

EMME – Environmental Management in the Middle East: Spatial Approaches

Summary

Spatial Data Infrastructures and underlying Technologies (SDI-T), including Geographical Information Systems (GIS) and Remote Sensing (RS), have proven to be crucial for environmental management. RS, mainly through satellite images, can be used to monitor environmental changes like land degradation and water levels. GIS can be used to model trends, identify hotspots, analyse, and simulate measures to protect the environment and mitigate the effects of crisis. An SDI is required to overcome the technical and conceptual barriers in sharing heterogeneous spatial data to support collaborative decision making. Different sources of data, GIS software components, spatial DB, and analysis tools, can be combined in an SDI to provide integrated environmental modelling for the Middle East. Although SDI-T has proven to be a very useful tool to improve environmental management, it is not still used by the authorities in the Middle East, largely because of lack of capacity and knowledge.

EMME is prepared following a previous project, GeoNetC, and its significant added values are:

- Establishing an e-learning system in Yemen and implementing GeoNetC program in the country.
- Developing three new applied blended courses on SDI-T which can be used by experts in environmental management authorities.
- Development and implementation of an environmental management Geoportail (emGeo) for Iran, Iraq, and Yemen, based on novel technologies to facilitate the sharing of spatial data, planning and decision-making for environmental management.
- Expanding the existing European-Middle East Network by including new European, Iranian and Yemeni participant universities in the consortium.
- Introducing Open Network Learning (ONL) tools to the partner countries that can considerably improve the quality of education and teaching.
- Improving HEIs role within the society by improving the linkage between HEI, government and enterprise in the partner countries.

Researchers from CERIS have developed the syllabus, contents, learning materials and supporting data of one of the courses of the project, named "SDI-T for environmental change monitoring", in collaboration with the Iranian and Yemeni universities. Learners are presented the concept of SDI-T, data issues, web services, and SDI business analysis and management. Courses were enrolled and evaluated by pilot students from the participating institutions, to improve the quality of the materials and assess the feasibility of its use in blended learning programs.



Main challenges for SDI-T in ICZM

- The dynamics of coastal processes (tides, seasons) and the need to combine data with distinct timestamps
- Overlapping of land and marine geography (offshore, near shore, shore line, inshore) and the need to obtain coherent combined datasets
- Overlapping of jurisdictions from distinct organisms and legal mandates
- Adequacy of spatial data to specific coastal management tasks
- The inexistence of fixed administrative boundaries for CZ
- The balance of complexity of CZ and the need to simplify it into an information system



Figure 1. E-learning course material: snapshot of a video lesson on spatial data infrastructures and technologies in integrated coastal zone management.

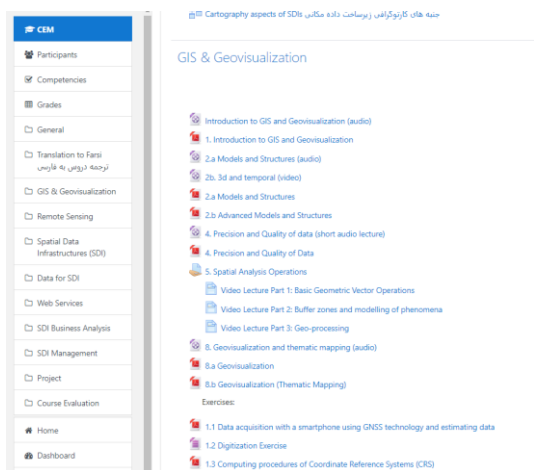
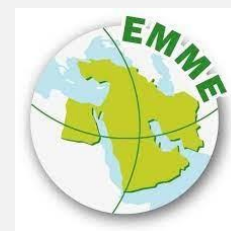


Figure 2. Snapshot of the online platform (Moodle) used to deploy the contents and activities of EMME courses.



Project Reference

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Leading Institution

LU – Lund University (Sweden)

Partners

NTUA – National Technical University of Athens (Greece), VILNIUS TECH – Vilnius Gediminas Technical University (Lithuania), ENSG – National School of Geographic Sciences (France), UT – University of Tehran (Iran), IKIU – Imam Khomeini International University (Iran), BASU – Bu-Ali Sina University (Iran), SU – Sana'a University (Yemen), TU – Taiz University (Yemen)

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Project Website

emme.ensg.eu/en