DLR contribution to the UNECE Conference

“Water Unites – Strengthening Regional Cooperation on Water Management in Central Asia”, Almaty 17-18.11.08

Environmental Monitoring, Information Management, Decision Support Systems and Capacity Building

Dr. Jan-Peter Mund
German Remote Sensing Data Center, DLR
DLR and DFD at a Glance

The German Remote Sensing Data Center (DFD) is part of

The German Aerospace Center DLR

R&D and technology transfer operations, at own Institutes in Germany

Space Agency of the Federal Republic of Germany
DLR’s Applied Remote Sensing Cluster
German Remote Sensing Data Center (DFD)
Remote Sensing Technology Institute (IMF)

Largest R & D Institution in Germany

- 30 Institutes at 9 sites and 5 branches
- Space Agency of the Federal Republic of Germany
- 5200 Staff, 2500 Scientists, 500 PhD Students
- 1150 Staff in Oberpfaffenhofen

DFD- Cluster is the Core of DLR’s EO activities

- 3 Locations in Germany
- 2 University Chairs
- 270 Staff, 11 Departments
- 45% third party funding
FRAMEWORK OF CAWA COOPERATION

Supported by the German Federal Foreign Office 2008–2010

AUSWÄRTIGES AMT
DLR contributions to UNECE / AA objectives

- **Environmental Monitoring - Water Quantity and Quality**
  - Irrigation, Drainage and Catchment Management
  - Water Bodies, Wetlands and Ice Assessment
  - Water Quality Observation
  - Sediment and Biological Contamination

- **Information Management and Decision Support Systems**
  - Management of Trans-boundary Water Resources
  - Climate Change Indicators and Scenarios
  - Decline of Snow Cover and Glaciers
  - Integrated Water and Agricultural Crop Models
  - Desertification Analysis

- **Capacity Building and Capacity Development Program**
System Solutions for Environmental Monitoring

- Global environmental observation and modelling
- Monitoring of Snow and Ice; GLOF
- Integrated Water Management
- Modelling Climate Change Scenarios
- Land Cover, Land Uses and Land use change
- Agro-ecological modelling
- Monitoring of Desertification processes
- Disaster management emergency response
- Environmental Risk and Vulnerability Analysis
- Disaster and Crisis Prevention

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Example of an Irrigation and Drainage Management

Location

- Uzbekistan, Khorezm Region, Lower Amu Darya

Political Relevance

- Water management of irrigation and drainage schemes
- Example: Water User Associations
  - Potential conflict on Land and water use due to unsustainable crop selection
- Sustaining water quality for the whole catchment

Terra MODIS, 2005
Time Series Analysis
Water Productivity Monitoring

- Standardized supply of relevant agro-ecosystem parameters and meaningful irrigation performance indicators
  - Land use, actual evapo-transpiration (ET), and crop yields
  - Relative ET, water productivity
- Useful for strategic and operational irrigation management

Example: 15day Actual Evapotranspiration
Information Management and Decision Support Systems
DFD / GFZ Capacity Building Cycle

1. Input or request
2. CB Survey, Needs Assessment
3. Analysis, Interpretation, Plan of Action
4. Identifying Priorities
5. Planning of CB Measures
6. Monitoring CB results and Impact
7. Implementing training and capacity building measures with beneficiaries
8. Curriculum Development
Components of Capacity Building Training Modules

- **Presentation**: PowerPoint or HTML/XML E-learning
- **Exercise**: Training on GIS & Remote Sensing
- **Technical Documentation**: Compendium describing the components, curriculum etc.
- **Exam**: HTML/XML/ Flash e-learning exams
- **Evaluation Sheet**: HTML/XML/ Flash e-learning exams
- **Certificate**: Certification in e-learning exams

Technical Documentation: Compendium describing the components, curriculum etc.

Exam HTML/XML/ Flash e-learning exams

Evaluation Sheet

Certificate
Training Concept for Integrated Water Management

During one week workshop and training events different Capacity Building measures are applied, i.e.: SWOT-Analysis, Near real time exercises, Simulations and Scenarios,
The Capacity Building with Beneficiaries
Information Management and Capacity Development Services of DLR in detail:

1. Support drafting a concept for a joint water information management system for a sustainable and integrated water management in Central Asia.

2. Joint production of a multilateral prototype for an water related information management system on different levels.

3. Integration support for national and regional data bases.

4. Training workshops on request of partner countries and their institutions on Integrated Water Management solutions.

5. Capacity development on policy level for national and regional decision maker and other stakeholder.
Final remarks

- DLR - DFD has been already actively involved in the setting up of several concepts and prototypes of Information Management and Decision support systems such as:
  - Tsunami GITES – DSS System implementation in Indonesia
  - WISDOM – Water Information Management System for the Mekong Delta in Viet Nam
  - Khorezm - Regional integrated resource management

- Capacity Development is an integrated part of the DLR technology transfer activities in environmental monitoring and information management.

- DLR is ready to provide facilities, services and capacity building to European and international initiatives with space-system-based information management and decision support.
Capacity Building Activities at DLR

- International Joint Projects
- Training of Trainers
- Knowledge Management
- DFD CB-Unit
- Joint Trainings Workshops
- Participatory Trainings
- Curriculum, Course Module Design
- International Cooperation

Partners:
- ESA
- MIC
- LIMES
- ESF
- DKKV
- RESPOND
- GMES
- Red Cross
- DeSECURE

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Thank you for your attention

jan-peter.mund@dlr.de