



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**



Deutsches Zentrum
für Luft- und Raumfahrt e.V.
in der Helmholtz-Gemeinschaft

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



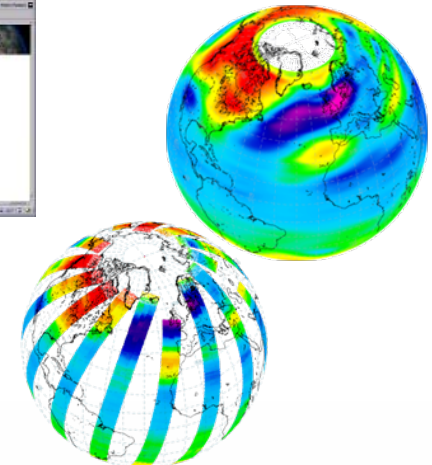
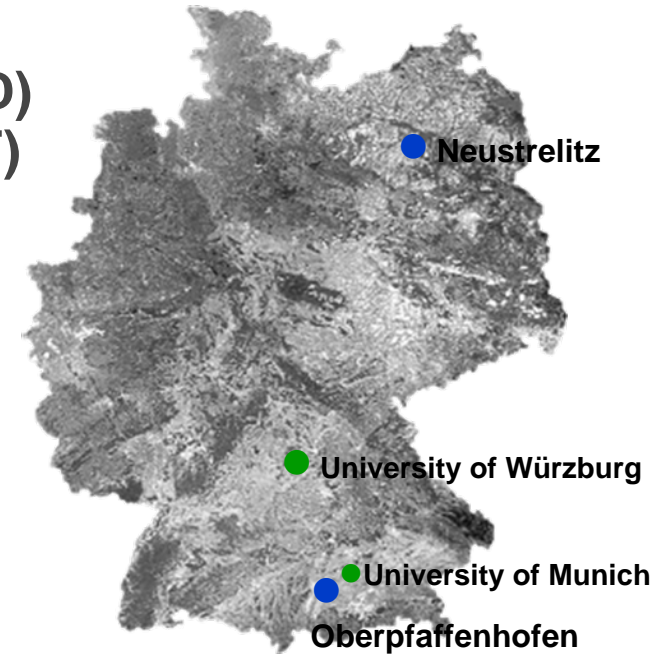
DLR's Applied Remote Sensing Cluster German Remote Sensing Data Center (DFD) Remote Sensing Technology Institute (IMF)

➤ 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





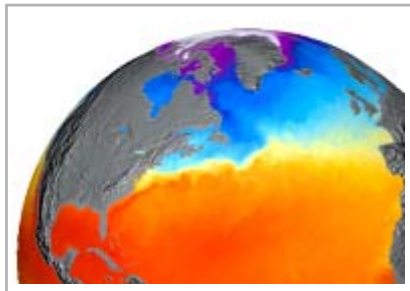
DLR contributions to UNECE / AA objectives

- **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



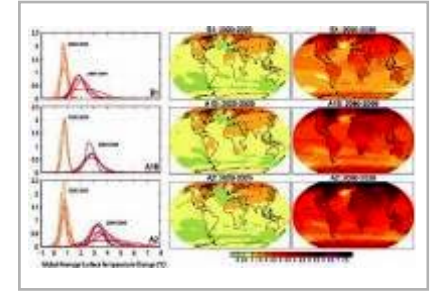
Global environmental observation and modelling



Monitoring of Snow and Ice; GLOF



Integrated Water Management



Modelling Climate Change Scenarios



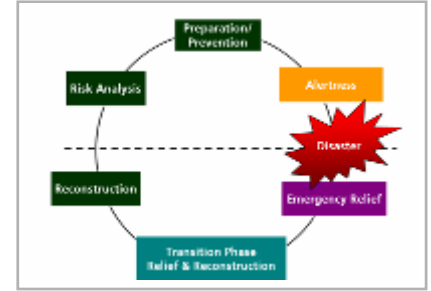
**Land Cover, Land Uses and Land use change
Agro-ecological modelling**



Monitoring of Desertification processes



Disaster management emergency response



**Environmental Risk and Vulnerability Analysis
Disaster and Crisis Prevention**

Example of an Irrigation and Drainage Management

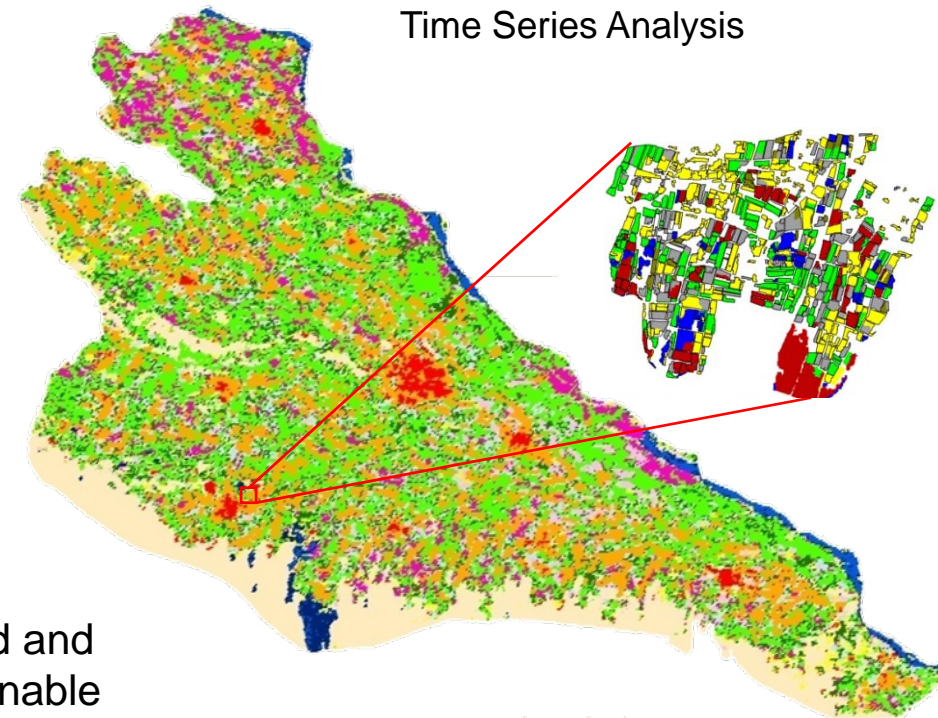
➤ Location

- 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



Agricultural Land Use

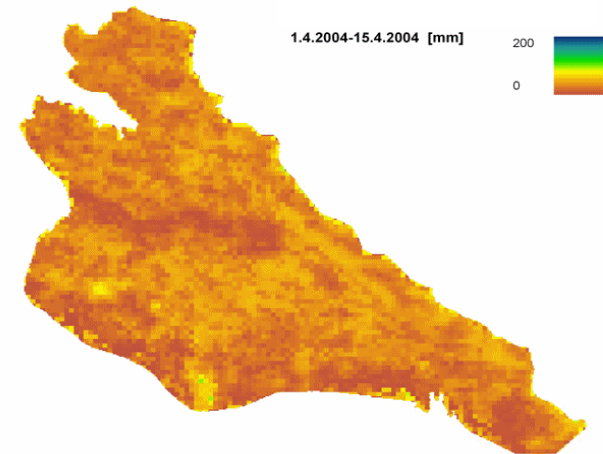
	Cotton
	Rice
	Wheat-Rice
	Wheat - Other Crop
	Wheat - Fallow

Other Surface Types

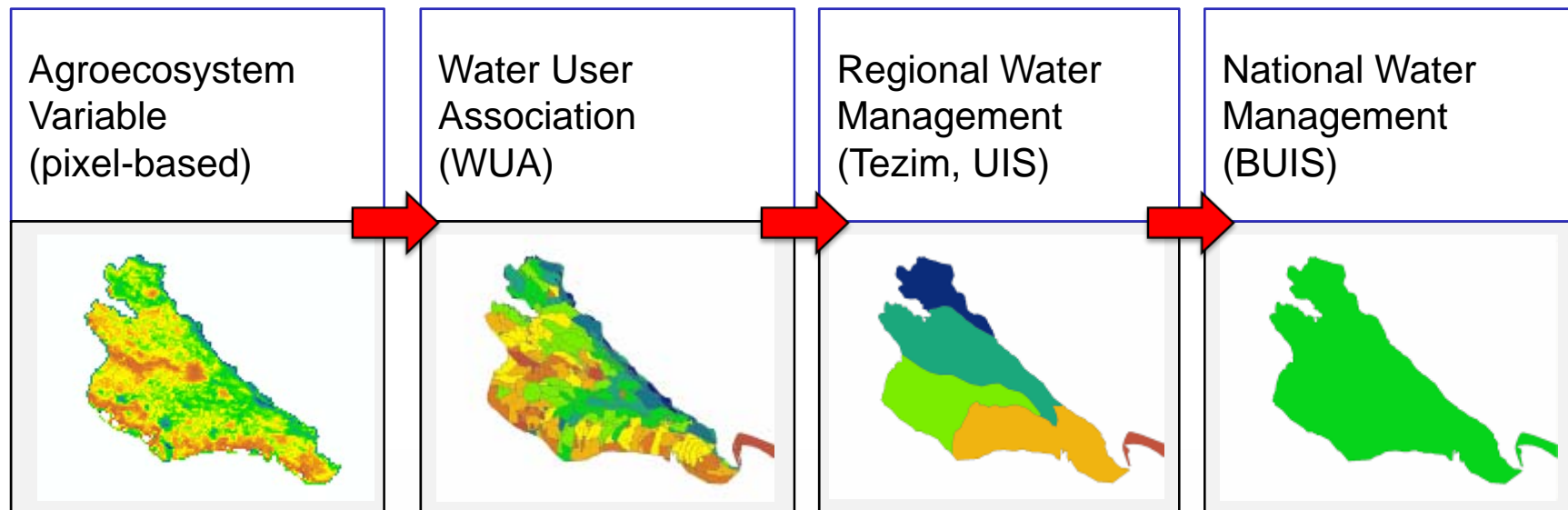
	Rural Settlement
	Urban Settlement
	Desert
	Trees and Gardens
	Non-Permanently Water
	Permanently Water

Water Productivity Monitoring

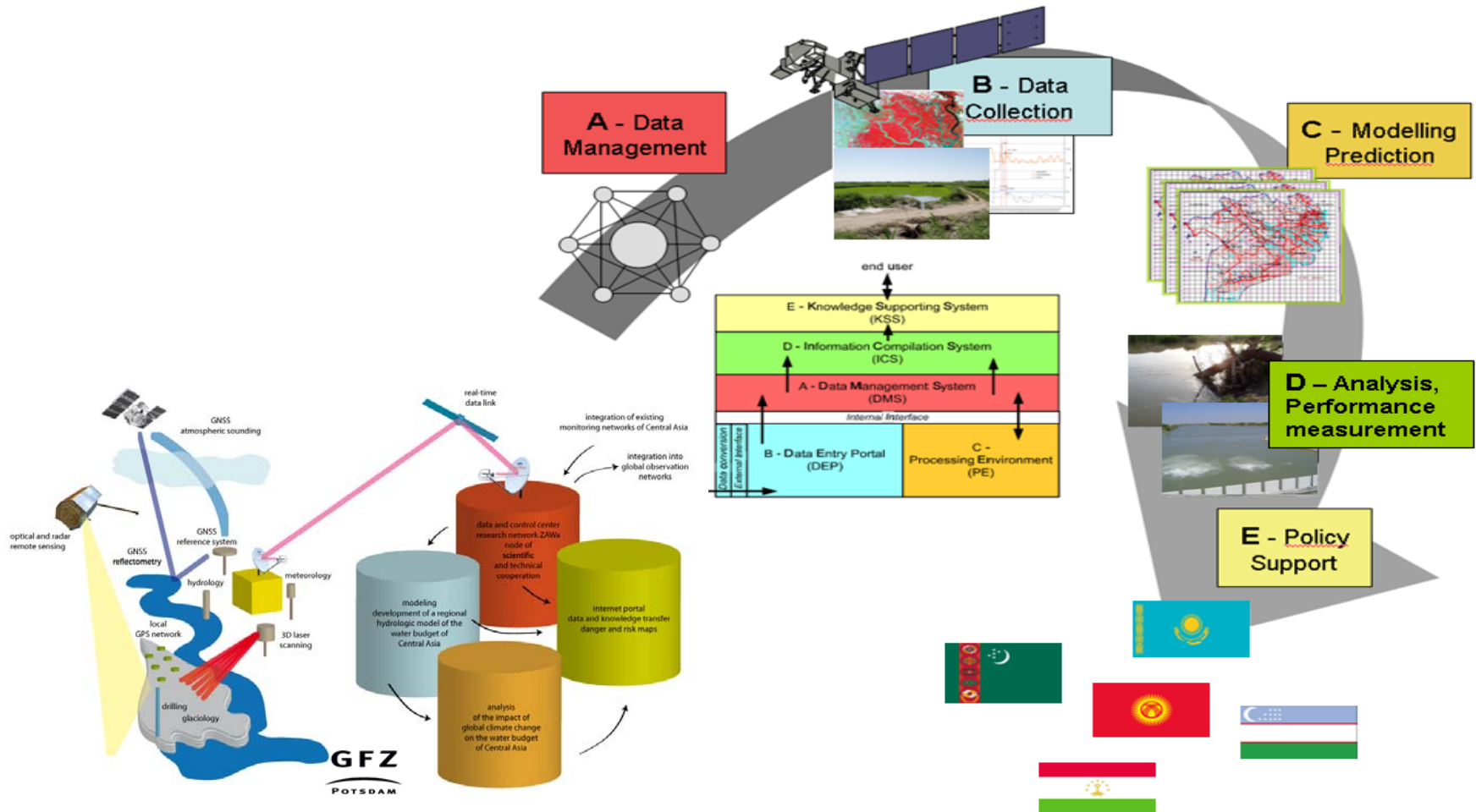
- Standardized supply of relevant agroecosystem parameters and meaningful irrigation performance indicators
 - Land use, actual evapo-transpiration (ET), and crop yields
 - Relative ET, water productivity
- Useful for strategic and operational irrigation management



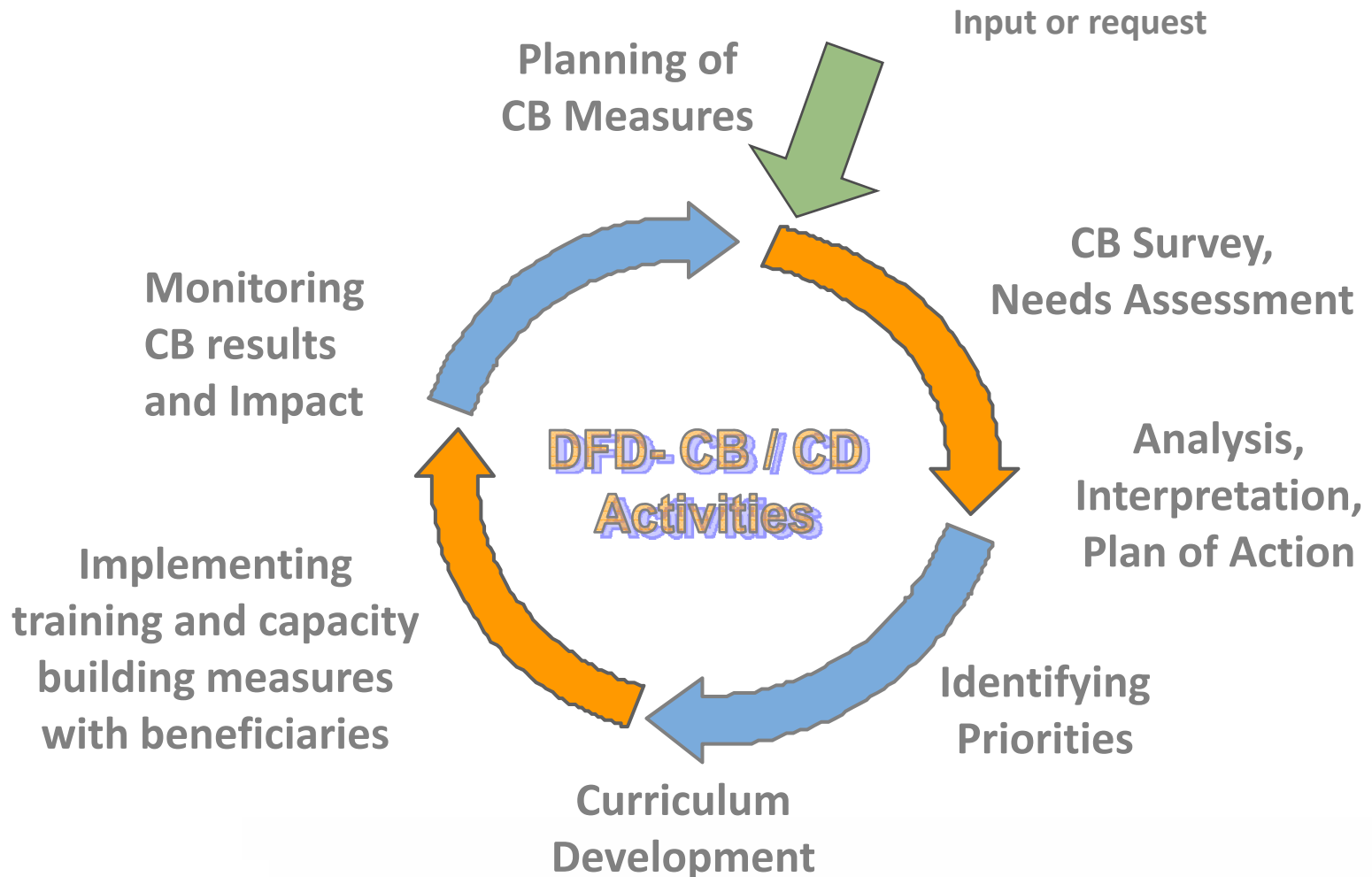
Example: 15day
Actual Evapotranspiration



Information Management and Decision Support Systems



DFD / GFZ Capacity Building Cycle



Components of Capacity Building Training Modules

Presentation

PowerPoint
or HTML/XML
E-learning



'Capacity Building' (WP6000)

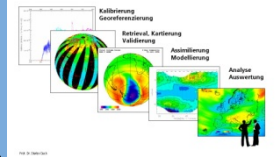


German Indonesian Tsunami Early Warning System



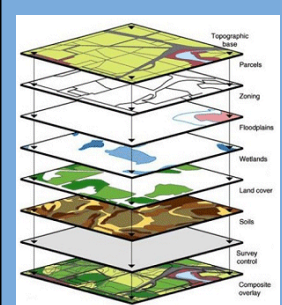
Fernerkundung

Messwerte → Information → Wissen → Handeln



Exercise

Training on GIS
& Remote Sensing



Technical Documentation

Compendium describing the components, curriculum etc.



German Indonesian - Tsunami Early Warning System
Capacity Building (WP6000)

Technical Documentation of Involved Components, Curriculum, Quality Management & Resources

Capacity Building (WP6000) Technical Document

Exam HTML/XML/ Flash e-learning exams

Exam DLR Course "Introduction to Remote Sensing & GeoData"

Exam DLR Course "Introduction to Remote Sensing & GeoData"

November 13th 2007

In the following you find 10 questions to answer and 4 topics to write a short essay on separate pages. At the end of each questionnaire you find in brackets the points, which the questionnaire gives to each question and the point. You have to answer 7 out of 10 questions and select four of essay topics for a short essay. Do not answer more than 7 questions and do not write more than 1 essay. Any additional effort will not be considered. Further answers will be considered at random.

The weighting for each question and for the essay will be from 1 (assigned) to 5 (difficult, not answered, very hard). Each question is weighted 10 and the essay is weighted 100 for the overall grade of your exam.

You have 3 hours to answer the questions and write the short essay. Answer each question and the short essay on a separate sheet (paper) before the questions, because it will be evaluated by different lecturers. You can use the front and the back of the page. On the essay topic you find 2 additional pages carrying your name.

Do not allow anything to be in the exam paper and a language dictionary only (single-page) paper is being supplied for the supervisors. All pages have to be answered. The answer text is not relevant for the exam but to be corrected clearly by marking through.

Good luck!

Grading	< 50%	50% - 75%	75% - 100%
very good	no	no	yes
good	no	yes	no
satisfactory	no	no	yes
passed	no	yes	no
failed	yes	no	no

Mark 13/200

Page 1 of 1

Evaluation Sheet

EVALUATION SHEET

Superb

Excellent

Great

Good

Evaluation sheet

Put a tick in the most appropriate box	Comments Explain your responses
Do you think your lecture are well-suited to the course?	Yes, because they were well explained and easy to understand. The lecture was good.
How would you compare your lecture to other lectures?	I like the material very much and I think it is very good. The lecturer is very professional and I like his style.
Are you happy with the level of your lecture?	Yes, because it is very good and I think it is very good.
Are you happy with the content of your lecture?	Yes, because it is very good and I think it is very good.
Are you happy with the structure of your lecture?	Yes, because it is very good and I think it is very good.
Are you happy with the quality of your lecture?	Yes, because it is very good and I think it is very good.
Are you happy with the quantity of your lecture?	Yes, because it is very good and I think it is very good.
Are you happy with the clarity of your lecture?	Yes, because it is very good and I think it is very good.
Are you happy with the relevance of your lecture?	Yes, because it is very good and I think it is very good.
Are you happy with the interest of your lecture?	Yes, because it is very good and I think it is very good.
Are you happy with the usefulness of your lecture?	Yes, because it is very good and I think it is very good.
Are you happy with the accuracy of your lecture?	Yes, because it is very good and I think it is very good.
Are you happy with the timeliness of your lecture?	Yes, because it is very good and I think it is very good.
Are you happy with the cost of your lecture?	Yes, because it is very good and I think it is very good.
Are you happy with the value for money of your lecture?	Yes, because it is very good and I think it is very good.
Are you happy with the overall quality of your lecture?	Yes, because it is very good and I think it is very good.

Use this space to write any other comments you might have.

Certificate



CERTIFICATE FOR 3rd GITEWS-DSS WORKSHOP

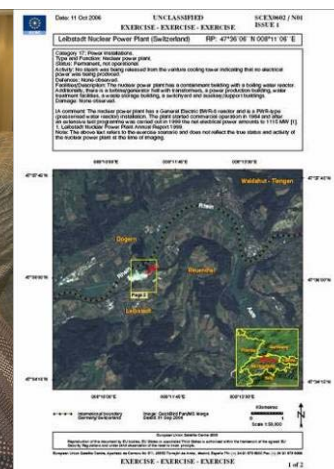
Dr. FAIZI

IS HONORARILY RECORDED AS PARTICIPANT IN THE 3rd GITEWS-DSS WORKSHOP AT THE GERMAN INDIAN TSUNAMI EARLY WARNING SYSTEM CAPACITY BUILDING WORKSHOP (WP6000) HELD ON 13th NOVEMBER 2007.

Training Concept for Intergrated 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.

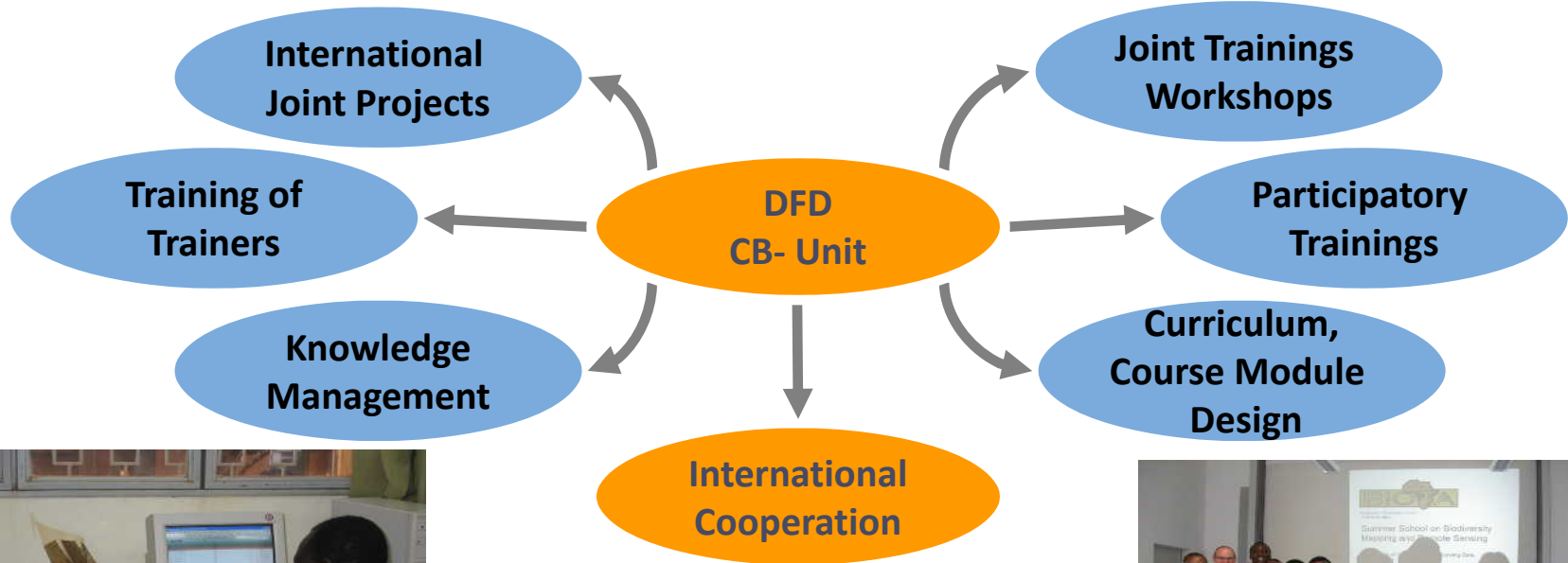


Final remarks

- 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



ESA
ESF
GMES

MIC
DKKV
Red Cross

LIMES
RESPOND
DeSECURE





Thank you for your attention

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