Technological Background of the UIS BW

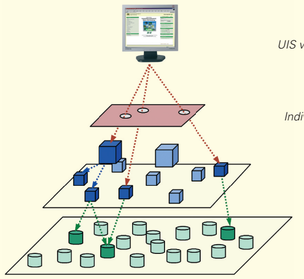
Modern information technology is required to meet the various demands facing the UIS BW. During several years of research and development, a comprehensive service concept has been established and implemented, which fulfils the current and future demands. The guidelines of the service concept are documented in the framework conception of the UIS.

The service concept includes a large number of diverse services, which grant data access according to user requirements. Instead of separate, uniform applications for large user groups, the UIS provides options to set up customised user interfaces, matching the specific demand for information. The multiple use of components considerably increases the economic efficiency of the UIS.

High-performance data management systems (lower level) form the basis of the service-oriented UIS, as illustrated in the figure on the right. Open data interfaces facilitate easy data exchange. A common data model, used in most thematic areas, allows a large number of users to work with these data.

The UIS offers a rich variety of services (middle level), which include navigation and data access as well as the integration of standard office applications and semantic search services. Standard web services, combined through a central directory service (UDDI), are increasingly used, in order to implement a service-oriented architecture (SOA). This causes more effective workflows as well as the advancement of public e-services as demanded by the E-Government Concept.

Together with the data, the services represent the resources of the UIS. Customised user interfaces enable the user to access the resources from the personal UIS workstation (top level), without demanding specialised knowledge of the system. According to the personal settings, the relevant resources are selected and then provided through a user-friendly interface, thereby substantially improving the workflow within the authorities. Web-based data bases and web content management systems bring further efficiency.

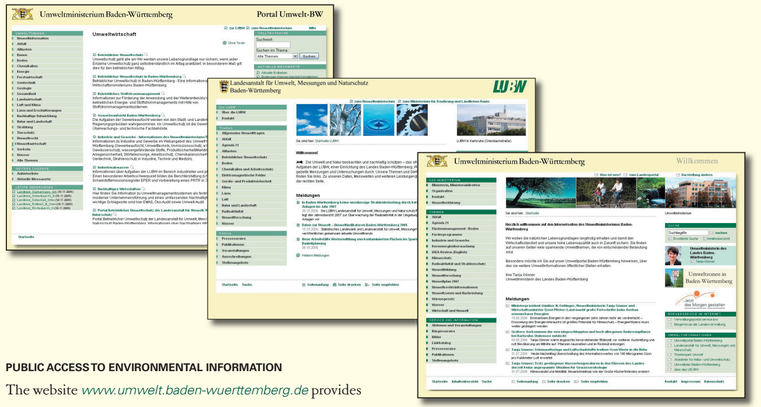


The UIS workstation in terms of the service concept: customised user interfaces for individual requirements

Monitoring networks provide continuously real-time data

The most important value of the UIS, however, is the environmental data itself. In course of the environmental monitoring, a large number of data is continuously collected by self-operating measurement stations, automatically evaluated and uploaded to the UIS databases. The high degree of automation allows access to real-time data for decision makers e.g. in case of a flood event.

Information on the Internet



PUBLIC ACCESS TO ENVIRONMENTAL INFORMATION

The website *www.umwelt.baden-wuerttemberg.de* provides public access to up-to-date and high-quality environmental information in Baden-Württemberg. All relevant environmental information of the public authorities can easily be retrieved by this portal. The spectrum of information includes press releases, environmental reports and data from monitoring networks, as well as data from data bases, which usually cannot be found using commercial search engines. Public environmental information from Baden-Württemberg is also available through the German Environmental Information Portal at *www.portalu.de*, the portal for administrative services of the Federal State and the local authorities in Baden-Württemberg at *www.service-bw.de* and the state portal at *www.baden-wuerttemberg.de*. All these sources of information help to fulfil the obligation to publish environmental information according to the Environmental Information Act of Baden-Württemberg.

An overview of the current environmental situation in Baden-Württemberg is given in the printed report "Umweltdaten", which is released by the Ministry of the Environment ("Umweltministerium") on a regular basis. It is available at the delivery service of the State Institute for Environment, Measurements and Nature Conservation, located at the JVA Mannheim, Herzogenriedstraße 111, 68169 Mannheim, Germany or online at *www.lubw.baden-wuerttemberg.de*.

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UIS BW

Environmental Information System of Baden-Württemberg

Comprehensive Information for the Benefit of Environmental Precaution

UIS BW LUBW dvv BW Baden-Württemberg UMWELTMINISTERIUM

The Environmental Information System UIS BW

MODERN INFORMATION TECHNOLOGY SERVING THE ENVIRONMENT

By means of the Environmental Information System of Baden-Württemberg (UIS BW) the Ministry of the Environment coordinates the entire processing and preparation of environmental information within the Federal State of Baden-Württemberg in Southwest Germany. Data on different environmental topics such as water, air, waste, or nature protection and landscape conservation are collected and administered by many offices throughout Baden-Württemberg. The UIS merges these highly distributed data. Unified standards and formats guarantee that the various offices can access and use these data. They also facilitate the exchange of data with the Federal Government, the Federal States and the local authorities in Baden-Württemberg.

Measured data have to be interpreted. For the correct use of these data the UIS provides additional information, e.g. on sampling conditions, measuring procedures or threshold and standard values. Another task of the UIS is to link data from many different environmental fields. Authorities dealing with environmental protection often have to evaluate measured values, e.g. in the context of environmental remediation plans or nature conservation plans. Therefore the UIS provides further information, such as law texts, descriptions of methods or abstracts of environmental reports.

Apart from the Ministry of the Environment, which is responsible for the entire UIS BW and its coordination, other state ministries with environmental tasks are involved in the UIS, as well as the district governments, the State Office for Statistics, the State Office for Geospatial Information and Rural Development, and rural and urban districts. Most of the UIS components are developed by the State Institute for Environment, Measurements and Nature Conservation Baden-Württemberg (LUBW), which is also the operational headquarters of the UIS. The "Datenverarbeitungsverbund Baden-Württemberg" (DVV BW – a group of institutions, providing ICT services especially to the local authorities), the Karlsruhe Institute of Technology and other partners of the research and development project "Cooperative development of economical applications for environment, transport and related areas within new administrative structures" contribute particularly to the development of the UIS.

THE ENVIRONMENTAL INFORMATION PORTAL OF BADEN-WÜRTTEMBERG

A prerequisite for the use of environmental information is the knowledge about which information is available and how it can be retrieved. The Environmental Information Portal of Baden-Württemberg (Portal Umwelt-BW) serves as the central point of access to public information about the environment. The portal offers thematic access and search functions, which also cover databases, metadata catalogues and more comprehensive information services, such as the German Environmental Information Portal (PortalU).

On the one hand, the state authorities as well as the local authorities receive efficient support in their executive tasks. On the other hand, it is a convenient way for interested citizens to get an overview of the environmental data of the UIS, provided by the websites of the authorities represented in Portal Umwelt-BW.

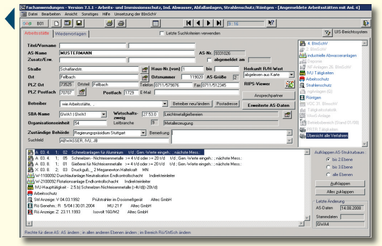
The majority of data of the UIS is supplied by the LUBW. Users of the UIS are – besides the authorities in Baden-Württemberg – other Federal States, the Federal Government, neighbouring countries, the European Union, research organisations and companies as well as the public.

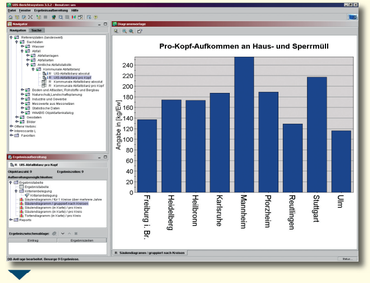
An economic development of a complex information system requires central guidelines and control. For this reason the development of the UIS BW has always been based on a framework conception. The conception is updated periodically under consideration of the current guidelines of the E-Government Concept of Baden-Württemberg und the German Conference of Environment Ministers.

UIS Data and their Use

SPECIALISED APPLICATIONS FOR THE ENVIRONMENTAL AUTHORITIES

The majority of data within the UIS are specialised data, produced during the execution of environmental tasks. In one of the specialised applications for example – which covers the fields of occupational safety and health and the prevention of harmful effects on the environment caused by air pollution, noise, etc. – the data of approx. 400.000 working places and their environmentally relevant industrial plants are documented. Specialised data are required primarily by the users at administrative offices performing their executive tasks, but they are also used by comprehensive reporting systems.





REPORT DATA FOR THE OVERVIEW

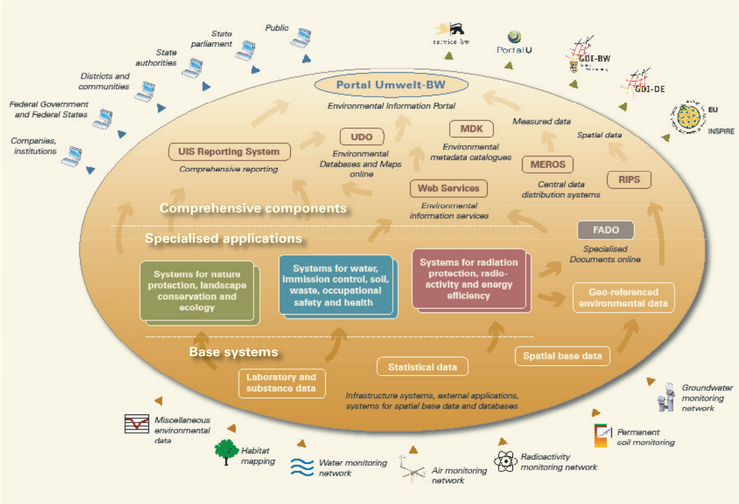
Anonymised report data result from selecting and compressing specialised data. With systems such as the Reporting System of the UIS, specialists and executives in the environmental authorities of Baden-Württemberg, for example, can recall these reporting data directly from the thematic databases. The service "Environmental Databases and Maps online" (UDO) provides easy access for the public. Selected reporting data of the UIS are also presented by the State Information System, which is operated by the State Office for Statistics.

GEOGRAPHICAL DATA AS AN INFORMATION BASIS

For the linkage of environmental data from different subjects as well as for the production of spatial overviews and thematic maps, spatial base data are required. The Spatial Information and Planning System (RIPS) provides these data (e.g. topography) – primarily made available by the State Office for Geospatial Information and Rural Development – in combination with geo-referenced environmental data (e.g. protected areas) for the users of the UIS in specialised authorities of the state and the administrative districts.

The UIS offers increasingly more interactive mapping services on the intranet of the administration as well as on the internet, aiming for an intuitive access to information and a better illustration of spatial relations. Many of them are part of the "Data and Map services of the LUBW".

The UIS BW at a Glance



MDK: Environmental metadata catalogues (Systems for the description of environmental data)

UDO: Environmental Databases and Maps online (Selection of specifically prepared environmental topics)

RIPS: Spatial Information and Planning System (Guidelines for the management of spatial data in the UIS and pool of spatial data)

MEROS: Measuring Series Operation System (Uniform management of multidisciplinary monitoring data)

FADO: Specialised Documents online (Structured supply of textual environmental information)

Portal Umwelt-BW: Environmental Information Portal of Baden-Württemberg (Access point for environmental information from Baden-Württemberg)

PortalU: German Environmental Information Portal (National access point for environmental information)

service-bw: Portal for administrative services provided by the Federal State and the local authorities of Baden-Württemberg

GDI-BW: Spatial Data Infrastructure of Baden-Württemberg (Provision and utilisation of spatial data and services on the state level, in consideration of GDI-DE and UIS BW)

GDI-DE: Spatial Data Infrastructure for Germany (Provision and utilisation of spatial data and services on the national level)

INSPIRE: Infrastructure for Spatial Information in the European Community (Establishment of a European spatial information infrastructure)

The UIS BW distinguishes between base systems, specialised applications and comprehensive components.

Base systems do not specifically process environmental information, but provide parts of their data, methods or technical infrastructure to the UIS. One example are the administrative networks, which allow data transfer between the state authorities and the local authorities. Further examples are the information systems of the land survey authorities providing spatial base data, the "Struktur- und Regionaldatenbank" of the State Office for Statistics providing statistical data, and the geographic information system of the forestry administration providing specialised data.

The main part of the UIS comprises specialised applications for different environmental fields, such as water, soil, air, radioactivity, waste etc. To this category of applications, for example, belong the Nature Conservation Information System and the Information System for Water, Immission control, Soil, Waste, and Occupational safety and health. Comprehensive components bring together information from different environmental fields and authorities and provide public access to these data. Among them are the Spatial Information and Planning System (RIPS), the UIS Reporting System and the Measuring Series Operation System (MEROS), which allows uniform data management for all fields of environmental monitoring data and data series.