

Summary R e p o r t
On the Activities of the
“International German Summer School on Hydrology 2012”
Bochum, 23 July - 04 August, 2012

The sixth International German Summer School on Hydrology was held between 23 July and 04 August 2012 here in Bochum, Ruhr-University. A total of 14 scientists from twelve different countries participated in this course (List of participants is annexed). The majority of the participants come from developing regions like Africa and Asia.

The International German Summer School on Hydrology provides a program of hydrological training courses which vary each year. The focus of the courses lie on applied topics, which are given by German lecturers for an international audience. The courses are held at Ruhr-University Bochum, Germany, and all courses are given in English language.

The first International German Summer School on Hydrology was organized in 2007, and based on the positive response and encouraging feedbacks from participants of the subsequent years, the 2012 courses were offered for competitively selected applicants.

It has been seen that the number of applicants are dramatically increasing year by year and participants are selected in a very competitive manner. Among the selection criteria, a brief statement of motivation that centres the demand of the specific course for current and future career or research development, relevance of the course to the applicant's career or research area and Qualification and duty of the applicant carry higher grades.

Most of the lecturers of the International German Summer School on Hydrology are staff members of the Ruhr-University Bochum (Faculty of Geosciences and Faculty of Civil Engineering).

The lectures included theoretical as well as practical lessons, which were held in lecture halls and excursions out the field.

‘Rural Hydrogeology’ was chosen to be the focus of IGSH 2012. The lectures were covering the following topics:

- **Nutrients in Groundwater**
- **Agrochemicals in Groundwater**
- **Managing groundwater heterogeneity**
- **The rural water sector under climate change**
- **Groundwater Protection in rural Areas**
- **Integrated water resources management**
- **Case studies from different rural settings**

Participants were also encouraged to discuss on cases and personal experiences with regard to the hydrogeology of rural areas.

The theoretical lectures have been accompanied by a full day field excursion with the topic “Water Management in an intensively used agricultural environment in Ruhr area”. Participants had the opportunity to observe, appreciate and discuss on technical and technological developments of Biogas production plant in Wassenberg, water treatment plants in Rheindahlen-Helenabrunn water works, the management of abandoned coal mine water management and the influence of rural land use on groundwater quality and quantity. Moreover, a Sunday cultural and hydrogeologic excursion was organized to Münsterland and Paderborn (North Rhine Westfalia) which also included a visit to industrial heritage sites like the old subelevator Henrichenburg. Thus the scholars were able to discuss scientific questions, but also learned some aspects of German culture and landscape.

Besides the scientific program, which covered most of the days from early morning until late in the evening, the participants were offered social and cultural programs. It included joint evening events in downtown and the Ruhrgebiet, a guided tour to Bochum that gives opportunities to learn some aspects of German culture and the surrounding landscapes.

During the course a cooperative and friendly environment dominated, which allowed the participants to get close contact to each other and with the lecturers. This still opens a good opportunity to establish scientific and social networks which will continue after the course.

At the end of the course, participants were given a questionnaire (Questionnaire is annexed) to write comments on different aspects of the course and reveal their satisfaction on the content of the course, the lecturers and on the overall organization of the program. (Statistical evaluation of questionnaire are annexed)

Lecturers, field-work directors and field assistants:

Prof. Dr. Stefan Wohnlich

Ruhr University of Bochum, Applied Geology, Hydrogeologist

Prof. Dr. Frank Wisotsky

Ruhr University of Bochum, Applied Geology, Hydrochemist

Jun.-Prof. Dr. Andreas Englert

Ruhr University of Bochum, Applied Geology, Groundwater Modeller

PD Dr. habil. Steffen Bender

Climate Service Center, Natural Resources Department, Science officer

Dipl.-Geol. Christian Skark

Institute of water research, Environmental Technique, Hydrologist

Prof. Dr. Harro Stolpe

Ruhr University of Bochum, Environmental Engineering and Ecology

Annexes:

1. Course program
2. List of Participants
3. Statistics of Participants
4. Open questionnaire
5. Statistical evaluation of Questionnaire
6. Photos

Annex-1 Course program

IGSH 2012

Programme of IGSH_2012 course on Rural Hydrogeology

Date	Description	Location	Duty (Responsibility)
Monday 23 July 2012	Arrival of Participants		Program organizers
Monday 23 July 2012	Welcome / Introductory session	Ruhr University Bochum	Prof. Dr. Stefan Wohnlich
	Welcome Dinner	Buscheplatz	Prof. Dr. Stefan Wohnlich
Tuesday 24 July 2012	Introduction to Rural Hydrogeology	Lecture hall	Prof. Dr. Stefan Wohnlich
	Presentations by participants		Participants
	Lunch Break	University Canteen (Mensa)	
	Basics of Hydrogeology I		Prof. Dr. Stefan Wohnlich
	Coffee Break	Lecture hall	
	Nutrients in Groundwater I		Prof. Dr. Frank Wisotzky
	Workshop		
Wednesday 25 July 2012	Basics of Hydrogeology II		Prof. Dr. Stefan Wohnlich
	Coffee Break		
	Basics of Hydrogeology III		
	Lunch Break	Mensa	
	Nutrients in Groundwater II		Prof. Dr. Frank Wisotzky
	Coffee Break	Lecture hall	
	Nutrients in Groundwater III		
	Workshop		
Thursday 26 July 2012	Agrochemicals in Groundwater		Dipl.-Geol. Christian Skark
	Coffee Break		
	Agrochemicals in Groundwater		
	Lunch Break	Mensa	
	Agrochemicals in Groundwater		
	Coffee Break	Lecture hall	
	Agrochemicals in Groundwater		
	Workshop		
Friday 27 July 2012	Managing Groundwater Heterogeneity I		Prof. Dr. Andreas Englert
	Coffee Break		
	Managing Groundwater Heterogeneity II		
	Lunch Break	Mensa	
	Managing Groundwater Heterogeneity III		
	Coffee Break	Lecture hall	
	Managing Groundwater Heterogeneity IV		
	Workshop		
Saturday 28 July 2012	Free day		

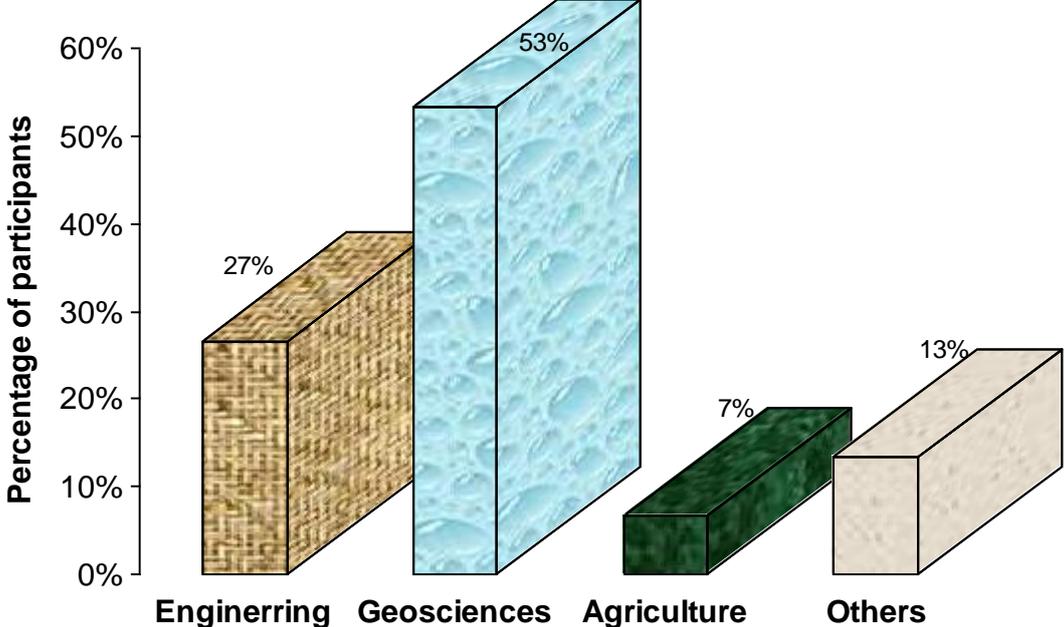
Sunday 29 July 2012	Excursion: Culture and Hydrogeology in Westfalia: Münsterland and Paderborn		
Monday, 30 July 2012	Technical Excursion Wassenberg: Biogas production Rheindahlen: Groundwater Management and Groundwater Protection Mönchengladbach/ Helenabrunn: Water Management in an intensively used agricultural environment		Prof. Dr. Stefan Wohnlich
Tuesday 31 July 2012	The rural water sector under climate change I		PD Dr. Steffen Bender
	Coffee Break		
	The rural water sector under climate change II		
	Lunch Break	Mensa	
	The rural water sector under climate change III		
	Coffee Break	Lecture hall	
	The rural water sector under climate change IV		
	Workshop		
Wednesday 1 August 2012	Groundwater Protection in rural Areas I		Prof. Dr. Stefan Wohnlich
	Coffee Break		
	Groundwater Protection in rural Areas II		
	Lunch Break	Mensa	
	Groundwater Protection in rural Areas III		
	Coffee Break	Lecture hall	
	Groundwater Protection in rural Areas IV		
	Workshop		
Thursday 2 August 2012	Integrated Water Ressources Management I		Prof. Dr. Harro Stolpe
	Coffee Break		
	Integrated Water Ressources Management II		
	Lunch Break	Mensa	
	Integrated Water Ressources Management III		
	Coffee Break	Lecture hall	
	Integrated Water Ressources Management IV		
	Workshop		
Friday 3 August 2012	Presentation of Workshop Results		Participants
	Coffee Break		
	Presentation of Workshop Results		
	Closing Session		
	Lunch		
Saturday 4 August 2012	Departure of Participants		

Web: www.hydrology-summerschool.de

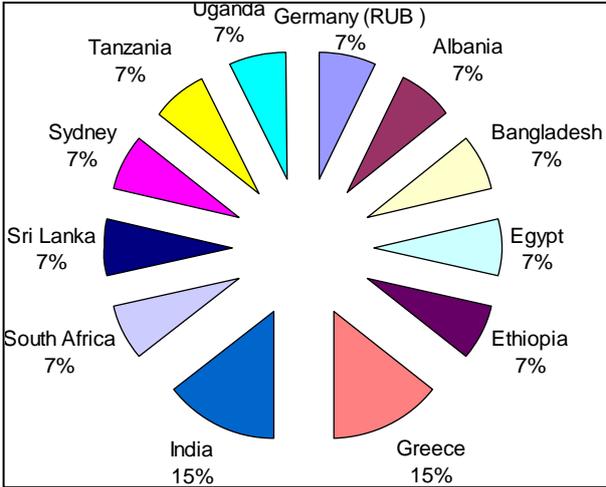
Annex-2 List of Participants

No.	Family Name	First Name	Title	Sex	Country
1	Alazem	Deyala	Mrs.	Female	Sydney
2	Bedini	Enton	Dr.	Male	Albania
3	Breedt	Nelda	Mrs.	Female	South Africa
4	Gebremichael	Merhawi	Mr.	Male	Ethiopia
5	Kakonas	Andreas	Mr.	Male	Greece
6	Kalinga	Pubudu Piumal	Mr.	Male	Sri Lanka
7	Khadra	Mohamed	Mr.	Male	Egypt
8	Khodke	Uday	Dr.	Male	India
9	Koulouris	Konstantinos	Mr.	Male	Greece
10	Mhenga	Fikiri Daniel	Mr.	Male	Tanzania
11	Nazneen	Sadaf	Mrs.	Female	India
12	Pervin	Mollika	Mrs.	Female	Bangladesh
13	Weldesebet	Shemelis	Mr.	Male	Germany
14	Zalwango	Proscovia	Mrs.	Female	Uganda

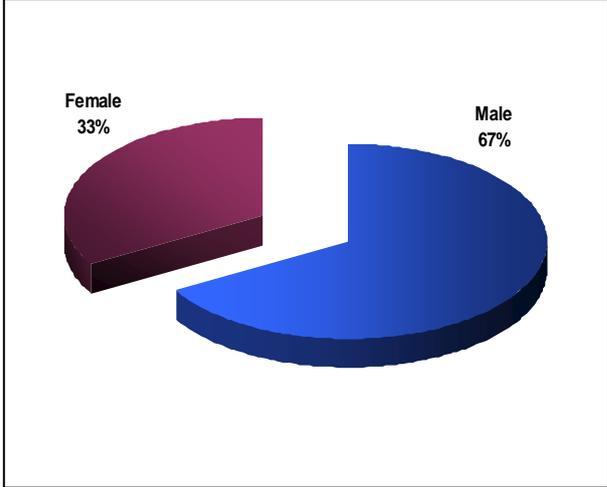
Annex-3 Statistics of Participants



Home Country



Gender



Annex-4 Open questionnaire

Rural Hydrogeology (23 July – 04 August 2012)

Course participants comment collection form

Your reason(s) of attendance?		
General interest in the topic		
Special professional needs		
Practical application		
Renewal of knowledge		
Other		

What is your professional background?		
Engineering		
Geosciences		
Geography		
Other (Please specify)		

Are your expectations fulfilled by the course with respect to:					
	fully	yes	neutral	no	no idea
Quality of contents					
Compressibility					
Practical applicability					
Time for discussions					
Number of examples and exercises					
Quality of exercises					
Duration of the course					
Quality of the course					

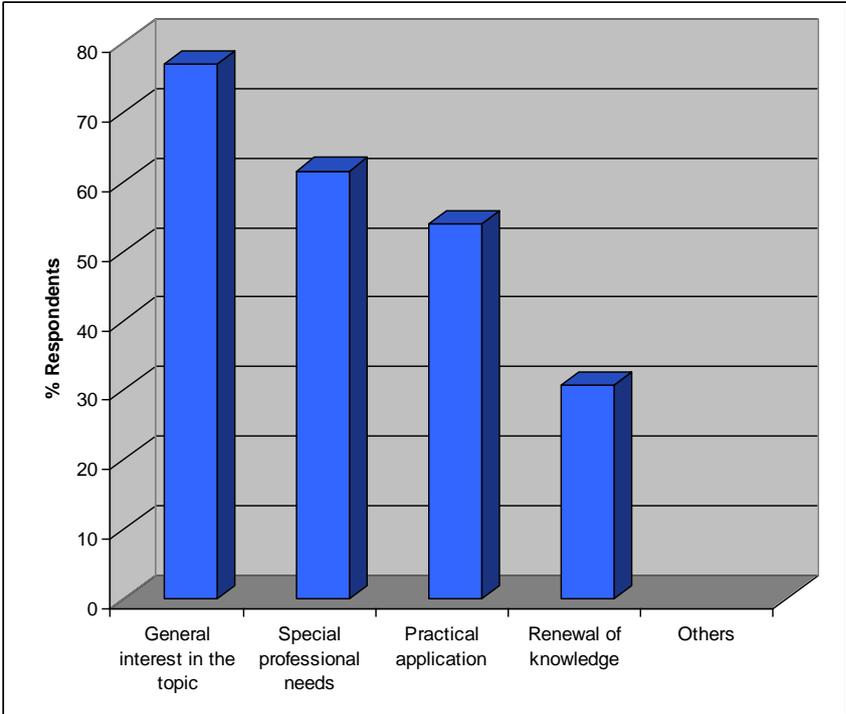
Scientific competence	very good	good	average	no idea
Prof. Dr. S. Wohnlich				
Prof. Dr. Frank Wisotsky				
Jun. Prof. Dr. Andreas Englert				
Dipl.-Geol. Christian Skark				
Prof. Dr. Harro Stolpe				

	yes	neutral	no
Have you got enough time for questions?			
Have all questions been satisfactorily answered?			

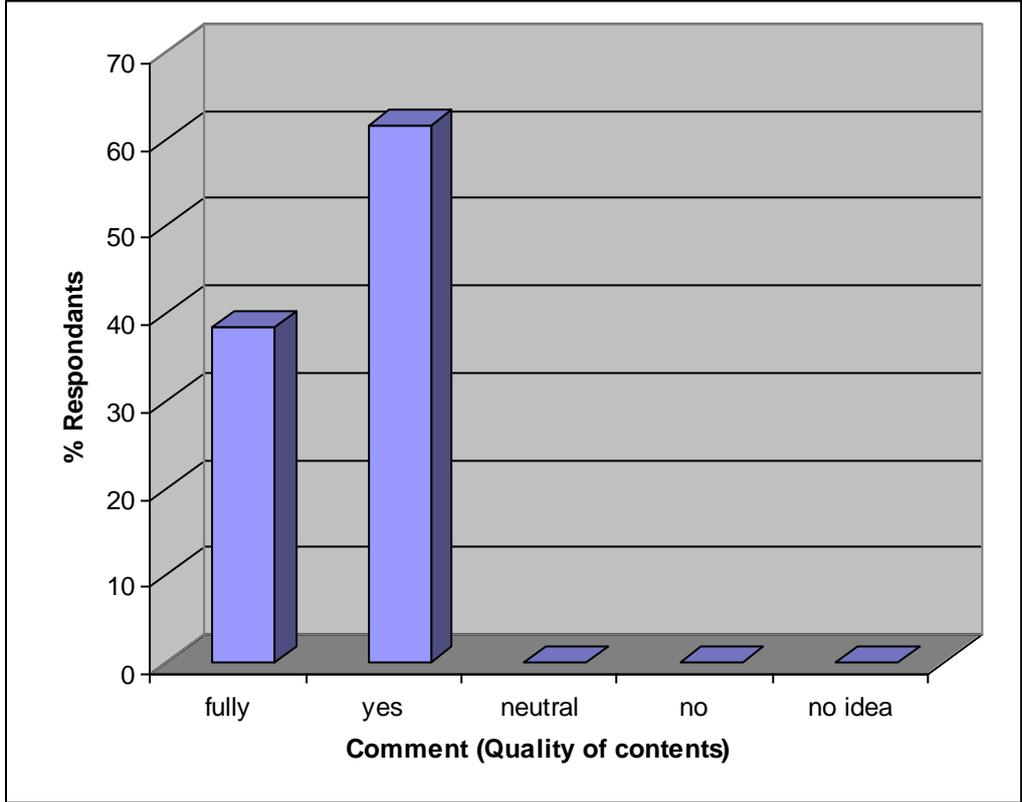
Have you been satisfied with the organizations of the course?	very much	yes	neutral	no	no idea
Local organization					
Lecture room					
Equipment of the lecture rooms					
Meals and services					
Accommodation					

Annex-5 Statistical evaluation of Questionnaire

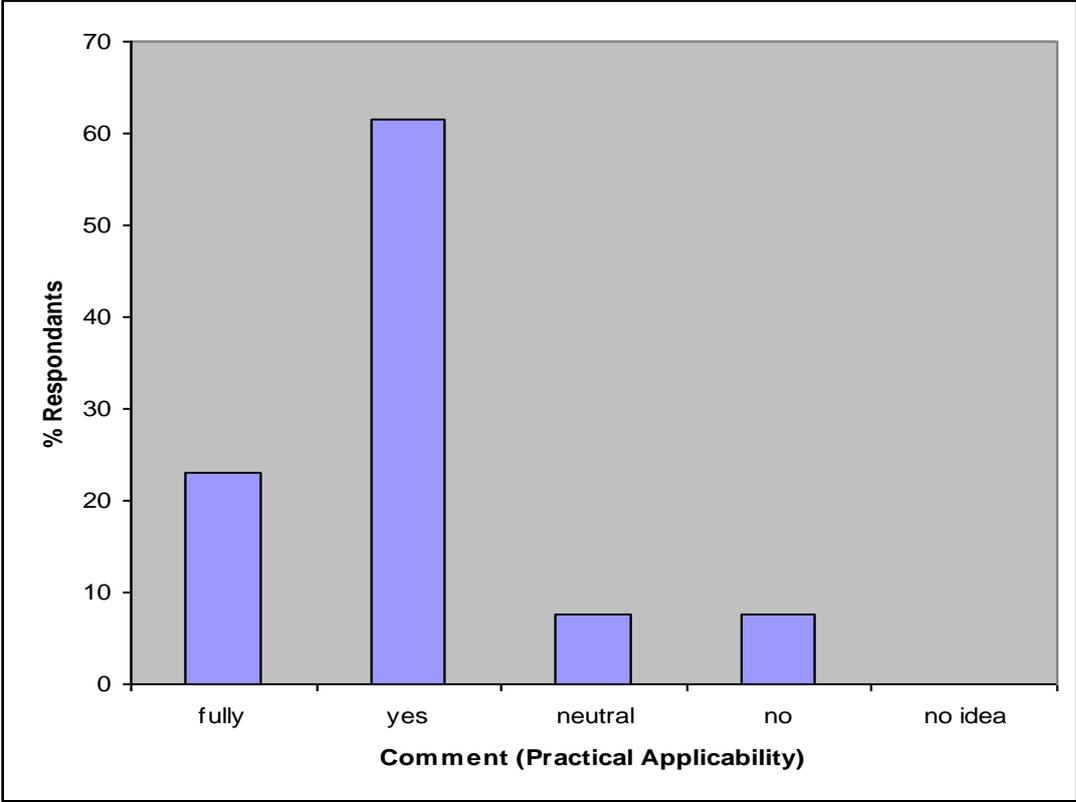
A - Reason(s) of attendance



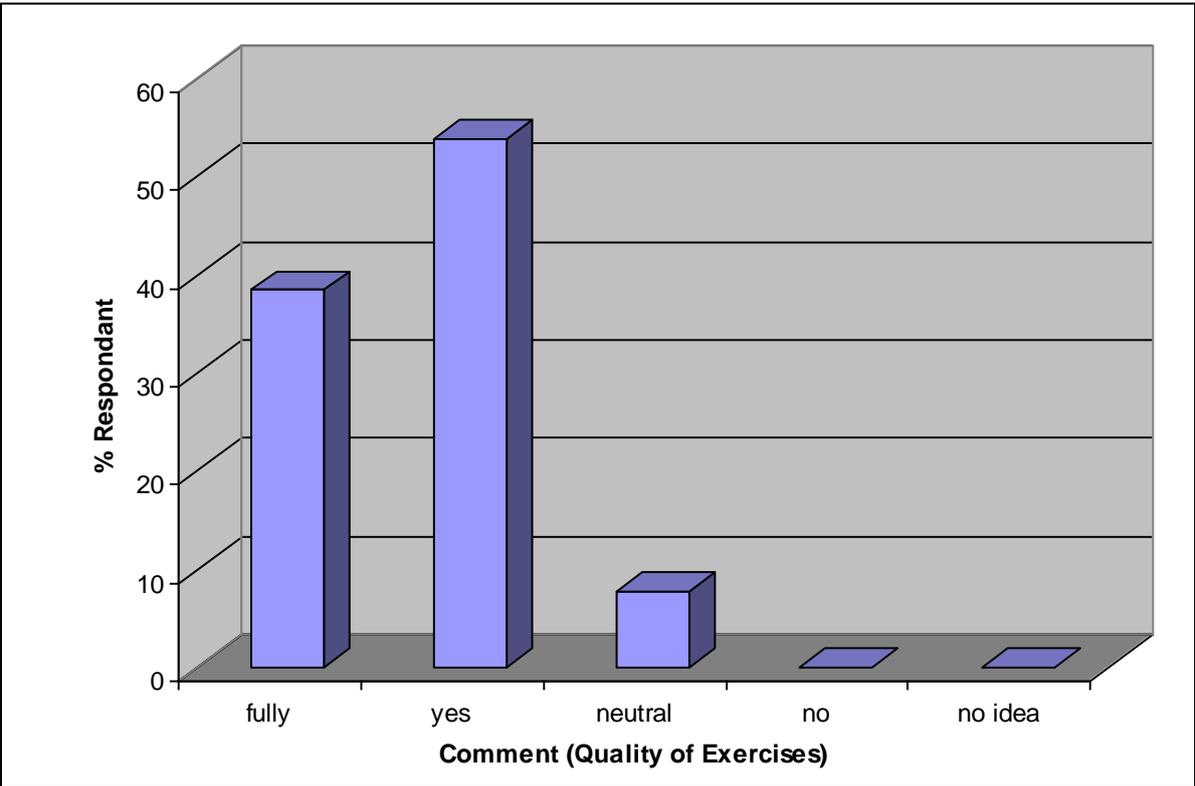
B – Quality of content of the course



C – Practical Applicability



D – Quality of Exercises



Annex-6 Photos



Photo during field excursion



Lecture Photos



Certificate award to participants