# IGCS BULLETIN

# From the Editors' Desk



#### Dear Readers,

Due to the summer term break both in India and Germany the bulletin is delivered to you with some delay. In spite of this you will find that many activities were going on. Our flagship event, the Summer School, was hosted by TU Berlin in July on the topic "Two Carbon Fuels of Different Ages: German and Indian Perspectives". Avilash Roul, Senior Research Fellow at IGCS, discusses with ocean governance a rather marginal area of international Thanking you, sustainability politics. With sadness IGCS faculty had to bid farewell to Dr.

Franziska Steinbruch, who was the long-term Visiting Professor for Water Management from January 2014 till June 2016. With her professionalism and comprehensive expertise and experience, Franziska has left a significant legacy in research, teaching and outreach of IGCS that will last for a long time. Wishing her all the best for the future, we are all going to miss her as a colleague and friend.

Enjoy browsing through the news of this issue! **B S Murty and Christoph Woiwode** Editors



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#### Contents

IGCS NEWS	2
OPINION:	11
Ocean Governance: 'Samudra Man- than' 2.0	





Prof. B. S. Murty

Prof. Chr. Woiwode

# **IGCS NEWS**

# **IGCS Summer School at TU Berlin** "Biomass and Coal – Two Carbon Fuels of Different Ages: German and Indian Perspectives"

On Sunday July 10<sup>th</sup> 2016 the two week long IGCS call "gemütlich" – comfortable or good natured – the Summer School focusing on energy situations with boattrip on the rivers and channels of Berlin on the special regards to coal and biomass started at TU historic ship MS Pauline. Students, lecturers and the Berlin. The opening ceremony was lead by the Area organization team were able to focus on the other Coordinator Energy and host Prof. Frank Behrendt to main part of this school and started their socializing welcome all international and national guests. This and exchange of experiences. As the (partly) vegetarwas followed by some addresses from the Indian ian BBQ was eaten and the German beer was en-Area Coordinator Energy Prof. Krishan Vasudevan, joyed everyone got to see some of the most famous the Indian Centre Coordinator Prof. Chella Rajan and sights of Berlin, like the "Museumsinsel" (museums our special guest from the Indian Embassy, Mr. T. V. island, left) and the "Fernsehturm" (TV tower, right). Ravichandran.

After the first two presentations describing the over- cussions. Complementing this the group was split up all energy systems and situations in Germany and into smaller working groups to develop different India we came to a part that we in Germany like to projects. Next to our theoretical topics involving oxy-

Each student took part in the lectures and lively dis-



Fig.: Participants of the Summer School 2016 in Berlin

fuel CO<sub>2</sub> 3,000 MW, capture consists of and a life- six 500 MW cycle anal- blocks ysis of a (pictures on coal power top left and plant the right.) partici-



partici-An imprespants were

invited to work experimentally and therefore handson on the topics of biomass gasification and coal liquefaction. To keep the free time to a minimum students had to present their acquired knowledge during a special session on the last day of the school.

If free time did occur Berlin offered a lot of possibilities to fill it. During our school the FIFA European Football Championships took place and it is always nice to spend an evening at the local "Biergarten".

To keep everyone on their feet two industry visits were included in this year's summer school schedule. First, students, professors and the organization team took a trip to the very eastern part of Germany, visiting Vattenfall's lignite-fired power plant in Jänschwalde. This power plant being the largest lignite power plant in Germany with an installed capacity of

sive tour included taking a look into combustion chambers, walking around huge machinery and even taking a look into the control offices of the blocks.

On the following day the participants were able to visit a combined heat and power station in Berlin's district Neukölln.

We would like to thank all the participating students, lecturers, and members of IGCS for making this a very educational and memorable experience.

Frank Behrendt, Marie-Theres Scharl

(Pictures kindly provided by Deepak Tripathi and Oliver Löschke)









#### July 2016

#### **BYBASSLAB**

Infrastructures of the peri-urban fringe

#### A seven-day hack lab on data gathering, visualization and design research in Chennai

plots, special economic zones (SEZs), mobile food- facilitating its expansion - is a paradigm of Indian stalls, degree coffee chains, desolate wastelands, (sub)urban development, and of its inherent contrawalled-off farms, weaving colonies, and middle class dictory nature. But it is also a paradigm of the many aspirations. These are some of the themes that par-vernacular initiatives that, while bypassing reticipants looked at as part of IGCS' bypasslab - a sev- strictions, re-inscribe the subject and try to make en-day research lab on empirical urban exploration sense of place and space. Although my research has and urban research. To conduct the lab, IGCS part- focused mainly on urban remote farmers and counnered with the Rajiv Gandhi National Institute of ter-mappers, the lab offered an opportunity to ex-

Fly-overs, gated townships, ubiquitous investment road – circumventing the city while at the same time

Youth Development (RGNIYD), whose campus is located in Sriperumbudur, some fifty kilometers out of Chennai, right within the city's fastemerging and desperately underexposed urban fringe. Guided by daily input sessions and examples from research practitioners across India, it aimed to leverage its position 'out there, in the field' to try out new approaches and pull out fresh narratives on India's rampant peri-urban transformation.

The name of bypasslab is a direct reflection of the lab's own particular gen-

esis. It is both a reference to what it seeks to do, as To investigate these underlying 'infrastructures' the well as to what it seeks to look at.

On the one hand the lab is directly rooted in, and grafted on, my individual research as a post-doctoral fellow here at IGCS. This on-going research seeks to discuss the transforming Indian urban landscape through the metaphor of the bypass. The bypass



pand that focus and look at a broader set of methods - both emerging and existent - to bring those and other 'bypass' initiatives into view.

On the other hand, and quite simultaneously, the name of the bypasslab also refers to the critical distance that it sought to organize vis-à-vis IGCS' own two-year project on peri-urban Sriperumbudur, which served as the larger platform to this postdoctoral research. The lab takes the 'periurban' as an empirical point of access; as a spatial outcome of underlying logics and practices.

lab pushed for participants to come up with their own tools, categories, and 'lenses' of observation beyond those of existing maps, surveys, or questionnaires. Is peri-urban Chennai becoming urban or rural, depleting or filling up, or yet something different altogether? Bypasslab as a name thus served as a sobriquet for two central questions: Can we use the

format of the 'lab' and its forwarded position in the heart of peri-urban Chennai (Sriperumbudur), as a testing ground for a broader set of methodologies? And can it also serve as a fitting moment to reflect on what it means to be doing research in a vast, sprawling context like peri-urban Chennai?

To meet this challenge, the bypasslab invited 30 participants, which it handpicked from over 200 applicants across India. Ranging from practitioners in urban design, planning and data analytics, to students in geospatial analysis and development studies, participants were arranged into six multidisciplinary

outfits. During seven consecutive days each group tried to leverage peri-urban Chennai as a site for novel ways of looking, investigating and re-thinking fieldwork.

They were assisted in this work by a week-long program of lectures and input sessions. Deepta Sateesh of the Design+Environment+Law Laboratory in Bangalore, brought in the pivotal notion of design inquiry as a tool to focus on time, practices and rela-

tionships in urban settings. Durganand Balsavar, design chair of VIT School of Architecture in Vellore, invoked the larger history of peri-urban Chennai ('Investigating Desolate Peripheries') and particularly the city's halfhearted engagement with planned satellite townships over the last half-century. Kiran Keswani and Seetha Raghupathy drew on their own work to highlight the complexities of the social street-scape and the potential of remote sensing respectively in the context of South Asian urbanisms. Arunava Dasgupta, finally, head chitecture's Department of Urban Design, put the last chip of information on the participants' table before all of them



Fig.: «Liminality in water bodies» – presentation panel. (c) Vivek Rakotu, Henrik Otte, Paras Tyagi, Anuradha Suryavanshi.

would dive headlong into the last night of work ahead of the final presentations. Drawing on over a decade of observations and student design work in the distant mountain regions of Himachal Pradesh, Prof. Dasgupta brought home the argument that the peri-urban is not a zone in the margin of the city but that it can be found in the most remote mountain locations.



of the Delhi School of Planning and Ar-<br/>chitecture's Department of Urban De-<br/>sign, put the last chip of information onFig.: «Negotiability on the peri-urban fringe» – presentation panel.<br/>(c) Ashwin Suresh, Ishwarya Ramachandran,<br/>Nirupama Jayaraman, Parisutha Rajan.

In retrospect, however, the most defining point of organizers, but once the six groups had found ways the week, materialized around the work of Mapbox, to handle their internal multidisciplinary set-up and a US-based data visualization and mapping company whose Indian office is in Bangalore – currently home to India's most vibrant open source and open data community. Mapbox's work revolves around visual mapping of interfaces and open-access data in cities. Through their own work and the individual feedback provided to each of the six groups, Mapbox's Arun Ganesh, Sajjad Anwar and Pratik Yadav imparted the insight on the participants that there is a lot more to a map than just buildings and streets, and that visual media, including maps and drawings, remain essentially open to entirely different sets of data than those that we are customarily exposed to. Together with Siddharth Hande's consecutive presentation (Siddharth is a geospatial analyst and founder of the Urban History Project in Chennai), Mapbox's examples hinted at the fact that methods like GIS, mapping and geo-hacking have now become so accessible and easy to use, much like photography in sixties' American suburbia, that they are becoming feasible as wide-spread, grassroots tools of observation and critique - incidentally also one of the lab's starting assumptions.

After six days of fieldwork, the workshop rounded off on Saturday July 2<sup>nd</sup> with six well-conceived presentations. No output had been put forward by the lab's

July 2016

composition, all of them came up with highly individual contributions that reflected their research trajectories over the last six days. The width of investigations was therefore quite broad - pursuing research themes ranging from social gatherings, the liminality of water bodies, peri-urban porocities, urban weaving, and negotiability, up to spatial economies of kadai food stalls. These outcomes will be presented in an upcoming bypasslab report to be published by IGCS in September 2016. This report should, in turn, pave the way for an ensuing publication that puts experimental, design-led research on peri-urban India on the global map.

#### Karl Beelen

Organizer of the BYPASSLAB and Postdoctoral research fellow at IGCS.

Special thanks go out to following people without whose help, assistance and support this lab's first installment would not have been possible: Lalit Kishor Bhati of Path Planning & Architecture in Auroville, Deepta Sateesh of the Srishti Institute of Art, Design and Technology in Bangalore, as well as Vidhya Mohankumar and Abinaya Rajavelu of the Urban Design Collective in Chennai.

# **Upcoming Events**

#### **DWIH Annual Conference on "CityScapes"**

#### New Delhi, 29 September to 1 October 2016, India Habitat Centre

The German House for Research and Innovation under the leadership of the German Academic Exchange Service (DAAD) is organizing this conference. Topics that will be discussed during the event range from Smart Energy & Constructions, Climate & Environment, Cybersecurity, Smart Cities: Industry Perspective, Cities and Migration, and Mapping Human Skills. Book readings by authors from Germany and India who write about the city complement this event.

IGCS has co-organized and will Chair the session "What futures for sustainable peri-urban regions?" Prof. Sudhir Chella Rajan and Visiting Professor Dr. Christoph Woiwode will be part of this event.

For more information and registration please visit: www.dwih.in/cityscapes

(See also the poster at the end of the bulletin)

# Indo-German Symposium in Berlin on "Smart Cities: Challenges and Opportunities"

Prof. Chella Rajan and IGCS Visiting Professor Christoph Woiwode took part in this event on 27-29 April 2016, organised by the Indo-German Science & Technology Centre (IGSTC) in association with FICCI (India), Nexus Institute (Germany) and PTV AG (Germany). This symposium attracted more than 80 participants from India and Germany across academia and the corporate sector to promote Indo-German research partnerships. Each one of the three days followed a different format of interaction. Day one was packed with Indian and German 'tandem' talks followed by discussions on key issues such as concept of smart cities, energy and buildings, waste management, water and mobility. Day two offered an opportunity of interaction among participants in several working groups along these key themes. Two input lectures for these workshop sessions provided additional grounding for the sharing of ideas, one was delivered by Christoph Woiwode on "Urban Governance and Smart Cities in India". Excursions to localities in Berlin to one of three different showcases were organised on the third day (photo).

#### New collaboration with TU Berlin

Resulting out of this interaction is a new collaboration between IGCS and the Institute of Urban and Regional Planning, TU Berlin, in the project Indo-German Smart Initiative - Knowledge Transfer on Integrated Urban Development for Indian Cities within the framework of the BMBF call "Marketing for Germany as a location for Innovation". Lead by Prof. Elke Pahl-Weber, TU Berlin, the Indo-German Smart Initiative - comprising public and private research institutes as well as architecture, planning and engineering firms in Germany - and Indian partners like the School of Planning and Architecture in Delhi, a series of urban Laboratories (UrbanLab) and other formats will be developed to enhance the sciencepractice cooperation and Indo-German knowledge transfer within the Indian Smart Cities Mission.



Photo: EUREF Campus – Innovation Centre for Mobility and Social Change, Berlin



## IGCS Collaboration with GIZ on "Cities fit for Climate Change"

#### **Project Background**

Since the beginning of the year, IGCS faculty Dr. Franziska Steinbruch and Dr. Christoph Woiwode have developed this new collaboration with GIZ. This has been strengthened by a GIZ funded intern, Franziska Baack, who is currently working at IGCS (see visiting scholars).

The Cities Fit for Climate Change global project is focused on answering the question of how cities can cope with the risks of and mitigate climate change. Because there are no universally applicable solutions, existing concepts for resilient low carbon urban development will be analysed and compiled in a sourcebook, and selected cities supported in developing case-specific climate-friendly strategies. The project is active in three partner cities: Santiago in Chile, Chennai in India and Durban in South Africa, which were selected in agreement with the relevant national ministries and authorities.

The cities determine their project priorities, e.g. the climate-proofing of instruments, strategies, processes and regulations, or the development of financing options for realising available climate protection and adaptation concepts. The partner cities will exchange cities have already made and will continue to make knowledge with each other and with German and other cities within the framework of the 'Connective ment News page 10). Cities' network. To facilitate this, each of the partner

cities will host an annual workshop where representatives from German cities and the other partner cities will come together to share their insights into climateappropriate urban development.

#### Launching Workshop, 12th July 2016

In a first step some of the important stakeholders in each city were invited for a launching workshop after a first round of stakeholder consultations took place. In Chennai, the workshop attracted more than 30 participants primarily from the Greater Chennai Corporation, but also civic organisations and research institutes. From IGCS, Dr. Christoph Woiwode attended the event.

The workshop served as a starting point for the project to discuss further steps and activities that the project might support in each city. Next some of the stakeholders from each city will be traveling to Germany in September to partake in a launching week. This includes a study tour and exchange workshop to look at good practices in Germany and identify areas of common interest to work together on those in the coming years as well as learn from experiences the partner during the duration of the project (see also Environ-



#### **IGCS Research News**

#### Future Sea Level Rise: Assessment of Loss And Conference participation Damage In Chennai in 2050

The Indo-German Centre for Sustainability (IGCS), is conducting a study partnering with Center for Study of Science, Technology and Policy (CSTEP)-Bangalore on 'Future Sea Level Rise: Assessment of Loss and Damage in Chennai in 2050' supported by the Tamil Nadu State Land Use Research Board of State Planning Commission. The duration of the Study is Sixteen Months from February 2016- July 2017. The study aims to a) understand the impact of sea level rise in Chennai; b) estimate the value of infrastructure, land and ecosystems that would be at risk (Loss and Damage); c) estimate the number of people who would be affected and the types of harm; d) develop the most appropriate response by working with policymakers, businesses, public and private enterprises.

The overall goal of this study is to develop a strategy, working closely with stakeholders, for climate resilient coastal development taking sea level rise into consideration in Chennai city. This includes understanding the anticipated impacts of a 1 and 3 metres sea level rise along the coast of Chennai in the time period leading up to 2050.

The methodology comprises a combination of quantitative and qualitative analysis, use secondary and primary data, involve consultation with experts and include participatory approaches. It will be an academically rigorous process that will aim to be replicable.

A major outcome anticipated from this participative research is a body of evidence, knowledge and lessons that contribute to current policy debates, generate action on the ground, and building capacity towards resilience to sea level rise in the city of Chennai.

#### **Dissertations by visiting students**

A B.A. dissertation was completed titled "Is Community feeling lost? Change processes in local cultural identity through Urbanisation in peri-urban Chennai", carried out by Louisa van den Bosch, Passau University, as part of a research visit funded by BayInd from December 2015 to February 2016.

A B.Sc. dissertation was completed titled "Urbanization and Flood Disaster Risk Mitigation in peri-urban Chennai: the example of Sriperumbudur Taluk", carried out by Niklas Arnet, Faculty of Spatial Planning, TU Dortmund, as

part of a research visit funded by IGCS in May-June 2016.

At the 29th International Workshop on Qualitative Reasoning held on 11th July in New York City, Prof. Peter Struss, TU Munich, presented a paper co-authored by Dr. Franziska Steinbruch and Dr. Christoph Woiwode. "Structuring the Domain Knowledge for Model-based Decision Support to Water Management in a Peri-urban Region in India" presents first results in designing and realizing a computer tool that is meant to support decision making in the context of peri-urban development with a focus on issues of water management. This is associated with research on the development in the Sriperumbudur region near Chennai that is conducted by the IGCS. The research will continue with IGCS as a partner in a project under TU Munich's "Global Incentive Fund".

## **Environment News..**

#### Germany ready to fund projects in Coimbatore

#### The Hindu, 21 July 2016 (excerpts)

Germany is ready to fund development projects in Coimbatore, said the country's Ambassador Martin Ney. Addressing reporters after meeting Mayor P. Rajkumar and Corporation Commissioner K. Vijayakarthikeyan here, Mr. Ney said that that if the Corporation forwarded proposals for the projects it planned to start this October, Germany would be willing to consider extending financial support.

The Ambassador, who led a 10-member delegation, said that he had met Chief Minister Jayalalithaa. And he was in Coimbatore, one of the three Smart Cities that Germany was collaborating with. The other two were Bhubaneswar and Kochi. Mr. Ney said that Germany and Tamil Nadu had strong links as in the past seven years his country had granted three loans worth Euro 265 mn to fund 30 urban development projects. Of those, a few had been implemented in Coimbatore as well. As for helping Coimbatore in the Smart Cities project, he said that Germany had expertise in smart and intelligent transport and waste management. The German expertise went back to 1972 when the country was preparing for the Munich Olympics. It took the transport underground and cleaned its rivers, including the Rhine. During his interaction with Mr. Karthikeyan, there was a mention of developing smart and intelligent transport in the city. German companies had also developed technical expertise in those areas Members of the German Embassy in New Delhi, funding

SUD South Asia and Fraunhofer Office, India, were also pre-

# **IGCS Research Scholars and Interns**



earlier research stay in explored the topic of condistudents

Niklas Arnet studies June to mid-August to stay Spatial Planning at TU with the IGCS to help launch Dortmund University. the project in Chennai. She For his bachelor dis- holds a master's degree in sertation, he carried spatial planning from TU out research at IGCS Dortmund University special-Chennai in April and ising in cities and climate May 2016. During an change. Her master's thesis



Chennai in 2014, he tions for grassroots initiatives engaged in climate was part of a group of change mitigation and adaptation in Freiburg i. Br., a from TU town in southern Germany.

Dortmund University that studied urban flooding and climate change in Chennai. Moreover, he found the link between rapid peri-urban growth and increasing flood disaster risk in Chennai itself to be particularly important, as (unregulated) urbanization of upstream areas – and the associated increase in surface runoff – poses risk for downstream Chennai. However, Flood Disaster Risk Mitigation appears to be of less importance in Chennai's disaster risk management. Thus, and in order to understand how Flood Disaster Risk Management is approached in Chennai's urban fringes, his dissertation focuses on "Urbanization and Flood Disaster Risk Mitigation in peri-urban Chennai". His work aims to find out how corresponding measures are integrated in the development of the region and how non-integration might impact on urban floods in Chennai. Since his research focusses on Sriperumbudur Taluk, he contributes to a hitherto unaddressed topic of an ongoing interdisciplinary IGCS research project on peri-urban development in this region.

Franziska Baack is an intern with the GIZ project "Cities Fit for Climate Change" (see below and previous page). In this role she has been seconded from

### **Environment News..**

#### Germany to fund study on climate change in Chennai

#### The Hindu, 31 July 2016

The Greater Chennai Corporation area is set to get assistance from Germany to cope with climate change.

The Corporation Council on Saturday adopted a resolution approving the inclusion of Chennai in the project 'Cities fit for Climate Change'. It will be implemented by GIZ on behalf of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety. It supports cities in carrying out research on various aspects of climate change.

"They will fund research to mitigate disaster. Rapid urbanisafirst meeting of officilas of the civic body with German offi-

ing climate change issues, the project will support other cities

aid to develop integrated climate-friendly urban development instruments that enable 'climate-proof urban development'.

# **OPINION**

# Ocean Governance: 'Samudra Manthan' 2.0



Samudra Manthan- churning of the ocean- the legend tential stake on the seas or disputes over territorial in Hindu mythology which is depicted in its magnificent sculpture at Suvarnabhumi Airport in Bangkok consensus agreement. (see photo) and as in bas-relief at Angkor Wat (Cambodia) has revisited in the form of negotiating a legally binding instrument for the conservation and sustainable use of 'Marine Biodiversity beyond National Jurisdiction' (MBBNJ) under the UN Convention on the Law of the Seas (UNCLOS). The first preparatory committee (PrepCom) met between 28 March and 8 April to delve into 'elements of draft text' of future agreement at UN headquarters.

MBBNJ. During these informal working group discus- beyond that up to 200 nautical miles is the EEZ. sions, positioning of the lead parties (who have po-

waters) is already an indication of the uphill task for a

Sustainability of ocean is uncertain and foreseeable only to a limited extent of its economic exploitation and militarization. Besides, the UN sponsored World Commission on Environment and Development Report, famously known as 'Our Common Future' (1987); Chapter- 17 of Agenda 21 approved by UNGA; and the oceans-related goals of the World Summit on Sustainable Development (WSSD 2002), the oceans have left open for exploration and exploitation. The World Ocean Day is being celebrated today (June 08). UNCLOS of 1982 and its byproduct the International More than three decades later, it is appropriate on Seabed Authority (ISA) have authorized and facilitated the eve of Ocean Day to ask will the countries be able countries to maximize the utilization of ocean and its to agree and adopt a new multilateral agreement like resources within their national jurisdiction (territorial UNCLOS on deep-sea biodiversity. Will India be one of water) and rights (Exclusive Economic Zones-EEZs) the lead anchors during the negotiation process by and beyond. From free for one in sovereign water and protecting her 'freedom of navigation' standard stra- EEZ to free for all beyond EEZs have both depleted tegic clause; or would its pursuance of national inter- the ocean due to competing demands amongst nation est be called as obscurantist for a consensual global states. The territorial jurisdiction extends to territorial agreement? After nine Working Group meetings since water up to 12 nautical miles from the nearest point 2006, the General Assembly in 2015 decided to devel- of the baseline; beyond territorial waters is the Conop a legally binding instrument under UNCLOS on tiguous Zone extending up to 24 nautical miles; and

However, there has been a growing demand for India's new found role in governing global/regional proper ocean governance structure in high seas as 'commons' as reflected in series of Indian Prime Minthe UNCLOS regime is either limited or ineffective in ister's speeches abroad and at home. The Indian managing disputes and overlapping exploitation of Ocean is the third largest ocean accounting 20.7 perresources and protecting degradation of marine cent of the Earth's total surface and 30 percent of world. In this backdrop, the UNGA passed Resolution total global ocean area. Compared to other world 69/292 in 2015 approving discussion on the scope, oceans, until the mysterious disappearance of the parameters and feasibility of a possible new interna- Malaysian Airlines Flight 370, the Indian Ocean was tional instrument on MBBNJ. Similarly, while Millen- relatively lesser known. It is surrounded by a rim of nium Development Goals (MDGs) had hurriedly developing countries and Island States with a popuomitted ocean as a problem, the Sustainable Devel- lation of about 2.5 billion making it an attractive maropment Goals (SDG) (approved in 2015) highlighted ket. It's also a huge energy and trade maritime highin Goal-14 to 'conserve and sustainably use oceans, way as it carries half of the world's container ships, seas and marine resources for sustainable develop- one third of the bulk cargo traffic and two thirds of ment' with seven targets and three provisions of the world's oil shipments. means of implementation.

Unfortunately, recent events occurring in and around oceans will make any world governance modality a very challenging task. Due to increasing claims and counter claims, tacit military buildup and nuclearization in South China Sea and East China Sea, initial



Fig.: The Andaman Sea

year of implementation of the US led Southeast Asia off. It has documented widespread pollution cover-Maritime Security Initiative (MSI), rush to establish ing about 10 million sq km (3.86 million sq miles). sphere of influence by world powers in the ocean, According to World Wide Fund for Nature (WWF), India-China competition to gain strategic foothold in more than 80% of marine pollution is caused by landthe Indian Ocean, struggle for Arctic oil exploration based activities that cause oil spills, fertilizers and and desperate measures to raise naval powers by toxic chemical runoff and the discharge of untreated littoral countries, formulating a governance modality sewage. Additionally, it bears the brunt of oil transits for the world's last 'common' will be a tough road thereby further risking oil spills and dangers due to ahead. It will be more challenging, than in the past, heavy traffic. to agree on a negotiated outcome for ocean governance.

Ocean' or 'Sea of India' or obsolete 'power vacuum' ment has focused on revival of India's rich maritime discourse, of late, Indian Ocean has become heritage through 'Project Mausam' and 'Sagarmala'.

If not addressed foresightedly and multilaterally, India's ambitious 'blue (ocean) economy' potential will soon face a formidable challenge even before it takes off. According to the Indian Ocean Experiment (INDOEX), the Indian Ocean is gravely polluted by plastic debris and chemical run-

The present government in India has identified fulfilling the potential of ocean economy as one of its Notwithstanding the conceptual construct of 'India's major national and foreign policy goals. The govern-'foremost policy priority' and the corner stone of Last August during Forum for India-Pacific Island

#### July 2016

#### July 2016

#### Volume 5, Issue 3

Countries (FIPIC) meet, India sought cooperation negotiating an implementing agreement. India, howies and tourism (based on endangered marine spe- disputes between the two countries in the East Sea

from Small Island Developing Countries (SIDS) to ever, supported a legal regime with reservations on harness ocean economy internationally. While the rights associated with freedom in high seas. China blue economy comprises largely of enhancing fisher- and India's interventions clearly indicate the rising

cies protection) for SIDS, India is yet to spell out its priorities for the blue economy. Will the SIDS in Indian Ocean or beyond support India's position in MBBNJ? It is to be noted here that already the SIDS, which are also broadly comprises the Forum of Vulnerable Countries on climate change negotiation, displaced very cold response to India's reluc-



Fig.: The Indian Coast Guard

(South China Sea) and also the latter's ambition to fathom Indian Ocean against growing Chinese influence.

Indian Prime Minister in his address to the General Assembly on September 25, 2015, had rightly pointed that, "the distinct goal on ocean ecosystem reflects the unique character of its challenges and opportunities". To address these

tance to accept the limit of global temperature to 1.5 degrees during the recently concluded Paris Climate Agreement.

The MBBNJ negotiations, both informal and open ended, witnessed contrary positions of the parties on issues such as area based management, access to and benefit-sharing in terms of both monetary and non-monetary, and replication of ISA model for governing MBBNJ. Consequently, guided by its national interest, India has been ensuring access and benefitsharing of marine resources to all. While emphasizing the importance of marine resources as the foundation for sustainable development, India argued that marine living resources were critical, but threatened by IUU (Illegal, unreported and unregulated) fishing and unsustainable aquaculture practices, including unselective trawling and deep-sea fishing.

Subsequently, there was a growing support for a new legally binding instrument on MBBNJ under UNCLOS. But China was not in favor of a legally binding MBBNJ. It also had strong reservations on mechanisms for transboundary Environmental Impact Assessments (EIAs) and a dispute settlement mechanism. China had also opposed setting a timetable for

challenges and opportunities, Indian negotiating

team should build a coalition of likeminded countries, especially in 'Indo-Pacific' as spelled out in latest Indian Navy's strategy document -- 'Ensuring Secure Seas: Indian Maritime Security Strategy'. The negotiating team must also involve major stakeholders - the Indian Coast guard, Navy and only Tri-Forces Command at Port Blair -- who are strategically monitoring and managing both territorial waters, EEZs and beyond in Indian Ocean. The last 'commons' won't be too long to become a 'tragedy of commons' if countries follow business as usual approach.

This article was previously published online by Society of Peace and Conflict, 8 June 2016,

http://sspconline.org/opinion/ocean-governancesamudra-manthan-20

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