, desertification, flood and erosion monitoring, land degradation, environmental impact assessment.
Population Census	Planning, delimitation of enumeration areas, demographic studies
Tourism	Road network maps and street guides, tourist centres and hotel locations.
Local Government	Taxation, land use, new town development, utility services.
Health	Epidemic location, prevention and forecasting, facilities planning and distribution, orthopaedic measurements.
Education	Facilities planning, instructional/learning aids (e.g. school Atlases), location of institutions.
Finance	Revenue generation, Customs and Immigrations, Tax.

The Capacity for environmental and natural resource information management Systems for managing EI in the country are generally weak. This hampers proper planning for the environment sector. Vision 2030 seeks to upgrade the capacity of EI management to facilitate planning for the environment sector and facilitate mainstreaming of the environment into national planning process. KEIN indeed is in line with Vision 2030

1.2 Vision and mission statement

Vision

A vibrant network of Environmental Information, enhancing optimal use of environmental Information as a vital resource, to inform decision making at all levels of national planning to promote sustainable development.

Mission

To enhance accessibility of environmental information in Kenya across all stakeholders to promote environmental, social and economic sustainability.

1.3 Policy Statements

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 - Modalities for data access and data security.
 - Modalities for the organizational arrangement of KEIN, which takes cognizance of the fact that management of EI datasets, should be done as close as possible to source and it is non-threatening to the mandate of stakeholders.
 - Funding of the KEIN with a provision for a KEIN fund,
 - Commercial aspects with provision and guidelines for access and data fees, on differential basis, for research/educational, government to government, and commercial/private use of community, private and value-added datasets.
- /• Capacity building in terms of manpower and technology transfer

- Promotion of synergy and amicable resolution of possible conflicts, among EI-related national policies and legislation.

GLOSSARY OF TERMS

Classified Data: Data that must not be distributed to the public.

Clearinghouse: A data clearinghouse is an Internet based electronic house for KEIN, which links together data access services for all the distributed database sites. The clearinghouse therefore provides data access services where a client can discover, evaluate and download metadata through a web browser.

Community Data: Data produced through public fund.

Copyright: Exclusive right to produce, reproduce, disseminate, publish, broadcast and adapt a Work.

Custodian: A body or person designated as having a certain right and responsibility for development and/or management of data. A custodian may have the right on behalf of the community to determine the condition for use, accessibility and distribution of data.

Data: A recording of facts concepts or instructions on a storage medium for communication, retrieval and processing by automatic means and for presentation as information that is understandable by human beings.

Database: A collection of interrelated data stored according to a preset schema

Dataset: It is a [coherent] collection of similar or related data.

Data mining: This is a technique that enables huge amounts of data to be searched (for patterns, relationships, etc.).

Environmental Information (EI): The range of information needed for environmental management, including information on social and economic factors

Environmental Information System (EIS): The institutional and technical response to the need to improve the role that information plays in environmental management

Fundamental Dataset: A dataset with national coverage needed consistently by more than one government agency in order to achieve their objectives or a dataset that cannot be derived from another dataset and other agencies derive significant benefit from using it. The dataset is considered necessary for most applications as compared to thematic data. Such a dataset is expected to be collected by government agency at government's expense. This is also called Base data, Core Data or Priority data.

Geographic Information System: An integrated computer information System designed for collecting, managing displaying and analyzing large volumes of spatially referenced and associated attribute data.

Geoinformatics: Study of various methods of production, analysis, management and display of Geospatial Information and their applications.

Geospatial Information: Also called Geo-information or Geographic Information or Spatial Information. It is information that is directly or indirectly spatially referenced to allocation on the earth's surface; such information includes the attributes of objects above or beneath the earth's surface.

Graphical User Interface: A System program that provides windows and a way for the User to manipulate them with keyboard and mouse. It provides an efficient way for users to invoke commands and access portions of a database (as opposed to entering commands from a keyboard).

Information: Data that human beings assimilate and evaluate to solve a problem or make a decision

Intellectual Property: The right granted by the law in relation to inventions, registered design, trademark and other rights resulting from activities in industry, science, literacy, artistic works and other intellectual activity. It includes copyright.

Internet: A computer communication network, which operates with virtual databases.

Interoperability: This is the ability of a system or components of a system to provide information sharing and inter-application cooperative process control i.e., two systems X and Y can inter-operate if X can send a request for service R to Y on the mutual understanding of R by X and Y, and Y can return response S to X based on the mutual understanding of S. It is a desirable feature of KEIN that requires standardization of service interfaces and representation of Environmental Information in data transfer. This implies that users can connect and retrieve information from multiple systems without difficulty.

Intranet: A computer network for communication (Internet) within an organization.

Lead Agency: (Coordinating Agency). An agency appointed by the Government to coordinate the activities of KEIN.

License: Authority given to an agency as custodian, producer and owner of data.

Metadata: Data describing data. It is a description of the features of a dataset to facilitate access to and application of the data. Metadata for EI provides information about data source, extent, quality, spatial reference, distribution etc.

Kenya Environmental Information Network (KEIN): It is a National EIS established for a Kenya to facilitate exchange of EI among stakeholders.

KEIN node agency: Agency of government connected with KEIN Clearinghouse to facilitate the operation of KEIN.

Ownership: Implies intellectual property right over a dataset by a body or individual.

Synergy: Cooperative or Combined action of two or more bodies or individuals.

TAG image File Format (TIFF): A series of standard color image file formats adopted by Microsoft and others to transfer images between different Software packages.

Thematic Dataset: Data, which are application specific.

Web Server: Software that allows a computer to offer a Word Wide Web (WWW) service to another computer

World Wide Web (WWW): A hypertext-based system for finding and accessing internet resources.

Acronyms and Abbreviations

CBO:	Community-Based Organization
DXF:	Data Exchange Format.
GII:	Geospatial Information Infrastructure
GIS:	Geographic Information System/Geospatial Information System.
GIT:	Geospatial Information Technology
GUI:	Graphic User Interface.
ICT:	Information and Communication Technology.
ISO:	International Standards Organization.
IT:	Information Technology.
JPEG:	Joint Photographic Expert Group.
KEIN:	Kenya Environmental Information Network.
NEMA:	National Environment Management Authority- Kenya.
NEC:	National Environment Council
NSC:	National Steering Committee.
NGII:	National Geospatial Information Infrastructure
NGO:	Non-Governmental Organization.
NSDI:	National Spatial Data Infrastructure.
OS:	Operating System.
SDI:	Spatial Data Infrastructure.
SOK:	Standards Organization of Kenya.
TIFF:	Tag Image File Format.

PART B: POLICY ISSUES ENVIRONMENTAL INFORMATION COMPONENTS

CHAPTER 2: DATASETS

2.1 Preamble

The backbone of KEIN at any level is the interconnected environmental databases consisting of the fundamental and thematic datasets.

2.2 Fundamental Datasets

2.2.1 Preamble

Some datasets may be required for multiple applications, in which case (each of these datasets should then be collected (or their collection coordinated) by relevant agencies and be made available to the data community through the Clearinghouse.

Define a clearinghouse

A variable number of data may be considered to be of common-use and of national or trans-national importance and referred to as “fundamental”. Thus, the list of the fundamental datasets should be seen as dynamic where a certain dataset, which was not seen as fundamental during initial implementation, may later become desirable for inclusion in the list. Conversely, a dataset that was initially included may later be dropped and be made part of the thematic datasets. Although different data providers may provide each component of the fundamental datasets, the datasets they provide must conform to the national standard and must be integrated to develop the core data sets.

2.2.2 Policy Statements The following is not a policy statement

1. The following datasets shall constitute the fundamental datasets for the KEIN
 - (a) Geodetic control database
 - (b) Topographic database/DEM (at the scale of 1:50000 pending availability of 1:25000 national coverage)
 - (c) Digital imagery and image maps
 - (e) Cadastral databases
 - (f) Transportation (roads, inland water ways, railways, etc.) data
 - (g) Hydrographic (rivers, lakes, etc.) data
 - (h) Land use/land covers data
 - (i) Geological database
 - (j) Demographic database

2.2.3 Objectives of fundamental datasets

1. To facilitate coordinated production and utilization of data which are common to multiple software applications thereby eliminating duplication of efforts and wastage of resources?
 - a. The list of fundamental dataset shall be revised periodically in accordance with national needs.
 - b. Each of the datasets shall be produced according to KEIN-endorsed standard by the agency legally mandated to produce the dataset(s).
 - c. Since these datasets are community data, the producing agency shall be a custodian of the dataset produced by that agency.
 - d. updating of these datasets shall be done on a continuous basis but not later than five years after production.
 - e. All EI projects should contain in-built programme of data updating in line with policy item 5 above.
 - f. A custodian of a fundamental dataset must, not later than 30 days after updating, furnish all updates of the base dataset to the Clearinghouse; the Clearinghouse shall in turn inform the custodian(s) of the derivative dataset(s) within 7 days, in order to ensure synchronous maintenance of the fundamental and derivative datasets.
 - g. The old data (fundamental and other) and their metadata should be archived after updating unless this is prevented due to commercial, confidentiality, copyright, or previous arrangements.
 - h. Archived data shall be time-stamped and version-controlled and shall not be changed, amended or altered unless this is necessary to correct an error occurring during the archiving process.
2. To facilitate rapid socio-economic growth of the nation through widely available, accessible, current, reliable and authoritative EI for environmental planning and decision-making.
 - a. Carry out an inventory of the existing fundamental datasets.
 - b. Verify and assess the standards of the datasets against the KEIN-endorsed standards

- c. Upgrade (including analog to digital conversion and metadata production) and update the datasets (by the recognized custodian) in adherence to the KEIN standards.
- d. Where a dataset is confirmed as non-existent (after checking in the Clearinghouse), provide for its immediate production by the agency legally mandated to produce the dataset, in accordance with the KEIN standards.
- e. Include the metadata as part of every new (or updated) data produced.
- f. The custodian shall keep the dataset(s) it produced while making the metadata available to the KEIN Clearinghouse.
- g. The owners of the datasets have responsibility to update their datasets when considered old in line with policy item 5.
- h. Encourage and utilize international cooperation to facilitate availability of relatively low cost environmental information where these are not provided by the various government agencies..

2.3 Thematic Datasets

2.3.1 Preamble

Some other datasets may be required for specific and usually single applications, and are often derived by adding value to one or more fundamental datasets. There are two categories of thematic datasets: (a) thematic datasets that can be produced only by legally mandated agencies e.g. climate map, various kinds of utility maps and gazetteer of place names; (b) thematic datasets that can be freely produced according to specific user requirements, e.g. tourist map, soil map, meteorological datasets and agricultural map. These datasets should also be made available to the EI community through the Clearinghouse. Thematic dataset may be classified as community data or private data depending on the existing legislation and funding of the production.

2.3.2 Policy Statements

1. Needed thematic datasets shall be produced according to KEIN endorsed standards by whoever produces the dataset(s) after having confirmed from the Clearinghouse that the dataset does not exist.
2. The metadata of the datasets shall be made available in the KEIN Clearinghouse.

3. For thematic datasets that are classified as community data, the producing agency shall be a custodian of the dataset produced by that agency while the producer of a private thematic dataset shall be the owner/custodian.
4. The producer of each dataset shall ensure updating of the dataset on a regular basis as appropriate.
5. A producer of thematic data who used a fundamental dataset as input shall only update the Environmental data fields produced and maintained by that particular producer.
6. A custodian of a derivative dataset must update the dataset with reasonable promptness after receiving an update of the base dataset, to avoid possible ambiguity in the EI presented.
7. The custodian of a base dataset shall render all reasonable assistance to the data custodian of a derivative dataset to perform the updating contemplated in 6 above.

2.3.3 Objectives of thematic datasets

1. To ensure an almost total inventory of all data available in the country and facilitate their integration (via networking) and sharing thereby enhancing full utilization of the datasets' potential benefits.
2. To eliminate duplication of efforts and wastage of resources in the production of EI

2.4 Strategies

1. Carry out an inventory of the existing thematic datasets as a first step.
2. Verify and assess the standards of the data against the KEIN-endorsed standards.
3. Include the metadata as part of every new (or updated) dataset produced.
4. The owner/custodian shall keep the dataset(s) it produced while making the metadata available to the KEIN Clearinghouse.
5. The owners of the datasets have responsibility to update their datasets.

CHAPTER 3: STANDARDS

3.1 Preamble

Since the goal of KEIN is on information sharing, standardization is of paramount importance to enable inter operation of data and connectivity of information systems. Standards enable applications and technology to work together. Tools, applications and data affect each other and therefore, processes for developing standards must consider the interactions. The aspects of standardization that are of importance to KEIN include data (production) standards, data presentation and transfer/exchange standards, and hardware and software standards. It has been universally acknowledged that the value of wisely chosen standards for EI users is reflected in three primary themes, namely:

- Portability, which implies ability to use and move data, software, and custom applications among multiple computers and operating system environments without re-tooling or reformatting.
- Interoperability and information access, which impact computers and networks, and users' ability to connect and retrieve information from multiple systems.
- Maintainability, which addresses the use of standards to promote long-term and efficient updating, upgrading, and the effective use of computer systems and databases.

The policy issues relating to these standards are provided here and should be used in tandem with existing nationally accepted sectoral standards on EI where they exist.

Issues relating to data collection and updating include data quality, data format, classifications and coding. Some of them are technology-driven and should therefore be dynamic in nature to keep pace with advances in technology. Standardization will consequently enable accurate cross-referencing of the datasets.

3.2 Policy Statements

3.2.1 Data (Production) Standards

- 1 Each KEIN node agency shall be encouraged and assisted by Government through the KEIN Committee to produce data standards that are peculiar to that node. These sectoral data standards shall be validated and endorsed by the KEIN to become KEIN standards.
2. The KEIN-endorsed standards shall cover data structure, data quality, data format, classifications, feature coding and metadata content, and shall strive to conform to their counterpart ISO standards.

3. The data quality parameters shall be defined for each dataset
4. KEIN node agencies and other data producers shall adhere to the KEIN-endorsed standards.
5. KEIN Committee shall carry out standard quality audits of all data holdings of KEIN on regular basis to ascertain continued conformity with KEIN-endorsed standards.

3.2.2 Data Transfer/Exchange

The KEIN Committee through the lead agency shall prescribe a set of common standard file formats (e.g. DXF, DLG, TIFF and JPEG, PDF, photoshop etc) as the National Standard Exchange Format to facilitate easy transfer/exchange of data.

3.2.3 Hardware and Software

1. KEIN Committee shall ensure that all KEIN node agencies adopt the same network protocols as well as a universally stable and portable operating system (OS) that allows more flexible networking and running of many application programs. This will facilitate interoperability and ensure that application software do not become obsolete due to a fold-up of the OS platform.
2. The user interface shall be standardized across the KEIN network with flexibility of being upgraded in pace with the OS.
3. The storage media (for back up) shall be stable and the backup data must include a header file that gives information on the data contained therein.
4. The KEIN Committee shall ensure compatibility of hardware in accordance with the state-of-the-art.

3.3 Objectives of the standardization

1. To encourage data providers to use KEIN-endorsed standards in order to create and maintain data at a high level of quality and consistency, which can improve value of the data in decision-making.
2. To ensure that datasets are fit for intended applications by providing users with assurance that the data is consistent and of defined quality.
3. To enable easier comparison and integration of EI through the use of standards.
4. To facilitate the sharing of information within the EI-community

3.4 Strategies

1. Carry out an inventory of the existing EI standards (data quality parameters, classification, coding system, colour codes, etc.) being used by different agencies in the country, including operational hardware, software and network. The inventory shall be part of the User requirement survey and analysis.
2. Take existing ISO standards, including those of other national SDIs (to serve as working documents) and review them to develop a framework of the country's KEIN supported standards.
3. Develop software for the translation of existing data standards (that do not conform with the KEIN standards) to the national standards.
4. Circulate the draft national standards among the EI-community for review and comments.
5. Submit the final draft of the standards to the Standard Organisation of Kenya for further review, approval and registration with ISO.
6. Develop guidelines providing practical advice on the application of standards.
7. Facilitate the creation of preliminary standard services to help users understand and apply standards, at the initial stage of KEIN development.
8. Promote the benefits of using the KEIN supported standards.

CHAPTER 4: METADATA

4.1 Preamble

Despite being in the information age, there are still problems getting the appropriate information to help in making the right decisions. Poor decisions are frequently made because we do not know who holds the information we require and how to get hold of it. These information concerning EI data including such other details as the geographical extent of the data, quality of the data, when it was last updated and who its supplier is, are described in a metadata structure and they enhance the use of EI in making appropriate decisions.

Metadata helps people who use EI data to find the data they need and determine how best to use the data. It also benefits the data producing agencies as well, because as personnel changes in an organization, undocumented data may lose their value due to little understanding of the contents and uses by the new staff. Moreover, lack of knowledge about other organization's dataset can lead to duplication of effort. The value of a dataset is therefore dependent on its documentation.

4.2 Policy Statements

1. Member of the network shall provide metadata for each of its data holdings.
2. The metadata content shall include the following information at the minimum:
 - Data quality (positional accuracy, attribute accuracy, temporal accuracy, lineage, completeness and logical consistency)
 - EI data organization and spatial reference
 - Identification information (name of data, custodian/owner, geographic coverage)
 - Entity/attribute information (formats, type, measurement units)
 - Distribution information (distributor, format, access protocol, procedure).
3. The metadata of any dataset shall be updated whenever the dataset is updated.
4. The metadata produced shall conform to the customized international standard.
5. Metadata shall accompany the dissemination of all EI data.
6. Government, through the lead agency and in consultation with the KEIN Committee, shall establish electronic EI metadata catalogue and Clearinghouses in KEIN data centers in partnership with those agencies.
7. The certified metadata of data producers shall be entered into the National Data Catalogue in all KEIN Clearinghouses.
8. Any data producer is obliged to ensure currency of its metadata holdings.

4.3 Objectives

1. To provide documentation of existing EI resources available within an organization
2. To permit structured search and comparison of existing EI by various users thereby providing users with expanded choice of data.
- 3 To assist the user to access information of a dataset for different users
- 4 To provide information on means of accessing the dataset and facilitate interoperability of datasets.

- 5 To provide information needed during transfer so that the dataset can be processed for use in an appropriate context.

4.4 Strategies

1. Define the metadata content and structure for the KEIN by adapting the ISO metadata content to Kenyan situation.
2. Formalize the draft content and structure through a review process involving the country's EI community to define the metadata content standard for the country.
3. Identify, catalogue and evaluate sources and producers of existing EI.
5. Produce detailed metadata implementation guidelines, including practical advice on maintenance and use of metadata.
6. Develop conformance and testing clauses for metadata.
9. Establish Clearinghouses by creating EI Data Catalogues in the KEIN node agencies and enter the certified metadata of data producers.
10. Promote the metadata service to the existing and potential EI community.
11. Update the metadata and data catalogue on regular basis as required and retain a sustained target of data providers with encouragement and advice on how they can make their metadata available to the Clearinghouse.

CHAPTER 5: LEGAL ISSUES

5.1 Preamble

The legal policy items herein defined are largely based on the subsisting situation in the country wherein Government agencies are the only legally recognized producers of fundamental datasets. Thus custodianship becomes a crucial component of KEIN to legally identify an authoritative source of the above-mentioned datasets, which are produced with public funds. This provides accountability for fundamental datasets.

5.2 Policy Statements

5.2.1 Ownership/Custodianship

1. The copyright of a EI dataset shall be the person or institution who commissioned and funded the creation of the dataset
2. The custodian of a EI dataset copyright holder may also be the person or organization who is responsible for the production, storage, management and distribution of the dataset on behalf of another organization.
3. The owner or custodian of a dataset who is a member of KEIN shall be responsible for:
 - Quality control and assurance
 - Data content and formats
 - Validation and maintenance
 - Storage and security
 - Maintenance and updates of metadata
 - Accessibility of the data through supply of the metadata to the Clearinghouse.
4. For value-added data, the producer shall own the copyright of only the value-added component of the data and acknowledge the source of the base data

5.2.3 Confidentiality, Privacy and Liability

1. Data providers shall disclose or make available, their dataset on request unless it is prevented by law.
2. However, confidential data may be shared at the discretion of the owner or custodian.
3. EI shall be collected only by an organization that is legally recognized to do so.
4. A EI owner or custodian shall be accountable for the integrity of unmodified data, which is supplied by the owner/custodian.
5. A custodian shall be deemed to possess indemnity against any liability arising from unauthorized use of its dataset.

6. A user shall report any problem or shortcoming, which in his/her opinion affects the quality of a EI to the Clearinghouse.
7. The user reporting any problem as in 6 above shall provide sufficient information to enable the provider to identify the record(s) that contain error(s) or the problems that make the data unusable, and where possible, provide what should be the correct record(s).
9. The Clearinghouse shall convey the information to the relevant data custodian while denying access to the affected data until the producer has rectified the identified problem.

5.3 Objectives

1. To provide a legal framework for the production, management, distribution and use of EI datasets.
2. To provide a means of accountability and reliability of the dataset
3. To provide institutional framework for accessibility, distribution, transfer and sharing of the information.

5.4 Strategies

1. Prepare formal agreement to join the network signed at the highest level
2. Prepare formal agreement to use EI datasets with acknowledgement and disclaimer.
3. Carry out a review of the agreement guidelines
4. Facilitate adoption and legalization of all agreements and protocols relating to KEIN operations, including authority by KEIN to mandate contributing agencies to commit their EI datasets to the KEIN.

CHAPTER 6: DATA ACCESS AND DATA SECURITY

6.1 Preamble

One of the objectives of the KEIN is to share data and thus avoid duplication of efforts. Sharing of the data is made possible through coordinated and structured access to a wide variety of information (metadata) about EI data owned by public and private sector organisations. Transparent access to various EI data can provide relevant information for countless applications leading to value-added services and market opportunities in a deregulated economy. Access to data is made possible through the implementation of metadata catalogue and establishment of Clearinghouse within a legal framework, all of which have been addressed in earlier chapters. However, data access protocols need to be developed in order to define a set of consistent and workable arrangements that can be used by the EI community to streamline access to data and derived information products while recognizing the rights of all parties (owners, custodians and users).

6.2 Policy Statements

1. There shall be six categories of data access, namely:

1. Top secret (classified on the basis of the national Official Secrets Act)
- 2: Confidential material
- 3: Strategic and/or of commercial nature/value
- 4: Sensitive material (information that, on its own, may not be secret, confidential, or strategic, but could be used with *malicious* intent [*needs to be more explicitly defined*] against a third party)
- 5: General unclassified material for *internal use*
- 6: Public (no *authorization* required)

Other categories of classification would be added as need arises

Only EI related to national security projects shall be granted restricted access in accordance with information policy such data shall be available to users by agreement of data owner(s) on a case-by-case basis under conditions stated in a license agreement

Users

For the purpose facilitating access users may be categorised as ***user classes*** and ***levels***, e.g.:

- ***Class 1 users: Staff (internal)***
 - ◆ Level 10: Executive
 - ◆ Level 11: Directors
 - ◆ Level 12: Departmental Heads
 - ◆ Level 13: Heads of Units
 - ◆ Level 14: Senior Members
 - ◆ Level 15: Senior staff

◆ Level 16: Secretaries/Clerical staff

◆ Level 17: All staff

□ **Class 2 users: External users**

◆ Level 21: The Presidency

◆ Level 22: Board Members/Minister

◆ Level 22: Clients

◆ Level 23: Partners

◆ Level 24: Guest users (general public)

Other categories of users may be defined as the need arises.

3. There shall be free access under a legal framework (protection of copyright) to other community and private datasets.

4. Data may be reclassified from one access category to another as circumstances change over time, subject to the approval of the data owner/custodian and agreement by stakeholders.

5. All archived data shall be made available to agreed parties as described in the access protocol.

6. An access registration system, which should be simple to understand and designed to minimize compliance costs, shall be put in place in the form of a search/order form that requires the user to specify queries for data with certain properties while providing such information as name and organization of user, address, intended use of data, etc.

7. The mode of access shall be defined in the access protocol and it may include on-line access (read/view-only, direct to user's database e.g. via http, ftp, brokered – providing specification of data access request to secondary access service, etc.) or off-line access (hardcopy delivery or Softcopy delivery on storage media such as CD-ROM).

8. The apex Clearinghouse shall be established at the main KEIN focal agency.

9. Each EI data-producing agency shall establish a metadata database server as a KEIN Data center, linked to the apex Clearinghouse.

10. Reasonable security measures shall be put in place to minimize damage to, unauthorized access, modification and loss of current and archived data.

6.3 Objectives

1. To promote relationships among organizations to support the continuing development of the KEIN.

2. To develop common solution that will enable discovery, evaluation, access and exploitation of EI data.
3. To promote the awareness of EI and its applications

6.4 Strategies

1. Develop and implement the access rules and protocol including pricing rules and a flexible, easy-to-use search request form.
2. Develop and implement a standard request authentication system for use in the Clearinghouse of all KEIN data centers.
3. Put in place high-speed and high-bandwidth backbone carrier in the apex Clearinghouse as the main gateway and master server.
4. Implement a database server at each KEIN data centers using the access protocol and linked to the master server.
5. Design and implement appropriate network linkage mechanism among the KEIN data centers.

CHAPTER 7: ORGANISATIONAL ASPECTS

7.1 Preamble

The main sources of EI for Kenya are government agencies, institutes of higher learning, research institutions, private sectors, non governmental organizations and any other agency generating EI. Each of the agencies has a legal mandate and strategic plan with subject-specific strategy of production, quality control and dissemination of its datasets. The ability to make these disparate datasets more widely available, to collaborate with each other and to interact with the private sector and other EI users requires appropriate organizational arrangement. In this context, it is important to clearly understand who the stakeholders are and what roles each will play. The organizational arrangement should be such that management of the data should be done as close as possible to source and it is non-threatening to the mandate of stakeholders (commercial and government stakeholders need to feel comfortable as active participants in the infrastructure). The arrangement should also ensure sustainability of the infrastructure. Consequently, another chapter (12) has been devoted to this important aspect of KEIN to deal more comprehensively with the policy outline given here.

7.2 Policy Statements

1. Government shall establish a KEIN steering committee whose membership and function are as stated in Chapter 12.
2. The apex Clearinghouse shall be at NEMA as coordinating agency with data centers at other EI data producing agencies.
3. A KEIN Steering Committee shall be established under the auspices of the coordinating agency NEMA.
4. Membership (comprising representatives of major stakeholders) and functions of the Committee shall be as defined in Chapter 12.
5. Each contributing agency shall be a KEIN data center and shall establish a KEIN focal unit in the agency.
6. Each KEIN agency shall maintain its own data center as part of an intranet and link to the master KEIN web portal.

7.3 Objectives

1. To facilitate the implementation of an EI that would:
 - be inclusive of all stakeholders;
 - add value to EI;
 - build on, facilitate and support existing initiatives;
 - Command respect and authority;
 - support sustainable development;
 - be flexible and adaptable to change;
 - facilitate new initiatives especially those relating to the use and sharing of data;
 - be as simple, transparent, open and democratic as possible;
 - enhance decision making processes and create partnerships.

7.4 Strategies

1. Set up the KEIN National Steering Committee with membership and functions as defined in chapter 12.
2. Carry out inventory of EI generating institutions and formalize their participation in KEIN
3. Set up KEIN focal unit in each participating institution.
4. Prepare and sponsor a bill to establish the KEIN.
5. Establish the KEIN Internet domain name and web portal.

CHAPTER 8: FUNDING

8.1 Preamble

Government finds it increasingly difficult to adequately fund EI production ,management and dissemination in the face of constantly increasing pressures on the national budget. EI production, management and dissemination programs in various data centers have often been slow and out of date after production that their value is seriously compromised. Yet majority of all developmental projects and planning require up to date EI for a meaningful implementation. There is therefore a compelling need for adequate policy on funding of the KEIN data centers to generate valuable data. There is a lot of EI with different stakeholders and there is need to strengthen the network with funds for capacity building within the network. and to promote integrated assessment and reporting.

8.2 Policy Statements

1. Government (at all levels) shall ensure that EI activities are adequately funded by creating a KEIN Fund, which shall accrue from the following sources:
 - all income generated from access fees and data sales;
 - International/local funding and grants.
2. Each KEIN data center shall be supported with an annual budget from their own agencies/ministry.
3. KEIN national node and the KEIN National Steering Committee shall actively promote funding of all KEIN data centers and work out further mechanism of obtaining fund for KEIN.

8.3 Objectives

1. To enable sustainable production, management and utilization of up-to-date and reliable EI in support of the country's socio-economic developmental needs.
2. To promote, in the public interest, easier and more economical access to EI.
3. To ensure adequate funding to maintain the momentum of change towards the KEIN vision and sustain the spirit of cooperation and collaboration.

8.4 Strategies

1. Lobby the government for improved funding.
2. Prepare a the bill and lobby for submission and early passage to establish KEIN, which shall include the policy items, including funding.
3. Prepare proposals for funding from other external sources
4. Ensure a sustained tempo of publicity on the activities related to KEIN to keep Government and other external sources attention focused on the

ideals and desirability of the KEIN project to guarantee steady flow of funds and interest.

5. Link and build synergies with other national and international organizations which has initiatives related to the network

CHAPTER 9: CAPACITY BUILDING

9.1 Preamble

Capacity building in terms of manpower and technology is essential for sustainability of the KEIN. Consequently adequate attention needs to be paid to this aspect of the network.

9.2 Policy Statements

- 1 Every EI data centers shall include a training component for various grades of manpower.
- 2 The KEIN coordinating agency, KEIN national steering committees and other EI producers shall carry out public awareness programmes from time to time on applications of EI.
- 3 All EI producers in the data centers shall be encouraged to provide EI of local contents
- 4 Monitoring &Evaluation of EI data centers shall be regularly carried out by the KEIN stakeholders.
- 5 Government, through the coordinating agency NEMA, shall encourage research on new innovations in EIS and its various applications in the management of land, water, environment and natural resources.
6. Kenyans in the Diaspora with relevant skills shall targeted and be encouraged to actively participate in the KEIN.

9.3 Objectives

1. To promote sustainability of the KEIN.
2. To ensure effective technology transfer in EIT in the country.

9.4 Strategies

1. Identify the human resource and technology gaps and mechanism of filling them.
2. Encourage institutions of higher learning in the country, through KIE and Education Ministry, directorate of industrial training to modernize their various Env-informatics-related curricula.
3. Encourage professional bodies dealing with EIS to implement mandatory continuous professional development programmes.
4. Mount awareness programmes on regular basis in collaboration with Institutions of learning.
5. Carry out inventory of EIS case studies undertaken by research and educational institutions.
6. Select sample “best practices” from the compiled case studies and use them to promote awareness programmes and improve on the network

7. Encourage publications of EIS applications and case studies in national and international journals.
8. Promote an annual conference of the association to further strengthen awareness of KEIN activities and build synergies.
9. Put in place modalities to ensure that EI producers give evidence of local contents of their production activities.
10. Link with other national and international organizations which has initiatives related to the network

CHAPTER 10: RELATED NATIONAL POLICIES AND LEGISLATION, INTERNATIONAL TREATIES, PROTOCOLS AND COOPERATION

10.1 NATIONAL POLICIES AND LEGISLATION

10.1.1 Preamble

In realization of the multi-disciplinary nature of EIS and EI activities, it is essential to streamline the policies of KEIN with the existing national policies outlined in Kenya Vision 2030 and the First Medium Term Plan (MTP).

10.1.2 Policy Statements

1. KEIN shall promote synergy among EI-related policies and legislation.
2. Where policy conflict arises, the KEIN Committee shall ensure amicable resolution of the conflicting policies in national interest.

10.1.3 Objectives

1. To ensure synergy of operations among EI-related agencies and thus promote sustainable national development.
2. To manage any possible source of conflict that may endanger sustainability of the KEIN.

10.2.4 Strategies

1. Identify all EIS, ICT and other related policy documents, and bring them to the awareness of the KEIN stakeholders.
2. Where conflict arises, the KEIN Committee shall resolve the conflicting issues with the relevant agency.

3. Promote awareness of the KEIN policy among the related agencies.
5. Promote synergy of the related policies.

10.2 INTERNATIONAL TREATIES, PROTOCOLS AND COOPERATION

10.2.1 Preamble

International Agreements assume a variety of form and style but the law of treaties governs them all, which is part of customary international law. By the 1969 Vienna convention, Treaties are “agreements concluded between states in written form and governed by international law, whether embodied in a single instrument or in two or more related instruments and whatever its particular designation”. Protocols, declarations, charters, covenants, pacts and general acts are single instruments that lack the formality of a treaty. Cooperation is a loose agreement that may not be binding. Whatever the coloration of these agreements, they spell cooperation in the end and we should strive to honour them as a Nation particularly when we are signatories to them.

10.2.2 Policy Statements

1. Appropriate action shall be taken to incorporate into national legislation, the international obligations which Kenya is a signatory for the purpose of KEIN implementation.
2. Kenya shall continue to participate in the progressive development of international procedures on cooperation in Regional and Global Environmental Data outlook infrastructure and take advantage of best-proved practices.
3. Kenya shall ensure prompt payment of financial contributions and meet its other obligations to relevant international organizations.

10.2.3 Objectives

1. To keep abreast with international standards and procedures in the development of KEIN
2. To tap from the experiences of other nations, avoid pitfalls, and steer away from “re-inventing the wheel” which can be very expensive.
3. To harmonize integrated information management, reporting processes and greater sharing.

10.2.4 Strategies

1. Keep abreast with regional and global EIS events.
2. Participate in national and international meetings on EIS

PART C: POLICY IMPLEMENTATION

CHAPTER 11: ADMINISTRATIVE / ORGANISATIONAL FRAMEWORK

11.1. Preamble

In deriving a policy direction towards a successful realization of the KEIN, static tendencies and undue adherence to 'strict' structures or frameworks must give way to reality; that is, there must be willingness for inter-professional, inter-governmental and inter-agency cooperation facilitated by a coordinating body approved by Government.

11.2 Policy Statements

1. Government shall establish an administrative/organizational framework that shall be a multidisciplinary, inter-agency and inter-sectoral network of institutions whose activities and decisions shall focus on the production, management, sale and use of environmental information. The network of institutions shall also engage in research and training of persons seeking to be involved in EI activities.
2. This network of institutions shall be coordinated by the lead agency NEMA, which shall be vested with powers to administer the KEIN through an organizational framework as shown in Figure 1.
3. The stake-holders that would collectively ensure the successful realization of the KEIN vision shall include but are not limited to:
 - i) Government at all levels
 - ii) Private Sector Agencies
 - iii) Non-Governmental Organizations (NGOs) and Community-Based Organizations (CBOs)
 - iv) Academic and Research Community
 - v) Service Providers / Vendors and End users
 - vi) Public Sector Agencies
 - vii) Defense Security / Agencies
4. The coordinating (lead) agency, NEMA, shall work in close collaboration with the KEIN stakeholders at all levels and shall have powers to enforce rules and standards.
5. The KEIN National steering committee, shall be composed of not more than 20 persons

The functions of the Committee shall be to:

- Provide technical leadership and guidance for policy formulation and implementation.
- Ensure KEIN responds to national priorities and needs
- Facilitate establishment of linkages with on-going environment and sustainable development initiative and patterns in the country.
- Coordinate resource mobilization.
- Establish environmental indicators and delegate implementation to relevant institutions.
- Establish data management and exchange standards and protocols.
- Enhance collaboration and partnerships with other networks.
- Coordinate capacity building for KEIN partners.
- Coordinate KEIN activities at the data centers.
- Create awareness of KEIN activities and promote participation.
- Enhance the monitoring and evaluation of overall KEIN activities.
- Collate the inventory of data sets from various producers and agencies.
- Create sub committees within the main committee for specific tasks as necessary.
- Co-opt any persons (s) it considers relevant in its functions.

11.3 Objectives

The objectives of this organizational structure are:

- 1 To ensure and encourage interplay between EIS and Culture (attitudes, tendencies, dispositions) at all organizational and societal levels.
2. To enable technology innovation diffusion and guarantee 'good practice' in the adoption and use of EI technology.
3. To engage all stakeholders and protect their interests.
4. To encourage transparent partnership and minimize bureaucracy.

11.4 Strategies

1. Identify, examine and rectify (where necessary) areas of co-operation and/or possible conflicts in the existing institutional frameworks.
2. Ensure adequate fiscal provisions and funding of the KEIN as indicated in chapter 8.
3. Encourage case study or pilot system approach of implementation for effective monitoring and evaluation.
4. Ensure cost recovery as a major component of the evaluation model.

CHAPTER 12: LEGAL FRAMEWORK

12.1 Preamble

As large databases are developed and processes of data sharing and exchange become complicated, societal control over them must be regulated through sound legal framework. Fair treatment is necessary for all concerned but existing laws and the underlying power balances, which these laws support, may conflict. The effects of legislation on some domains of the society are key considerations in formulating laws. People would be the main drivers of the KEIN, supported by technology and legal norms establish how people should collaborate. Legislation or law is therefore the software of society and must be given due attention in the successful realization of the KEIN vision.

12.2 Policy Statements

1. Legislation shall be enacted to support the KEIN policy to ensure the realization of the KEIN Vision.
2. Areas of conflict or overlap with existing laws shall be resolved without loss of focus from the KEIN vision.
3. Government shall position as a matter of urgency, a pragmatic mapping policy with full legal backing to compliment the KEIN effort.

12.3 Objectives

The objective of the above is to ensure that legal bottlenecks to realization are removed and potentials for litigation are minimized or eliminated in the course of operating the components of the KEIN.

12.4 Strategies

1. Prepare laws related with the KEIN in parallel with the evolving infrastructure.
2. Ensure expedited passage of the KEIN law at the National Assembly.

