

IGCS BULLETIN

From the Editors' Desk



Dear Readers,

As this is the last issue in 2015, we do not want to miss highlighting the remarkable number of visiting researchers and students who have been and are contributing to make IGCS the vibrant and diverse place of research and cross-cultural learning that it is today. The quality of the research and interaction is important too, with some scholars staying for up to a year and others who engage in multiple visits.

In addition, more than 10 IITM student interns (from various IITM Departments) joined the Sriperumbudur

peri-urban research project for two months during the summer term break. Some of them are still continuing to work part time while others have ventured into writing their master thesis about selected topics.

We hope you find interesting readings in this issue, especially the opinion piece on The Sustainable Development Goals and India's Sustainability. Lastly, mark the date for our upcoming conference in December!

Thanking you,

**B S Murty and
Christoph Woiwode**
Editors

VOL 4: ISSUE 4 ◆ Oct 2015

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Prof. B. S. Murty



Prof. Chr. Woiwode

IGCS NEWS

Visit of the Inspector General, Federal Foreign Office Berlin

Ambassador and Inspector General Dr. Hans-Ulrich Seidt paid a visit to the Indian Institute of Technology Madras on September 24th. After meeting the IIT Director Prof. Ramamurthi, Dr. Seidt spent time with Indian and German IGCS faculty. Dr. Seidt was touring India to collect information about the ongoing Indo-German activities with a view to increase and strengthen these. Hence one purpose of his visit at IGCS was to be informed about the centre's current activities and to discuss in which way the Consulate General Chennai, German Embassy in New Delhi as well as the Foreign Office in Berlin can extend their support. He also expressed the interests of the German government in terms of focus areas of engagement in India. Thus, after a brief presentation about

the IGCS by Prof. Murty, the discussion concentrated on sustainable power engineering which is one of the key areas the German government wants to invest in and facilitate collaboration with the private sector and academic research. Another area of the German government's interest is megacities research and sustainable urban development, a highly important policy area in India with the new urban agenda to build Smart Cities. Both these areas are already part of IGCS research (collaboration with MR "Maschinenfabrik Rheinhausen", peri-urban research in Chennai) and can be expanded upon. In the future, it is envisaged to stay in close touch with the Consulate General in Chennai.



IGCS Faculty with the Inspector General Dr. Seidt (fourth from left)

Upcoming Event: IGCS Conference

Indo-German Conference on Sustainability "Exploring planetary boundaries and their challenges and opportunities", 5-6 December 2015, Indo-German Centre for Sustainability (IGCS), IIT Madras

This conference proposes to bring together researchers in academia and industry, and policy makers in India and Germany to exchange research findings, discuss and deliberate on these issues, and identify future course of action towards sustainability.

Conference website: <http://www.igcs-chennai.org>

BayInd Visit on 29th August 2015



Participants of the BayInd Excursion while visiting IGCS on IITM campus

The Indo-German Centre for Sustainability (IGCS) received Ms. Doerfler, Manager of the Bavarian-Indian Centre for Business and University Cooperation (BayInd), and 19 German students coming from various backgrounds and universities of the German State of Bavaria for a one-day field visit on August 29, 2015. The visitors were received by Dr. Franziska Steinbruch, IGCS Visiting Professor at the Indian Institute of Technology Madras (IITM).

This was followed by a visit to the Heritage Centre of IITM. The Heritage Centre brings together documentaries about the environmental specialties of the IITM campus due to its vicinity to the Guindy National Park. More importantly, the Heritage Centre exhibits memories of great moments of IITM which were especially the first years of the history of IITM and assistance from German universities.

The campus visit at the Indian Institute of Technology Madras began with an overview about the IGCS activities while the participants were amazed by the greenery and wildlife of the campus. The students heard about the type of projects developed by IGCS and the opportunities of how to get involved themselves in research in India.

After a good Indian lunch at the Taramani Guesthouse on IITM campus the group set for a visit to the Rain Centre in Mandavelipakkam, downtown Chennai.



IGCS at the IFAT 2015

IGCS participated in the IFAT2015- India's Leading Trade Fair for Water, Sewage, Refuse and Recycling in Mumbai from 13-15th October 2015. Dr. Franziska Steinbruch, Visiting Professor of IGCS at the Indian Institute of Technology Madras took part of the session on "Environmental Education and Innovation" in the Innovation Exchange Forum on October 15, 2015. This session was jointly presented by the University Hof, Indo-German Centre for Sustainability, and Indo-Bavarian Centre. Dr. Steinbruch delivered a talk about "Challenges of sustainability in water resources management in ancient times and today".

IFAT2015, it still received a remarkable attention from the visitors of the fair.

The visit also served as an opportunity to meet with South-Asian DAAD Alumni of the water, sewage and recycling sector, to talk to representatives of the German Water Association and the German Water Partnership as well as individual professionals and company representatives. Dr. Steinbruch also attended an invitation to a special reception by the German Consul General of Mumbai.



The talks were followed by a panel discussion led by Prof. Lehmann - President of University Hof Prof. Wimmer and Prof. Schmid of University Hof, Ms. Lorenz of BayInd, and Dr. Steinbruch of IGCS. Though this session took place in the afternoon before the closing of the



The panel group: (ltr) Prof. Wimmer, Prof. Lehmann, Ms. Lorenz, Prof. Schmid, Dr. Steinbruch (photo Ms. Doerfler)

Workshop on Sustainable Water Resource Management: Perspectives from Europe and South Asia



Together with the Dr. Christoph Woiwode, IGCS Visiting Professor, Heidelberg Centre South Asia, gave a presentation on “Institutional Issues of Land and Water in peri-urban Chennai: the case of the German Sriperumbudur”. A diverse range of topics were covered during the two-day event, ranging from IT-based solutions to public-private partnerships, urbanisation, and from the Himalayas and the North-eastern region to the coastal regions. It was an excellent opportunity to exchange views and approaches, present initiatives and ideas, and last not least jointly identify commonalities for further research towards innovative solutions to secure sustainable and efficient water resource management on 28-29

September, 2015. The event brought together more than 30 scholars, experts and practitioners from Germany and India from both the public and private sector, such as University of Kashmir, Jawaharlal Nehru University, National Institute of Urban Affairs, TERI University, Coca Cola India, Free University Berlin, Heidelberg Centre for the Environment, Technical University Munich, and GIZ (German Development Agency), among others.



Upcoming Event

Expert Meeting on “Recent advancement in online/remote water quality monitoring and management technologies”

Professors from RWTH Aachen University / Indo German Centre for Sustainability (IGCS) at IIT Madras and the Department of Mining Engineering of Anna University in India will jointly organize an expert meeting from 2-4 February 2016 in Chennai, India. This expert meeting is funded by the Indo-German Science and Technology Centre (IGSTC) and will support the travel expenses of up to 10 participants from German institutions and 10 participants from Indian institutions. Applications will be selected based on a first comes first approach and the specific contribution proposed by the applicant to the expert discussions.

Contact: Dr. Subramani | geosubramani@annauniv.edu and Dr. Franziska Steinbruch | steinbruch@igcs-chennai.org

Kindly visit the IGCS homepage for further details: <http://www.igcs-chennai.org/?p=4081>

IGCS Research Scholars



Dr. Karl Beelen has joined IGCS as a postdoctoral research fellow from September 2015 onwards. An architect and urbanist by training, Karl Beelen is an affiliated member and

visiting lecturer of Heidelberg University's Cluster of Excellence 'Asia and Europe in a Global Context' (Germany). During his stay at IGCS he will assist IGCS in its on-going project on "Climate change adaptation and resilience in periurban Chennai" (initiated by Prof. Christoph Woiwode and Prof. Sudhir Chella Rajan) by investigating sustainability from the perspective of 'the future' and its grassroots imaginations in the context of (periurban) Chennai.

By looking into rooftop gardeners, organic farmers, heritage conservationists or civil action groups that seek to re-discover the cultural landscape of the city (in terms of its food, heritage, roads or rivers), Karl wants to gain a better understanding of the strategies and imaginations that people deploy in response to their own living environments - whether directly through concerted civil action or indirectly through an array of dispersed small-scale initiatives in and outside the city. The idea is that mapping out these initiatives will contribute to a better understanding of the urban condition presently emerging in the 'fringe' – both geographically and metaphorically – of the expanding city, revealing these networks of grassroots imagination as potential assets to the construction of more sustainable or innovative urban futures. The supporting fieldwork (interviews, field trips and initial exploratory mappings) is expected to take place until September 2016, the end of Karl's stay at IGCS.

Luise Haufe studies Urban Ecology (Urban Ecosystem Sciences) at the Institute of Ecology at TU Berlin. She will write her master thesis at the IGCS on "Regional Centres in South India: water man-



agement in medium-sized towns" supervised by Prof. S. Chella Rajan and IGCS Visiting Prof's. Christoph Woiwode and Franziska Steinbruch. She arrived at IITM in November 2015 and will stay until March 2016. In her master thesis she aims to point out how regional centres can provide institutional, social and economic infrastructure for their regions (taluks) if they are supported by a state and national policy which targets a balanced urban development and furthers the qualitative development of towns and their rural regions. On a larger scale the urbanisation pressure for metropolises such as Chennai can be lowered to make their growth manageable in a sustainable way if a grid of smaller regional centres was supported.

The focus of the master thesis is on water infrastructure, i.e. fresh water distribution as well as waste water management. It is important to reconnect those two topics as they are often researched separately even though they form one process through the natural water cycle. Traditional techniques of water saving and provision as well as common practices of treatment and discharge are of special interest and will help to develop scenarios. Possible research locations are Sriperumpudur and Ponneri near Chennai and Doddaballapur near Bengaluru.



Mr. **Markus Maaßen** Madras, Chennai, (B.Sc.) from RWTH Aachen University is staying from October to December 2015 as a IGCS scholar at IIT Madras. He is studying Environmental Engineering at RWTH Aachen University with a focus on Water Re-



sources Management. He is working with Prof. Sudheer, Prof. Indumathi (both IITM) and IGCS visiting Professor Dr. Franziska Steinbruch in a Project concerning the Pallikaranai Marshland in the South of Chennai.

This Marshland has been affected by several changes in the last decades: From urbanization, encroachment and infrastructural measurements to heavy pollution by a dump site inside the marshland and a water treatment plant which is discharging in it. As this marshland has a very high biodiversity which was just discovered in the last years, it is in danger from an ecological point of view. Further, on one hand the ground water level (for drinking water) is decreasing and the ground water getting polluted while, on the other hand, the flood risk has increased due to sealing and urbanization. Mr. Maaßen is analyzing the hydrological drainage pattern of the marshland - the status quo, a reference scenario and a possible sustainable hydrological drainage system with regard to land use and land cover change. Therefore he will focus especially on ground water and flooding as impacts. But he will also analyze the changes in water and ground water quality as further indicators for human footprint.

Nils Jautzus, Master student, Bauhaus University Weimar (Chair of Urban Water Management and Sanitation), arrived in October 2015 and will do his student research project on the topic of "Sustainable waste management & resource recovery for clean and healthy village – Ezhil Nagar, Vichoor" at IGCS/IIT

Madras, Chennai, (B.Sc.) from RWTH Aachen University is working with Prof. Ligy Philip and Prof. B.S. Murty from the Department of Civil Engineering. Within this project he will explore the possibilities for sustainable treatment of gray water and the effluent from septic tanks of 300 households in Vichoor Panchayat. He will be taking gray water samples and samples from the septic tank effluent from several households and analyze them for their characteristics. Based on the analyses results, he will design a treatment system such that treated wastewater can be used for horticulture, flushing, etc.

B. Eng. **Nicolas Röther** works as an IGCS research fellow in Prof. Ligy Philip's and Prof. B. S. Murty's (Department of Civil Engineering, IIT Madras) project "Sustainable waste management & resource recovery for clean and healthy village – Ezhil Nagar, Vichoor". He studies Environmental Engineering and Science at Bauhaus-University Weimar in Germany. He arrived at IIT Madras in October 2015 and will stay until January 2016.



Within this project he analyses the feasibility of organic waste treatment through composting under local conditions. Therefore the organic waste will be tested to see if it fulfills the key factors for successful composting like C:N ratio, moisture content, temperature etc.

OPINION

The Sustainable Development Goals (SDGs) and India's Sustainability

Dr. Avilash Roul

While the Millennium Development Goals 2.0 - Sustainable Development Goals (SDGs)- were adopted at a special UN Sustainable Development Summit in New York this year, households in Nemili Village Panchayat and Irrengatukote Village Panchayat in Tamil Nadu were receiving drinking water once in a week. This is neither a stray story confined to few villages in water stress Tamil Nadu nor in India. Among eight Millennium Development Goals (MDGs) which were approved in 2000, including safe drinking water and sanitation, India has missed few targets and reached others during these 15 years. As claimed by the Indian Prime Minister during his address at the UN on 25 September 2015 that 'much of India's development agenda is mirrored in the SDGs', the question inevitably arises, will India meet the 17 SDGs with associated 169 targets by 2030?

Since the coinage and popularisation of 'sustainable development', 'environmental sustainability' or merely 'sustainability' in the development lexicon, the discourses and debates of ambiguity have utterly been confined to environment. Despite the profiling of 'sustainable development' (SD) in 1987 and its formal approval in 1992 at the Earth Summit in Rio de Janeiro, the world has deprived immediate generations' capacities (which are already in their late 20s) either to cope with the global environmental challenges or utilize resources at their disposal judiciously.

The concept of sustainable development (SD) generally refers to achieving the delicate balance among the social, economic and environmental mainstays of sustainability. However, both environmental and economic dimensions are commonly being represented through the SD by leaving social aspects under-linked

and under-represented. Like many other developing countries, India too has imbibed the environmental dimension of SD with a right to economic development. To extend a tacit support to this claim, the International Financial Institutions like World Bank has followed 'environmental sustainability' as the core component in its lending operations in India and other countries. Off late, the SDGs have resurrected comprehensively the social dimensions of SD.

Unlike MDGs, the SDGs are a product of extensive inclusive consultations spanning more than two years. Along the Open Working Group (OWG) that involved 90 countries, the UN organized a series of global conversations on 11 themes, 80 in-country consultations and one to one surveys. While Indian general public largely missed an opportunity to engage in the process, the government had been active in injecting its viewpoints till the approval of the SDGs.

Being representative of the Asia Pacific Troika of India, Pakistan and Sri Lanka, from the first OWG meeting in March 2013 till the final draft of SDG, India reiterated its basic understanding and perspective on SD as anchored on 'poverty eradication' and hunger as the priority goal (SDG 1). Since 1972 at the UN Conference on Human and Environment and or prior to it- the moment of bringing environmental concern of the developed world and economic growth oriented agenda of the developing world-, India's then Prime Minister exclaimed that 'poverty is the worst polluter'. By and large, India has been sustaining this position till now, which otherwise would be reflected in the coming 21st Conference of Parties of the UN Framework Conference of Climate Change (UNFCCC) in Paris.

India had propagated, as the Indian Prime Minister reiterated in his speech in the UN General Assembly, that the sustainability agenda must ensure and incorporate in spirit and letter 'economic prosperity, social cohesion and environmental protection' through the Rio Principles adopted at Earth Summit in particular of "Common But Differentiated Responsibilities" (Principle 7). Subsequently, India contributed in inserting 'Sustainable Consumption Pattern' and dedicated focus on economic growth, full employment, infrastructure and industrialization into the final SDGs.

The 2030 Agenda for Sustainable Development, referred to as 'Charter' or 'Global Action Plan' for coming 15 years, interlinks three pillars of SD, not exclusively, as social (Goals 1-6), economic (Goals 7-12) and environment (13-17). However, from the outset, the SDGs are not binding to any government to follow or implement, at best to monitor. It is estimated that SDGs could cost as much as \$ 172.1 trillion over the 15 - year time frame. However, the international commitment has not proportionately matched implementation of the ambitious goals and targets.

Countries announced commitments related to Official Development Assistance (ODA). While France announced additional \$ 4.4 billion, Germany stood by its pledge to use 0.7% of gross domestic product (GDP) for development assistance with an increase in coming years. The negotiations on climate finance have overshadowed the financial commitment for SDG. The success of these ambitious goals is squarely depending on the international finance with domestic fund dedicated to SDGs, political will to rally behind SDGs and inclusive and accountable framework of implementation of SDGs.

India's response to the SDGs was reflected by the Prime Minister's speech at the UN. Despite its non-binding character, it is to be keenly observed as to how the Indian government will be able to implement these Goals and targets from 2016. According to the 2015 UNDP Report on 'India and the MDGs: Towards a Sustainable Future for All', 'India has

made notable progress towards reaching the MDGs but achievement across the Goals varies'. Similarly, Millennium Development Goals India Country Report - 2015 prepared by Government of India noted remarkable progress in achieving Goals. Notwithstanding highlights of Government of India and UN reports, India remains home to 194.6 million population undernourished and over a third of the world's underweight children.

The national plans and goals of India are ambitious too as adding capacity of 1.75 GW of renewable energy in the next seven years, promoting energy efficiency, putting tax on coal, enhancing afforestation program, reforming transport sector and cleaning cities and rivers. Will it be pragmatic to reach energy target adhering to lower carbon emissions? The impressive low carbon path, which espouses nuclear power and hydropower among other non-fossil fuels, will face a firm opposition on the ground due to its severe social and environmental consequences. The current rate of forest diversion to other uses like coal mining, power generation, construction of roads or ports is approximately 35,000 ha annually. In September 2015, various proposed and pipeline projects proponents have asked permission for the diversion of 3414.84 ha of forest land. Tree plantation can't supplement the loss of natural growth forest.

India's present economic growth model must not downplay the gaps in social and environmental dimensions of SD. The understanding and capacity to adhere and implement SDGs need to be percolated to the lowest governing institutions with informed participation of citizens.

Dr Avilash Roul (Ph.D.), Senior Fellow, IGCS. Contact: avilashroul@gmail.com

Forthcoming Conferences

2nd Annual International Conference on Poverty and Sustainable Development (ICPSD 2015)

15th to 16th December 2015
Colombo, Sri Lanka

Website: <http://povertyconferences.com>

Contact person: Isanka P Gamage

Submit Your Abstract/proposal to the ICPSD 2015. All accepted abstract and full papers will be published in the refereed conference proceedings with ISSN (ISSN 2362-1028) & indexed in the Thomson Reuters, SCOPUS, Mendeley, CiteULike and Google scholar.

Deadline for abstracts/proposals: 15th November 2015

International Conference on Sustainable Development 2015 Indonesia.

1st to 3rd December 2015
Jakarta, Indonesia

Website: <http://www.ontariointernational.org/WebsiteIndonesia2015/introduction.htm>

Contact person: Neville Hewage, Muhammad Zilal Hamzah, Bambang Sudaryono, Henri Pallard

This conference has the following objectives (a) to provide an interdisciplinary forum on global sustainable development for practitioners and academics (b) to foster dialogue among various stakeholders

Organized by: Ontario International Development Agency, Canada, Trisakti University and Indonesian Business School (STIEBI), Jakarta, Indonesia.

Deadline for abstracts/proposals: 5th November 2015

2016 Sustainability Conference: Urban Sustainability: Inspiration and Solution - A Common Ground Conference

21st to 23rd January 2016
Portland, Oregon, United States of America

Website: <http://onsustainability.com/the-conference-2016/call-for-papers>

Contact person: Common Ground Publishing

This interdisciplinary conference and its companion collection of journals invite scholars to discuss sustainability through a holistic perspective, where environmental, cultural, economic, and social concerns intersect.

Organized by: Common Ground Publishing

Deadline for abstracts/proposals: 21st December 2015

Environment News...

Guidelines for Green Urbanisation

(*excerpts from The Hindu, Oct 3, 2015*)

By 2030, India's total built-up space of 25 billion sq. ft. is expected to increase to 80 billion sq. ft. and by 2031, around 600 million people would have made urban India their home. With nearly two thirds of India's 2030 building stock yet to be built, there is significant scope for the large-scale implementation of sustainable urbanization across the country.

Addressing the need to build sensitively, state governments have now agreed to comply with the proposed environmental guidelines for construction projects in urban areas. At a recent workshop organised by the Ministry of Urban Development, over 30 parameters that need to be complied with for efficient management of energy, water, land, solid waste, air quality and noise levels during pre-construction, construction and post-construction, were pointed out. Complying with the newly regulated norms means that the developers have to mandatorily adhere to the guidelines.

The new guidelines:

1. At least 1 percent of connected applied load of power shall be met from renewable energy sources such as photovoltaic cells or wind mills.
2. A regular energy audit shall be ensured through energy auditors certified by the Bureau of Energy Efficiency.
3. One tree shall be planted for every 100 sq.m. of land area. When trees are to be cut or transplanted, compensatory plantation of 3 trees for every cut to be ensured.
4. A rainwater harvesting plan to be designed providing one recharge bore for every 3,000 sq.m. of land area.
5. Sewage treatment plants shall be installed to ensure treatment of solid waste generated.
6. Natural flow of storm water channels can't be altered without the approval of competent authorities. Entry and exit points of such channels must be retained.
7. Fertile top soil must be retained and reused on the site.
8. Separate wet and dry bins to be provided at the ground level to facilitate segregation of waste.
9. Possession of buildings to be handed over only after drainage and water connections are in place and the no objection certificate is obtained from the competent authority.
10. Organic waste composter/vermiculture pit with a minimum capacity of 0.3 kg/tenement/day to be installed.

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**The IGCS Bulletin appears quarterly in the months of January/April/July/October.
Please contribute news items or features at least 15 days in advance of publication.**