

A coastal and marine data exchange platform, NOKIS - DE

1. Policy Objective & Theme

- ADAPTATION TO RISK: Managing impacts of climate change and safeguarding resilience of coasts/coastal systems
- ADAPTATION TO RISK: Integrating coherent strategies covering the risk-dimension (prevention to response) into planning and investment
- SUSTAINABLE USE OF RESOURCES: Preserving coastal environment (its functioning and integrity) to share space

2. Key Approaches

- Integration
- Participation
- Knowledge-based
- Technical

3. Experiences that can be exchanged

The case provides information on the organisation of different sets of data from different sources and in different formats to standardise them for mutual exchange and public information.

4. Overview of the case

Cross-sectoral coastal and marine data from the North and Baltic Seas provided by several coastal institutions and organizations are made available in a standardized way through the NOKIS metadata base.

5. Context and Objectives

a) Context

Coastal and marine data of all sorts about the North and Baltic Seas have been collected by a large number of coastal institutions and organisations. Cross-sectoral and cross-institutional access to these data had been limited due to different data formats and the scattered distribution between data holders.

b) Objectives

The aim was to try and organise different sets of data, about the German coastal zone, from different sources and in different formats in order to standardise them for mutual exchange and public information.

6. Implementation of the ICZM Approach (i.e. management, tools, resources)

a) Project Management

The work was co-ordinated by the German Federal Waterways Engineering and Research Institute – Hamburg (Bundesanstalt für Wasserbau / BAW) in co-operation with data providers and users from national, regional and local coastal and marine science and engineering organizations in Northern Germany. Communication technology partners co-operated in developing

the platform and optimizing software applications .

b) ICZM tools

Existing cross-sectoral data were integrated into one metadata base using existing data pools. The project team defined a metadata standard for the coastal zone and developed a corresponding editor for the internet. The database was based on existing structures and developed involving users and data providers from coastal protection, water management, environmental protection, waterway engineering, and science. The standardised metadata improve data exchange between institutions and ease the presentation of data to the public. Since the data base is accessible via internet using open source software data provision is easy. Maintenance, development and inclusion of future data sets, GIS-files, related reports and publications is enhanced. The data base was developed from 2001 to 2004. The first step was to define metadata standards. A first version of the metadata editor was released and tested, and a discussion forum was implemented. In winter 2002 the first data visualization tool was presented with examples, the editor was developed and adjusted further. In a second step from September 2004 to October 2008 the metadata base was developed further with additional software tools and data implementation.

An internet platform for easy and standardized cross-sectoral data access and the possibility for data exchange was created. Open source software technology based on Java was used to create the data base and viewers to avoid license fees. The platform itself is managed with the free content management system Typo3. The visualization in maps is provided by web mapping service (visualization of grid data, read only), web feature service (vector data, read and write transactions), and web coverage service (grid data, read and write transactions) for GIS-data, and a gazetteer-service for present and historical geographic names. Thus, database queries can be based on spatial maps of a geo-information system. Original data remain on local, that means distributed servers, metadata are generated locally and are then copied to the general NOKIS database. The metadata are a subset of the ISO 19115 standard for geo-spatial metadata and the standard ISO19119 for internet based services. Information is structured to answer the questions what, when, where, why, who and how. The platform offers information about the German coastal zone including abstracts of coastal journals, completed and on-going research projects, and it provides a number of recent project reports. The database is bi-lingual (German and English) to ensure international accessibility. It can be searched by keywords or free text search since the content is completely indexed. Some additional external metadata archives have been integrated into NOKIS. All metadata sets are automatically implemented into other databases such as the environmental database PortalU and the spatial database GeoPortal.Bund. Furthermore, metadata can be imported from the popular ArcGIS system and exported into other standard formats. A handbook for the use of NOKIS was developed. A tool for sediment classification, for remote sensing data, and a planning tool were implemented into NOKIS.

7. Cost and resources

Both implementation steps were financed by the German Federal Ministry of Education and Research (BMBF) with a budget (2001-2008) of € 2.66 million.

8. Effectiveness (i.e. were the foreseen goals/objectives of the work reached?)

The NOKIS platform was successfully installed. Additional data providers and users have been attracted during the work. It uses open source software and expandable concepts without the need to acquire expensive updates and upgrades to keep up with technical development. In a second step from 2004 to 2008 online software tools were developed further and adjusted to the necessities of the different users.

9. Success and Fail factors

After the final development of NOKIS, two of the involved institutions maintain the database, and develop it further. Metadata from the NOKIS database are automatically integrated into other relevant databases such as the environmental database PortalU and the spatial database GeoPortal.Bund.

10. Unforeseen outcomes

Technical development during the two phases of NOKIS development proceeded very quickly. Thus, the software basis and the development of software tools were adjusted accordingly, increasing the applicability.

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13. Sources

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- Informations-Infrastrukturen für Nord- und Ostseeküste als Beitrag zu einem Integrierten Küstenzonenmanagement - Abschlussbericht 2008 (June, 2009). Lehfeldt, R., Reimers, H.-C., Bundesanstalt für Wasserbau Hamburg and Landesamt für Landwirtschaft, Umwelt und ländliche Räume, Flintbek.
- NOKIS - North Sea and Baltic Sea Coastal Information System, metadata information system for coastal research and engineering - information flyer (August 2003). Lehfeldt, R., Heidmann, C., BAW Hamburg.
- Project information online: <http://nokis.hosted-by-kfki.baw.de/>
- The meta-database NOKIS: <http://www.nokis.org/>



BMBF-03KIS049-03F0412B_Nokis++_Abschlussbericht_2004-2008 (7.43 MB)



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