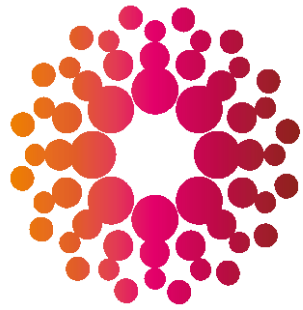




Indo German Centre for Sustainability (IGCS) Indian Institute of Technology Madras (IITM) in Chennai, Südost Indien

Univ.-Professor Dr. rer. nat. Dr. h. c.
Rafiq Azzam



A New Passa to India.



INFINITE OPPORTUNITIES | **GERMANY + INDIA**
2011-2012

GEFÖRDERT VOM



Bundesministerium
für **Bildung**
und **Forschung**

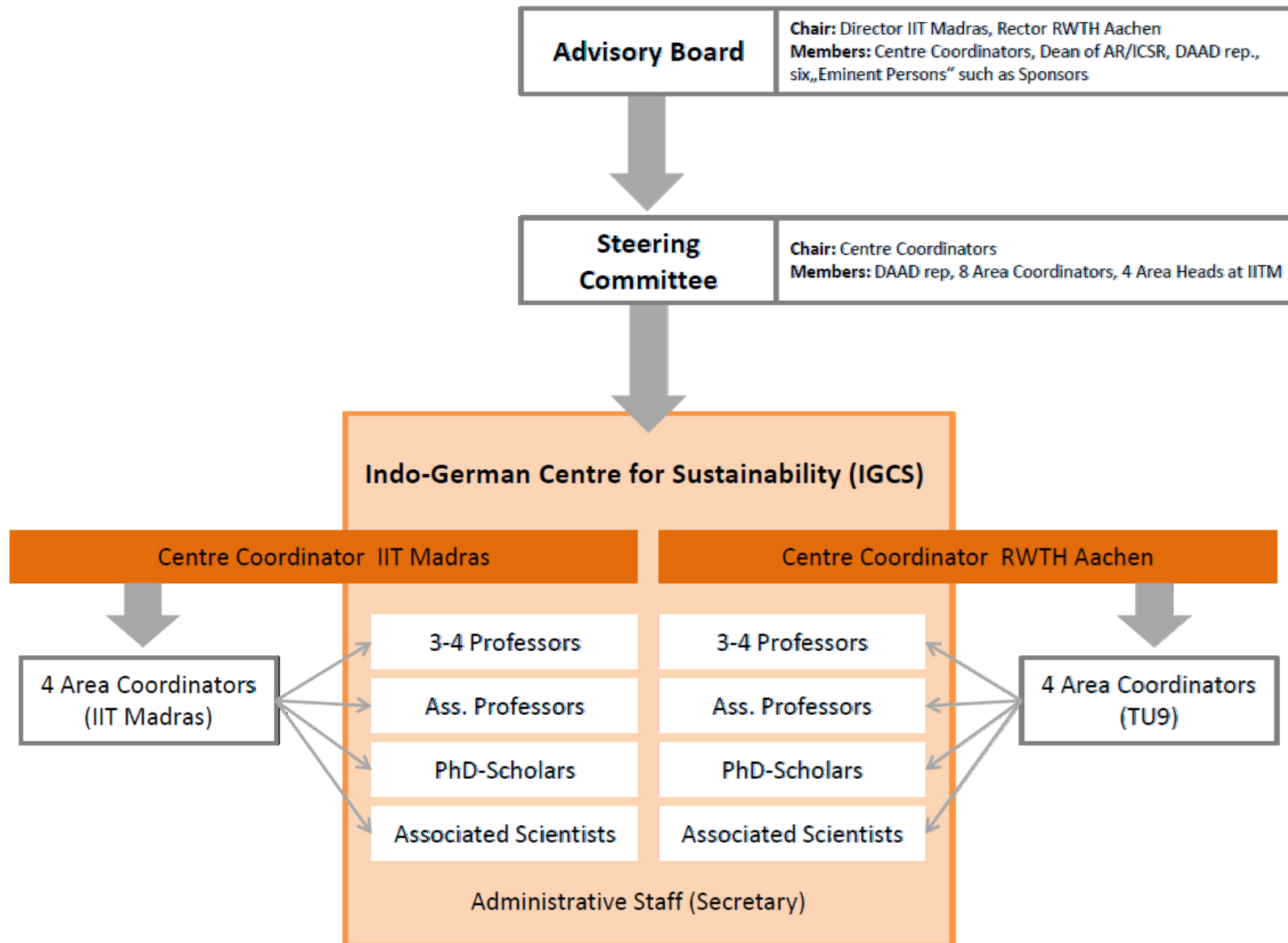
DAAD

Deutscher Akademischer Austausch Dienst
German Academic Exchange Service

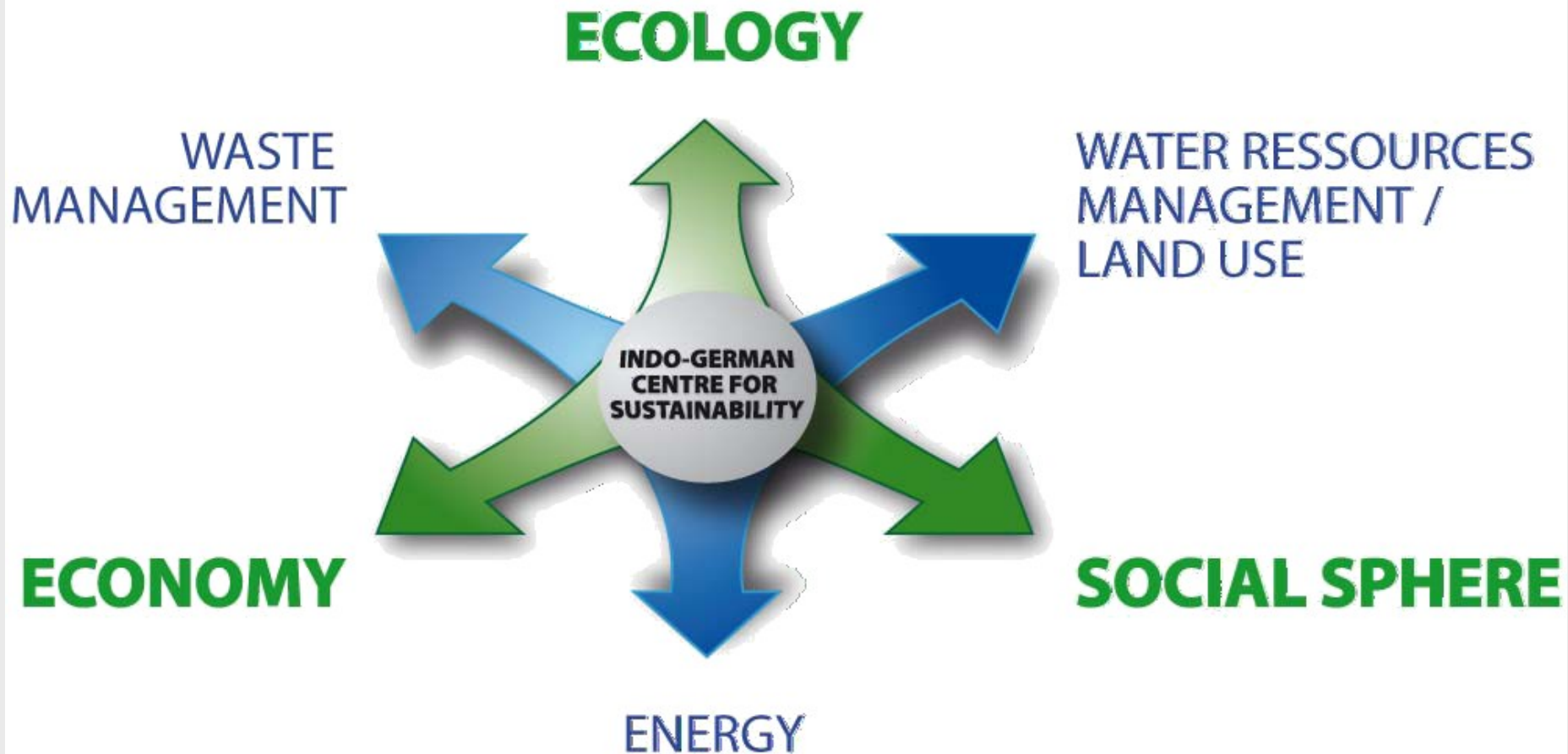


- Visit of German Federal Minister for Education and Research, Dr. Annette Schavan, at the IITM to celebrate its 50th anniversary
- DAAD Vice-President Prof. Max Huber, and the Director of the IITM, Prof. M.S. Ananth, sign the agreement on founding an Indo-German Centre for Sustainability in September 2008











Nachhaltigkeit beschreibt die Nutzung eines regenerierbaren Systems in einer Weise, dass dieses System in seinen wesentlichen Eigenschaften erhalten bleibt und sein Bestand auf natürliche Weise regeneriert werden kann.

Begriff stammt aus der Forstwirtschaft und führt auf eine Publikation von Hans Carl von Carlowitz (1713) zurück.



Sustainability:

„Development that meets the needs of the present,
without compromising the ability of future generations
to meet their own needs.“

Quality of life and possibilities to maintain or improve
this quality in the future.



Ziele IGCS:

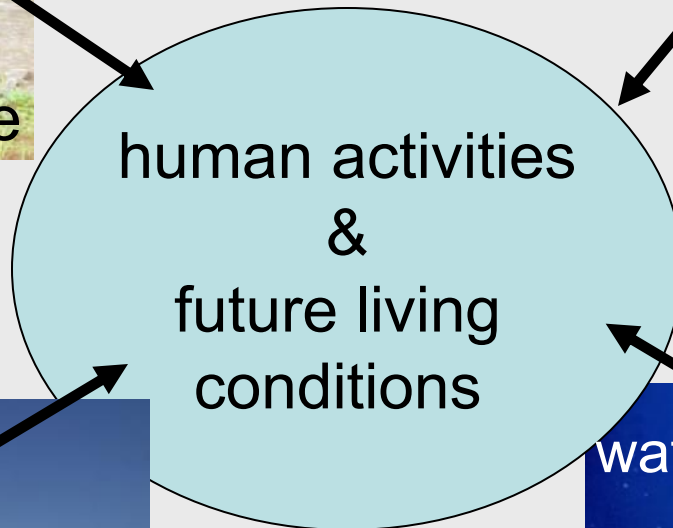
- **Inter- bzw. transdisziplinäre Forschungs- & Studienprojekte**
- **deutsch – indische Zusammenarbeit**
- **Ausweitung bestehender Kooperationen**
- **Einrichtung verschiedener Programme (Bsp.: Master- & Promotionsprogramme, summer/ winter school)**



land use/ agriculture



climate change



waste



water demand/ availability

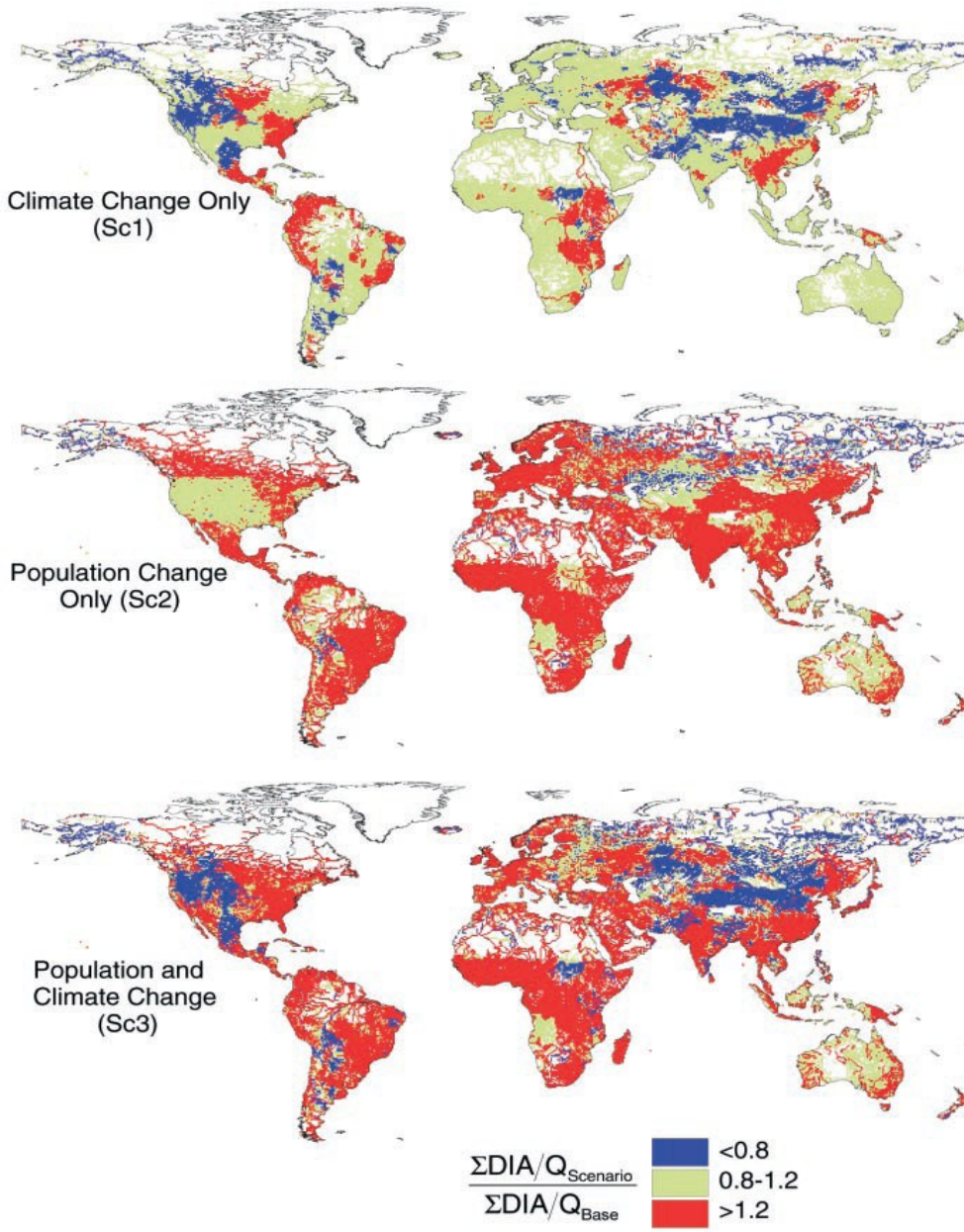
=> 1985 projected for 2025

Water reuse index:

$$\frac{\sum \text{DIA} / Q_{\text{scenario}}}{\sum \text{DIA} / Q_{\text{base}}}$$

DIA = water withdrawal
(domestic, industrial & irrigated agriculture)

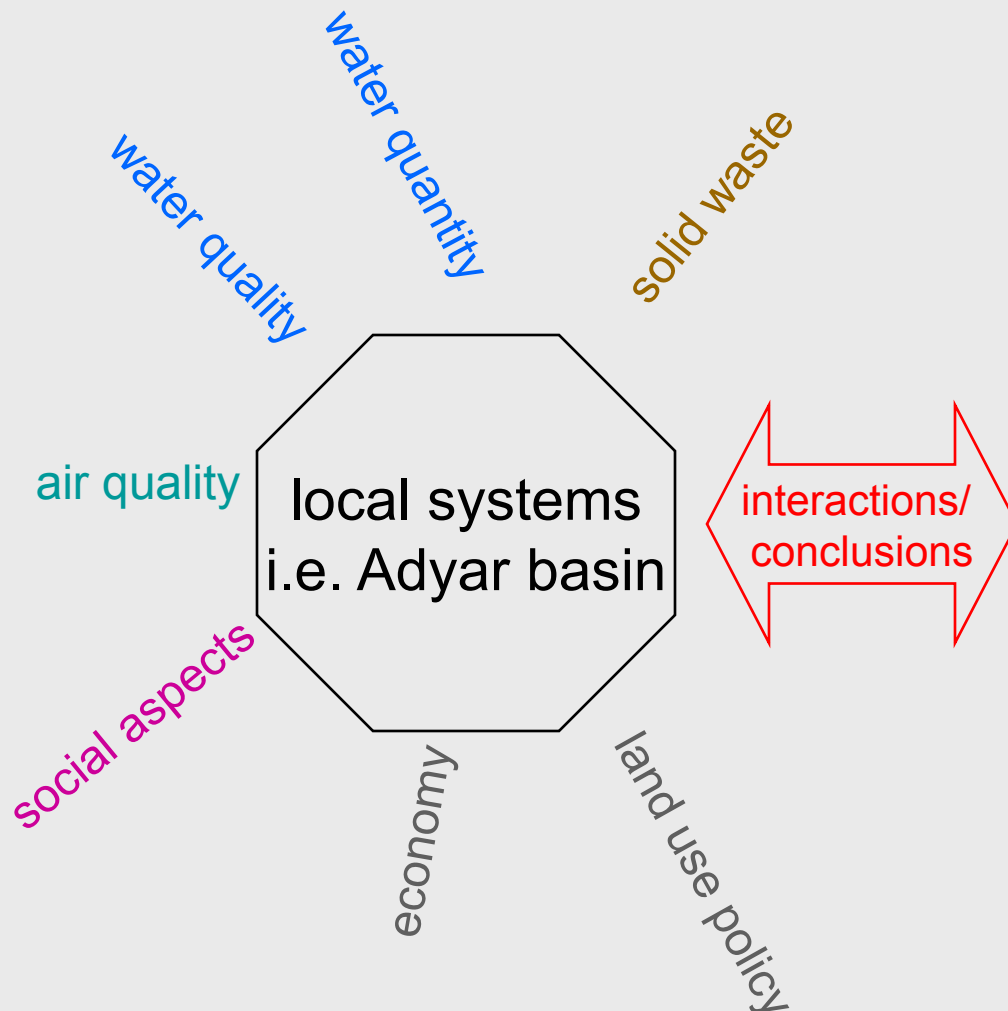
Q = river discharge



(source: Vörösmarty, C.J., et al. 1998, science, vol. 289, www.sciencemag.org)



Importance of Sustainability Research





Um den Herausforderungen der Zukunft gewachsen zu sein, müssen wir ...

- ... globale Veränderungen / Erwärmung berücksichtigen
- ... wesentliche Mechanismen, ihre Interaktionen und ihre Entwicklung auf globaler und lokaler Ebene verstehen
- ... Handlungsoptionen entwickeln



Longterm Professorships

- since June 2011: Prof. K. Steger & Prof. P. Fiener (=> water and waste)
- from Jan. 2012: Prof. S. Petrak (=> energy)

•Plus:

Shortterm Professorships

Scientists

IGCS scholarships (PhD, Master, Bachelor)



IGCS Winterschool



Course Schedule

Monday, 20 Feb 2012	Opening of the winter school & introduction
Tuesday, 21 Feb 2012	Lectures on basics of sustainability and discussion
Wednesday, 22 Feb 2012	Detailed lectures on theoretical & practical sustainability in the field of water and waste
Thursday, 23 Feb 2012	Detailed lectures on theoretical & practical sustainability in the field of energy and land use
Friday, 24 Feb 2012 and Saturday, 25 Feb 2012	Field visit and introduction of student projects
Sunday, 26 Feb 2012	Cultural program organized by the IGCS
Monday, 27 Feb 2012	IGCS Work on student projects
Thursday, 1 Mar 2012	
Friday, 2 Mar 2012	Presentation of student project, summary & evaluation of the winter school
Saturday, 3 Mar 2012	Excursion to Auroville

Participants

Young graduates or postgraduates with a BSc, BTech, MSc or MTech degree in academic fields related to sustainable development. The number of participants is limited to 10 German and 10 Indian students. Student projects will be carried out in groups of up to 4 students.



Application

Applicants must apply for admission in English. Applications must include the academic CV, a description of his/her scientific interests, a statement of the motivation for attending the course and an academic letter of recommendation. Applications should be sent by e-mail to Dr. Fotios Risvanis (rsivanis@igcs-chennai.org) until 30th November 2011. Applications received hereafter won't be considered.

Evaluation of Applications & Admission

Applications are evaluated by the organizers. Decisions on admission are taken until mid of December. Accepted applicants are informed via e-mail.

Funding

Travelling of German students (max. 10) will be funded by the IGCS. Hosting and travelling in Chennai will be funded by the IIT Madras

Teachers

Prof. Chella Raja, Head of the Department of Humanities and Social Science at IITM with a special focus on political and socio-economic aspects of sustainability.

Prof. Peter Fiener, Professor at the IGCS with a focus on water resources in agricultural landscapes.

Prof. Kristin Steger, Professor at the IGCS with a focus on decentralized waste management and eco-sanitation.

Prof. Ligy Philip, Professor at the Environmental and Water Resources Engineering Division of IITM with a strong background in decentralized eco-sanitation and drinking water supply.

Prof. B.S Murty, Professor at the Environmental and Water Resources Engineering Division of IITM, with a special focus on sediment and contaminant transport modelling, water resource management.

Prof. Ajit Kolar, Professor at the Department of Mechanical Engineering with a long background in renewable and conventional energy technology.

We will have more intellectual presence joining us for the lectures.





IGCS Master Curriculum

Compulsory (1. – 2. Semesters)	Sustainability				22 Cr.
Optional (2.–3. Sem.)	Water	Waste	Energy	Landuse / Rural Develop ment	28 Cr.
4. Sem.	Masters Thesis				18 Cr.



Chennai



search

www.igcs-chennai.org

Welcome to the IGCS

Welcome to the IGCS

About IGCS

[General Information](#)[Research](#)[Academic Exchange](#)[Advisory Board
Co-Chairs](#)[Centre Coordinator](#)[Area Coordinator](#)[Waste Management](#)

The IGCS serves the cooperation between German and Indian scientists on fundamental and applied research, teaching and training, dissemination of information in the area of sustainable development. Its special focus is the protection of the environment considering water resources, energy, land use and rural development and waste management. The Centre should promote the development of relevant ideas on and solutions to specific local issues, through interdisciplinary research and study projects in the above mentioned areas. The IGCS will additionally contribute to the intensification of Indo-German cooperation in key academic fields.

Mission

The IGCS aims at developing the capacity and the capability to promote sustainable development in Germany, India and South Asia. Sub-topics of research can be identified within the above mentioned core areas. Sustainability with respect to economic, ecologic and social issues significantly enhances the existing research activities and courses offered at the IITM. German and Indian expertise merge in joint research projects, the development of additional study programmes and in joint degree programmes.

FEATURED



First IGCS Bulletin

With the beginning of the new year, the IGCS is happy to present the first volume of the IGCS Bulletin_January 2012. Beside the latest news of the centre, it includes...

First IGCS winterschool

In February / March of this year, the first IGCS winterschool will take place at IITM in Chennai. 10 Indian and 10 German students have been



A New Passage to India.

Projektbezogenes Austauschprogramm
„Interaktion Urbanisierung und Wassermanagement“

Im Rahmen des DAAD-Programms „A New Passage to
India“, finanziert durch das BMBF.



„Interaktion Urbanisierung und Wassermanagement“

Kooperationspartner:

National Institute of Technologie Rourkela

- Austausch von Doktoranden und Masterstudenten
- 4 Doktoranden
 - 2 deutsche Doktoranden, die zunächst für 2 Jahre am indischen Partnerinstitut sind
 - 2 indische Doktoranden, die zunächst für 2 Jahre am Lehrstuhl für Ingenieurgeologie und Hydrogeologie der RWTH Aachen sind
- 12 Masterstudenten
 - 10 deutsche Masterstudenten, die für jeweils 2 Monate nach Indien gehen
 - 2 indische Masterstudenten, die für jeweils 2 Monate am Lehrstuhl für Ingenieurgeologie und Hydrogeologie der RWTH Aachen sind

„Interaktion Urbanisierung und Wassermanagement“

Fragestellung: Auswirkungen der (Mega-)Urbanisierung in Indien auf die Wasserressourcen

Untersuchungsgebiete:

- Hyderabad (Megastadt)
- Varanasi & Bhubaneswar (hochdynamische Urbanisierung)



Marktplatz in Hyderabad



Gats Varanasi

„Interaktion Urbanisierung und Wassermanagement“

Durch Dissertationen und Masterarbeiten momentan bearbeitete Themen:

- Grundwassererneuerung in der Megastadt Hyderabad
- Schadstofftransport im Untergrund
- Informelle Prozesse und Strukturen und ihre Auswirkungen auf die Wasserressourcen
- Veränderung der Lebensstile im urbanen Kontext und die Auswirkungen auf die Wasserressourcen
- Analyse der indischen Urbanisierung
- Grundwasservulnerabilität im urbanen Raum
- Abschätzung von non-point source Kontaminationen im urbanen Raum



Squatter Area



Offener Abwasserkanal



Sanjeevaiah Park Hyderabad



www.lih.rwth-aachen.de

www.waterandmegacities.org

www.igcs-chennai.org



Kooperation mit der Hochschule der Vereinten Nationen

An den projektbezogenen Austausch angegliedert:

Kleines Projekt in Kooperation mit dem Institute for Environment and Human Security der United Nations University

Thema:

Bewertung von Vulnerabilität des informellen Sektors in Bezug auf die Wasserressourcen in der Megastadt Hyderabad

