



CiSTUP News Letter

Centre for Infrastructure, Sustainable Transportation and
Urban Planning, Indian Institute of Science, Bangalore, INDIA

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December 2011

A Vehicle for Analytical Thinking to Improve the Unique Urban Issues

**MESSAGE BY MR. UPENDRA TRIPATHY, I.A.S.,
ADDITIONAL SECRETARY, CABINET SECRETARIAT,
GOVERNMENT OF INDIA, NEW
DELHI - 110 004, INDIA**



I am delighted to be told that the CiSTUP is completing three years. Way back in 2008, it was an uphill task to put the Centre in place. But that is true of all good things CiSTUP is no exception. And there are so many memorable moments like-background stories:

Why and how the "i" in CiSTUP came in small case; Why was IISc, and not IIM, Bangalore, chosen to anchor the Centre; Why the Corpus started with 29 crores and not thirty; Why EMPRI became a perpetual partner in the interest income of CiSTUP, And why UNU, South Asia Campus for Transportation and Urban Planning was our final destination!

It is indeed my privilege that the Institution which came into existence during my stint as Principal Secretary to Government

of Karnataka, Transport Department is steadily picking up momentum in achieving its objectives & mission. I am very glad that the centre has been disseminating the information to all the stakeholders and others through the medium of these NEWSLETTERS. I have been constantly following up the seminars, lectures, symposium, workshop etc. that are conducted regularly in the centre and felt happy that the facilities that this great Institution has is being utilized for conducting training programmes, consultancy activities in the areas of sustainable urban transportation, infrastructure development and urban planning.

I strongly feel that the centre should strive hard to become a member of the United Nations University and have collaborations with the UNU so that there will be an UNU campus in CiSTUP, Indian Institute of Science, Bangalore in the area of Transportation and Urban Planning. Once the centre gets this it will be a milestone in its history and will be fulfilling one of the main vision statement mentioned in the MOU signed on 2nd January 2009.

My hearty congratulations to the Chairman CiSTUP and his team for the excellent work that is being carried out.

MESSAGE BY CHAIRMAN PROF. T.G. SITHARAM



The Year 2011 is galloping to reach its final destination and the dawn of a NEW YEAR 2012 is on the horizon. With this issue of the NEWSLETTER, which is brought out thrice-yearly, we would have completed Two years since bringing out the First issue in November 2009. For the past two years, CiSTUP Newsletters have played a critical role in conveying an overview of various activities at The Centre. I am sure the NEWSLETTER has been a good medium

for disseminating information about the activities that are being organised. It is our aim to educate and inform anyone who has an interest in the activities of the centre. On an average we have been having one event every month since May 2009 covering most of our theme areas, thus enabling all to share the latest developments in these areas. Sure readers who have been following our Newsletter would have been benefitted enormously. We welcome your feedback and would like to hear what you think of the newsletters thus far.

The first batch of M.Tech in Transportation & Infrastructure Engineering which commenced in the Year 2009 will be writing the final exam this December and CiSTUP will bring out its First Masters Degree Holders by

June 2012. On behalf of CiSTUP and on my personal behalf I wish them all the Best in their examination.

Bangalore has finally got its METRO RAIL inaugurated on 20th October 2011 and I'm sure NAMMA METRO will make a positive difference in the transportation problems faced by our Garden City over a period of time.

This issue lists the progress made in the Projects taken up by CiSTUP Planners, the conferences that was attended by me and others, on URBAN issues and others lectures/seminars conducted by the centre. The centre is having its FOUNDATION DAY THIRD ANNUAL Lecture being delivered by leading Transportation Expert from Purdue University, Prof. Kumares C Sinha which is coming up on 7th December 2011 and a Joint Symposium with ACATECH on 9th December 2011. Details of these are given in the upcoming events in this Newsletter.

Commissioner Bengaluru Metropolitan Land Transport Authority (BMLTA), Directorate of Urban Land Transport (DULT) has now become one of the Key stakeholders of the centre and a member of the Executive Council of CiSTUP by contributing to the corpus. Earlier they were attending the council meetings as invitee. I am sure their induction will be for our mutual benefit-the first of such collaboration will be in establishing the Traffic Engineering and Transportation Cell (TETC) for which a MOU was signed on 8th November 2011.

I hope you will enjoy reading this issue and I welcome your feedback on any aspect of the newsletter.

Edited by: Prof. T.G. Sitharam

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Activities at the Centre

ONE DAY WORKSHOP ON MODERN TRENDS IN PAVEMENT ENGINEERING SATISH DHAWAN AUDITORIUM, INDIAN INSTITUTE OF SCIENCE, BANGALORE held on 15th July 2011

Brief about the workshop, participants and the speakers.

The Workshop provided a unique setting within which the participants, speakers and the experts shared and explored new ideas to review innovations in the practical application of using sustainable construction materials and techniques in pavement engineering and highways maintenance. It considered materials technology, manufacturing techniques and end product characteristics that satisfy ever more demanding design, structural and environmental requirements for development.

The workshop provided a platform for exchange of ideas on the latest information on the materials, design, construction, evaluation, maintenance and management of road infrastructure and related issues. The workshop was well attended by all professionals, educationalists and researchers associated with pavement engineering and road infrastructure



WORKSHOP EMPHASISED ON

- Pavement materials and their characterisation.
- Stabilisation techniques,
- New materials - modifiers etc.
- Pavement design - flexible/semi-rigid/rigid - empirical/M-E
- New technologies in pavement Construction
- Pavement maintenance and road asset management

EXPERTS

Experts from India and abroad who have given lectures and included Prof. Veeraragavan of IIT Madras, Prof. Rajib Mallick of Worcester Polytechnic Institute, Worcester, USA, Raja Shekharan of Virginia Department of Transportation, Prof. Prithvi, S. Kandhal, National Center for Asphalt Technology, Auburn University, USA, Experts and suppliers in India in the areas of recycling, new pavement materials, concrete pavements and rehabilitation of pavements have also given lectures and showcased their products.

Participants in the workshop were Executives from Scott Wilson, Aarvee associates, Karnataka Rural Infrastructure Development Ltd., Vijay Nirman Company Pvt. Ltd, Infra Support Engineering Consultants Pvt. Ltd., Virginia Department of transportation, Karnataka Rural Road Development Agency, BMTC, KSRTC, Dupont, Alchemist, and .Students from RASTA, Acharya Institute of Technology and other engineering colleges.

<http://cistup.iisc.ernet.in/workshop%20on%20pavement/about.html>

CiSTUP Seminar Series lecture on “URBAN SYSTEMS” By Prof. J. Alexander Schmidt , University Duisburg-Essen On 19th September 2011



J. Alexander Schmidt
Univ.-Prof. Dr.-Ing., M.Arch
Chair of City Planning and Urban Design
Speaker of the University's Main Joint Center "Urban Systems"
Department of Building Sciences, Faculty of Engineering Sciences
University Duisburg-Essen

Key Areas of Expertise

City and Energy-Efficiency, Climate Change, Health, Light, Beauty, Design and Infrastructure

J. Alexander Schmidt has been head of the Institute of City Planning and Urban Design since 1998. He studied City Planning/Architecture (University of Stuttgart) and Environmental Psychology/Urban Design (University of California Berkeley) After working as research assistant and while teaching urban design at the University of Stuttgart, he started an urban design firm as co-principal, consulting, planning and designing on national and international levels covering urban development, design, renewal and open space design. A growing research cooperation with other disciplines opened new fields of interests in urban mobility, energy-efficiency, climate adaptation and mitigation, health, lighting. He was visiting professor at the University of Oregon, Portland/USA and the University of California, Berkeley/USA.

www.megacity-energy.de

www.uni-due.de/urbane-systeme/

www.uni-due.de/staedtebau

Abstract of the talk.

The trend toward massive urbanization is a crucial challenge in many ways: social, cultural, ecological, infrastructural and aesthetic. J Alexander Schmidt and his colleagues have responded to the increasing significance of issues related to large-scale urbanization by establishing the University's Joint Centre “Urban Systems”. He talked about the new interdisciplinary research approach, focusing on the projects being carried through at his Institute of City Planning and Urban Design. The lecture covered the topics of energy-efficiency, CO₂-emissions and climate adaptation. Projects will serve as best practice examples and background for sustainable and energy-efficient, climate adaptive urban development in China and Germany, applying new tools and methods there.

Lecture on “Impact Evaluation of Rural Roads in India BY Prof. T. V. Ramanayya at CISTUP on September 21st 2011



About the Speaker:

He holds a PhD. in Transportation engineering from reputed Institute Regional Engineering College designated as National Institute of Technology, Warangal. Retired professor at the Indian Institute of Management Bangalore. He has carried out a large number of consulting assignments to state and central governments in the fields of Urban and Rural transportation Planning.

Abstract of the talk:

Rural Roads constitute roughly 75% of highway net work in India. It provides accessibility to 560000 settlements spread across the country. Even today roughly about 20% of these settlements remain un-connected. The main reason being low demand and huge investments could not be justified on any criteria. At one time the Government included the Rural Road component along with host of other things under minimum needs program. It failed to fulfill the aspirations of rural people for better access to nearby markets and towns. Finally the government of India announced a new program called PMGSY for improving rural connectivity through a scheme of dedicated funding. Currently the Rural Roads component is supported by the following agencies:

1. PMGSY
2. NABARD
3. State Government Funds
4. Donor agencies like ADB and World Bank

However, no systematic evaluation reports are undertaken by any agency for a long time.

The Government of Andhra Pradesh initiated a novel project entitled “Andhra Pradesh Economic Restructuring Project” (APERP) in 1998 with the help of World Bank. The pilot project was terminated by the end of March 2006.

The objective of this pilot project initiated in 1998 was to improve the quality of life of about 2.65 million rural people through additional construction of R&B roads, up-gradation of 2987 kilometers of roads and construction of 156 bridges in the districts of Warangal, Karimnagar and Adilabad districts.

After the completion of the pilot project the World Bank insisted on a study with the following objectives:

- To assess the direct and indirect socio-economic impacts/benefits of the rural roads constructed/ upgraded and maintained under the project.

- To study the impact of these new roads on the travel characteristics of the rural population.
- To carry out an economic analysis comparing the costs and benefits of these
- To carry out an economic analysis comparing the costs and benefits of these roads, to estimate the economical rate of return.

The seminar addressed these issues.

<http://cistup.iisc.ernet.in/impact%20evaluation.html>

Lectures On MRTS for Metro Cities – State or PPP – Case study of Bangalore-lecture in Two Parts on 30th September 2011 & 11th October 2011 By Prof .K.M.Anantharamiah

About the Speaker:

Prof.K.M.Anantharamiah is a civil engineer and urban planner with a Ph.D.in Transportation and Environmental Planning from the university of Birmingham, UK.He was Reserve bank of India Chair Professor in Infrastructure Management at th\e Indian Institute of Management ,Bangalore.He was also a Member of the Board of Governors at IIM,Bangalore.He has carried out a large number of projects on Mass Rapid transportation Systems for various Indian Cities including Bangalore.He carried out many assignments for State & Central Governments in the fields of Urban Planning and Transportation Systems.



Synopsis

Till 1970s, only Bombay, Calcutta and Madras had a Mass rapid transit system, through the suburban railway system. This railway system did exist as a part of general railway system. A token ring railway system was later introduced in Delhi.

With the rapid growth of class 1 cities in India, an even faster growth of a few metropolitan cities, traffic congestion was a noticeable feature. The sixties also saw rapid advances in the field of urban planning in India, with a large number of Master plans being prepared for urban centers. That was also the time when comprehensive transport planning studies were carried out in a few Indian cities.

The development of New towns in UK and India, the famous Buchanan report – “Traffic in Towns”, kindled the interest of Urban Transport planners that designing cities for private mode of transport is inadequate and inappropriate.The solution to traffic problems in mega cities lies in planning for pedestrians and Mass rapid transport system.

Urban Transportation was essentially a state subject. The huge lumpy capital costs of providing MRTS and their long gestation period was not considered a major problem as everyone assumed that railway being a central subject, it was the responsibility of the center to provide and operate the MRTS system. States only have to make a good case for the need of the MRTS.

Activities at the Centre

Comprehensive transportation studies in late 1970s in Chennai, New Delhi, Bangalore and Hyderabad did suggest MRTS as the major element of the solution package. The experience of GOI, Ministry of Railways in running the suburban transport system was not a happy one from the economic point of view. After many clarifications and many studies, nothing concrete in terms of physical implementation could be seen.

In late 80s, due to resource non-availability, a consortium approach with Center, State and Local body contributing to the resource base was considered. It was obvious later on that all the above institutions did not have sufficient resources to cater to MRTS.

In the early 1990s, privatization was an interesting concept, and PPP – Private Public Participation – in infrastructure was talked about as a solution to the resource problem.

This seminar analyzed the changing economic scenarios and policy environments for providing lumpy investments in the transport sector. The need for economic and financial analysis, the required changes in the traffic forecast modeling structure was considered. Bangalore as a case study was analyzed to highlight the above issues.

The seminar was in two parts. The first part looked into the presumed role of state and why projects could not take off. The second part discussed the role of PPP and the required change in the project structure. Reasons for PPP not being adequate to address the issues was presented.

<http://cistup.iisc.ernet.in/mrts.html>

CISTUP SEMINAR SERIES-Lecture On "The publicly managed city: Information Technology and Governance" By Dr Ashwin Mahesh CISTUP Senior Fellow on 3rd November 2011



About the Speaker:

Dr Ashwin Mahesh is a Senior Fellow at CISTUP, and member of the ABIDE Task Force. He is a co-author of Plan Bengaluru 2020, which proposed a new roadmap for planning and development in the region of our capital city. He has worked extensively with the Traffic Police and with BMTC in recent years, and is closely associated with most of the reforms in these departments, including the direction-based Big10 bus system. He helped develop India's first Traffic Management Centre, which is being replicated in other cities. Dr. Mahesh is also a visiting researcher in public policy at IIM Bangalore. He is a member of various city, state and national committees for urban development issues.

Dr Mahesh is a co-founder of Mapunity, which develops enabling technology for public administration, and works to build capacity in government departments. Recently, Mapunity was awarded the Urban Sustainable Mobility Award, 2011, by Volvo Buses. Dr Mahesh is also an editor of India's largest public affairs magazine, INDIA TOGETHER, which he co-founded in 1998.

Dr Mahesh has a PhD in Atmospheric Science, and an MS in Astronomy. After his doctorate, he worked six years at the NASA Goddard Earth Science and Technology Centre studying Antarctic and Arctic clouds, before returning to India in 2004. Since then, he has been working on urban administration and policy issues, as an applied researcher

Abstract:

In different departments in the city, civil servants must create, manage and oversee public goods and services that are widely different - transport, electricity, education, sanitation, infrastructure, etc. However, despite the differences between the domains, there is a commonality - the work of the agencies relates to the same physical space in the urban arena.

This leads to a need for 'spatial information management' in a range of administrative roles. /Technagara/ is a platform that draws upon the commonalities and brings together a single management approach for the city, useable across departments in planning, administration and response to citizens. It is also a public-facing information platform that provides the additional benefit of drawing citizens closer to public administration. A first deployment of the platform, for Bangalore, is now in alpha mode.

<http://cistup.iisc.ernet.in/am.html>

Lecture on "Mobility in Germany and India – In a historical Perspective" on 14th November, 2011



Prof. Dr. Reinhard Doleschal, East-Westphalia University of Applied Sciences (Germany, Institute of Management Skills/OWL Business School) gave a lecture on "Mobility in Germany and India – In a historical Perspective" on 14th November, 2011, 3:00pm in CISTUP Conference Hall.

Abstract of the Lecture:

This presentation dealt with the interaction of Industrialization and private mobility. The German and European model is a unique approach since Worldwar II. In the Eighteenth century we can see a big change with the beginning of the Globalization. Another core aspect is the individualization in developing societies.

Biodata:

Prof. Doleschal is Professor for Innovation Management, Knowledge Management, Change Management, Global Business Leadership, Visiting Professor at IISc (Institute of Management Studies), Researcher in MIT Project "The machine that changed the world". Managing Director of Science Center Northrhine-Westphalia on Automotive Industry Automotive Supplier Projects in China. He did his PhD at University Hannover, on "Automotive Industry in Brazil" (1987). He had Vocational Education as a Toolmaker at Volkswagen Company.

<http://cistup.iisc.ernet.in/mobility14thnov2011.html>

Dr. Dario Hidalgo an internationally renowned expert in the planning, design and operation of bus-based public transport systems and Bus Rapid Transport Systems (BRTS) gave a presentation on **“The State of BRT Systems around the World”** at **Satish Dhawan Auditorium** On **September 26th , 2011**



Brief Summary about the presentation:

This presentation covered the state of BRT systems around the world today, their evolution over the past decade and latest developments, with a focus on cities in the developing world. The presentation also discussed regarding the opportunity in Bangalore and the environment for promoting such an initiative.

About the Speaker

Dr.Dario Hidalgo is currently Director of Research & Practice for EMBARQ – The WRI Centre for Sustainable Transport. He was Deputy General Manager of TRANSMILENIO S.A.,Bogota’s renowned Bus Rapid Transit System.As a consultant for international agencies and local governments,Dr.Hidalgo has taken part in projects and taught training courses on sustainable urban transport in multiple countries across Latin America, Asia and Africa .

<http://www.wri.org/project/embarq>

<http://www.embarq.org/en/about/staff/dario-hidalgo>

Workshop on “Onsite Visualization and Dust Monitoring” on 22nd November 2011 at Faculty Hall, Indian Institute of Science, Bangalore



Workshop **“On Site Visualisation and Dust Monitoring at Bangalore Metro Project”** was held on 22nd November 2011, from 10:00 a.m. Onwards at Faculty Hall, Main Building, Indian Institute of Science, Bangalore-560 012.

Japan International cooperation Agency (JICA) has undertaken a Safety and Environmental Monitoring Study for Bangalore Metro Project sites utilizing the OSV (On Site Visualization) Monitoring and Dust Monitoring Technology using digital cameras. These are real time monitoring technologies newly developed in Japan by Kobe and Yamaguchi Universities in collaboration with Japanese safety and environmental equipment manufacturers.

Oriental Consultants were assigned by JICA to execute this study and for this they have collaborated with CiSTUP ,IISc and Central Road Research Institute (CRRI).This study commenced in June 2011 and will be completed by January 2012. This workshop is organized for sharing the experience and the study that was conducted so far.

Prof.T.G.Sitharam welcomed the participants and the resource persons assembled for the workshop. He requested the Chairman Civil Engineering,Prof.C.S.Manohar to inaugurate the event.

Prof.C.S. Manohar, Chairman Civil Engineering inaugurated the event at 10.15 am. In his inaugural address Prof. Manohar emphasised the importance of safety in large infrastructural projects and was glad to note that CiSTUP in association with Japan International Cooperative Agency is conducting this workshop .He was sure that the academic community and others will gain immensely from the workshop.

The speakers in the workshop included Prof.T.G.Sitharam, Prof. S. Akutagawa, Kobe University, Mr. Y. Sano, Representative, JICA India, Mr. K. R. Shivananda, Deputy Chief Engineer, BMRCL, Prof. M. Shinji, Yamaguchi University, Mr. Yoshino, Tokyo University ,Dr. Ch. Ravi Sekhar, senior scientist in CSIR- CRRI, New Delhi & Ms. R. ABE, Project Manager of JICA Team .The workshop also had two demonstrations from Kobe & Yamguchi universities.

The participants were students, Research Scholars, Professors from various colleges, and executives from state pollution control board & BMRCL

Onsite Visualization and Dust Monitoring



<http://cistup.iisc.ernet.in/~osvbng>

External Activities Attended/ Paper Abstracts

Report on the Visit to Dubai to attend future cities-Vision, innovation and transformation in sustainable urban strategy held at Dubai International Exhibition centre (www.futurecitiesvent.com)

Future cities and City Scape is one of the premier event for sustainable cities hosted in one of the world's fastest growing cities. Future cities provided a platform for public and private sector holders in active discussion to tackle tremendous challenges urban leaders face in implementing and maintaining sustainable urban growth in challenging economic times. The event had invited active and prominent researchers and practitioners to deliver keynote speeches, panel discussion and delegates.



Prof. Sitharam visited Dubai, UAE during 27th – 30th September, 2011 and delivered Invited Special Lecture on day 2 (28th September 2011) chaired by Jim Krane. The title of invited lecture was "Setting a framework for achieving sustainable urban mobility: A vision for livable city". Further, Prof. Sitharam participated in panel discussion on a sustainable transport strategies to improve mobility, accessibility and connect communities along with Dr.Waheed Nazir, Director of planning and Regeneration, Birmingham city council, UK and Mr.Jim Crane, author of bestselling book "Dubai : the story of the world's fastest growing city"

During this event there were about six keynote lectures followed by case study/panel discussions over the two days. Both city officials and international delegates attended the event. The event was well organized jointly with many public and private organizations. The details are enclosed in the attached brochure.

Conference on FUTURE DIALOGUE attended by Prof. T. G. Sitharam in New Delhi on 23rd September 2011.

Future-Dialogue—conference hosted by Max- Planck-Gesellschaft Siemens in cooperation with UNO Habitat, World Urban Campaign, IT Roorkee and Germany +India 2011-12 (Infinite Opportunities.) on September 23, at the Taj Palace Hotel in New Delhi.

Dr. Armin Bruck, CEO of Siemens Ltd. India welcomed and provided an overview of the conference. The Programme Opening Ceremony of "Germany and India 2011-2012: Infinite opportunities" was held in New Delhi's Nehru Park.

Around 400 participants from almost 20 countries have participated. Among them were top researchers, executives,

policymakers and journalists from India, Germany and around the world. It truly was an impressive group working to help business, science and politics more effectively address today's urbanization challenges. Future Dialogue started with a Welcome Reception on September 23 at 6:00 pm in the Networking Area - Durbar Hall at the Taj Palace Hotel.

Sustainable Cities: Mastering the challenges and opportunities of rapid urbanization was the background paper for the conference.

Fast-growing countries like India face the combined challenges of facilitating economic growth, while controlling both the environmental and social impact of rapid development. The biggest clash between these two goals takes place in cities and it is here that the fight against climate change needs to be won. With hundreds of millions of people migrating to urban areas in the next few decades, the challenges are growing. Bringing together some of the world's top scientists, business leaders, city policy-makers and influential thinkers, this unique event discussed new approaches to sustainable urban development – today, tomorrow and in the more distant future. It also deliberated on whether sustainability is a useful concept for focusing on the needs of city-dwellers in fast-growing emerging markets. Looking at the role and the limits of technology in creating functioning and liveable cities. It examined the best practices and new initiatives in everything from energy supply and mobility to providing health and education services to inhabitants of informal settlements.

The chair and the two hosts outlined why they see dialogue between scientists, executives and policy-makers as the key to tackling the challenges of our time and outline the main issues of the conference. In addition, the German Minister of State at the Federal Foreign Office, Cornelia Pieper, discussed how Future Dialogue contributes to "Germany and India 2011-2012: Infinite opportunities"

Keynote address on The challenges and opportunities for tomorrow's cities was delivered by Joan Clos Executive Director, UN-HABITAT, Kenya. This was followed by Panel discussions & Expert sessions like Turning challenges into opportunities.

Bangalore – Cambridge Network-Meeting held on 16th November 2011.

The UK Science Minister Rt.Hon David Willetts with his delegation visited Bangalore on 16th November 2011.This visit was arranged by the Deputy High Commissioner, British Deputy High Commission, Bangalore to discuss the Bangalore-Cambridge Network and to have an action plan. **Chairman CISTUP, Prof. T. G. Sitharam** attended the meeting and gave a brief report for the **Bangalore – Cambridge Network: Intelligent Transportation research and Latest Developments in Pavement Engineering & vehicle dynamics.**

The vision of the Bangalore Cambridge Network is to foster links between both the cities so as to enhance science based entrepreneurship, research, academia and businesses in both the cities by leveraging upon each other's ecosystems.

External Activities Attended/ Paper Abstracts

CiSTUP participated in the “Workshop on Urban Issues in Karnataka” organised jointly by Urban Development Department and State Planning Board under the Chairmanship of Sri. D. V. Sadanandagowda, the Hon’ble Chief Minister, Government of Karnataka.

The workshop was held on 5th November 2011 between 10.30 am to 1.30 pm at Hotel Capitol, Rajbhavan Road, Bangalore and was inaugurated by the Hon’ble Chief Minister, Govt. of Karnataka. Dr. K. Kasturirangan, Member Planning Commission presided over the workshop and in his presidential remarks specified some details about the National GIS Strategy in which Karnataka will be one of the test centres.

Welcome speech and an overview of the Urban Development Sector was given by Sri. K.M.Siva Kumar, Addl. Chief Secretary, Urban Development, GOK. Key note address was delivered by Isha Judge Ahluwalia, Chairperson, High Powered Expert Committee on Urban Infrastructure Services, Ministry of Urban Development, Government of India. This was followed by a Presentation on Urban Transport in Karnataka by Smt. V.Manjula, Commissioner DULT. Adviser to Chief Minister (Urban Affairs), Dr.Ravindra, IAS and the Chief Secretary, GOK Shri.S.V.Ranganath, IAS summarised the developments in Karnataka State on the Urban Issues. The workshop had a participation of more than 40 delegates from various departments and also some NGO groups.

SWEDEN INDIA NOBEL MEMORIAL WEEK 2011-Seminar on THE PUBLIC & PUBLIC TRANSPORT THE CHALLENGES WITHIN was organised under the patronage of The Embassy of Sweden on Friday the 14th October 2011 at the Grand Ball Room-The Leela Palace, Bangalore. Chairman CiSTUP received the seminar invitation by the Embassy of Sweden.

The purpose of this seminar was to engage stakeholders from across the spectrum-transport authorities, citizen representatives, government, media and industry-to discuss issues pertinent to the topic and share their perspectives to attain a common objective.

A public transport system can be successful only if people adopt it in large numbers, which is the first step. On the other hand, people demand an effective transport system for them to adopt it. In the absence of such a system they will continue to rely on personal vehicles to fulfil their transport requirements. This situation requires a collaborative approach to address various factors and therein lies the challenge.

The Key Speakers and Panellists joined to discuss these issues and shared their thoughts, knowledge and ideas to make public transport a preferred choice in growing Indian Cities. Key note address was delivered by Mr.Hakan Karlsson, President & CEO, Volvo Bus Corporation, Sweden. The panellists included Mr.Shankarlinge Gowda, Principal Secretary-Transport, Govt. of Karnataka; Mr.Hakan Karlsson, President & CEO Volvo Bus Corporation; Mr.S.Chandrasekhar, Chairman CII, Karnataka.

Prof. T. G. Sitharam, Chairman CiSTUP was one of the jury members for the selection of VOLVO SUSTAINABLE MOBILITY AWARD and the Chairman of the jury was Mr. Shankerlinge Gowda, Principal Secretary -Transport, GOK.

INTERACTION WITH BMTC

CiSTUP had a meeting with BMTC officials on 29 Nov 2011 at Board room, BMTC, Shantinagar, Bangalore. Prof. Sitharam introduced the team members to Mr. K. R. Srinivas (MD, BMTC), Mr. S. K. Parameshwar (Tech. Director, BMTC) and Mr. T. K. Palanetra Naik (Chief Civil Engineer at BMTC). The discussion was primarily on the needs of BMTC and common objectives of BMTC and CiSTUP, so as to work together. Few issues raised were:

1. Traffic flow around TTMCs – particularly issues at Banashankari, Koromangala and Yeshwantpur TTMC's
2. Need for stipulating the preparation of a traffic management plan (Including accessibility, circulation, parking, etc) before approval for TTMC's.
3. Pedestrian vs. vehicle priority
4. Proposal for an e-auto rickshaw scheme
5. Urban environments and air quality
6. Possibility of buses with vertical exhaust, alternate fuels
7. Fleet challenges, branding and technology issues.
8. GPS-fitted buses and geo-coding of bus stops in Bangalore and possible uses of such a database

Personnel from BMTC appreciated our concerns and research interest areas. They provided feedback on vertical exhaust, its trial test at KSRTC, old engines and development of back pressure. BMTC has scheduling and maintenance every month. They have already worked on basal particulate matter filtering using porcelain filters. They spoke of their experiments and studies regarding usage of biofuels, ethanol and alternate fuels.



Progress of the Projects carried out by Planners @ CiSTUP

ROAD NETWORK HIERARCHY IN BANGALORE

By: Ms. Fagun Rajkotia, Dr. K.V. Gururaj, Dr. Harish, Ms. Minakshi Goswami, & Ms. Radha Chanchani

The objective of the study is to conduct a pattern analysis highlighting discrepancies—based on road widths and functional hierarchies. A map showing Major Arterial and Sub-Arterial Roads in the city will be created based on the literature review and satellite imagery. Continuity and breakage in geometry related to changing widths and bottlenecks, missing links, functional hierarchies (based on classifications and standards) and appraisal of road proposals in the literature review will be looked into.

TRAFFIC MANAGEMENT STUDY @ MANTRI MALL, Malleshwaram

By: Ms. Radha Chanchani, Ms. Fagun Rajkotia, & Ms. D. Manjula

The Traffic Management Study around Mantri Mall, Malleshwaram looks at the existing vehicular traffic volume and flow patterns around the mall and suggests a traffic management plan with corresponding road infrastructure design proposals.

The road network survey, existing traffic flow pattern and traffic volume counts around the mall has been completed and the final report under process. The results show that Nagappa, Sampige and Mill Corner Roads are oversaturated beyond their traffic carrying capacity. The report includes an assessment of alternate traffic management options proposed by BBMP and Praja, along with additional suggestions and schematic of road infrastructure design proposals.

STUDY OF AUTORICKSHAW SERVICE SYSTEM IN BANGALORE

By: Ms. Radha Chanchani, & Ms. Fagun Rajkotia

With growing public frustration regarding the auto rickshaw system in the city, and considering it is an integral part of the public transportation system, the auto rickshaw system is needed to be streamlined and incorporated. The proposed study access the system of auto rickshaw services in Bangalore, identify key areas for improvement and put forward some suggestions based on it. So far, 150 auto drivers' surveys and 100 public users' surveys have been completed. In addition, interview with RTO officer, On-Duty Traffic Polices, Auto Rickshaw Dealers, Representative of Easy-Auto Service, and Bank Representatives have completed. Number of key issues are emerging from the so far completed study; such as: Issues with close permit system, Issues due to not computerized auto rickshaw database, Lack of awareness and training programs, Growing public complains, Issues with existing meters and meter fares, Lack of socio-financial security for auto drivers, and Insufficient infrastructure for the auto rickshaw system. All these issues will be looked at in the report.

STUDY ON BUS STOPS AND BUS BAYS IN BANGALORE CITY

By: Dr. K.V. Gururaj, & Dr. Deepak Baindur

The key public transportation in Bangalore is operated by Bangalore Metropolitan Transport Corporation (BMTTC), while Bruhat Bangalore Mahanagara Palike (BBMP) is responsible for the bus stop and other infrastructure facilities. There are about 2500 bus stops in the Bangalore Metropolitan Region, however, status of many of them are neither known nor scientifically documented. The present study is carried out on four regularly operated bus routes of BMTTC in different directions from the Kempegowda Bus Station. The key objective of this research is to know the current status of bus stops in Bangalore, including mapping of bus stops on selected routes, documenting available infrastructure in each of them, associating the land-use around 500m radius of each stop and to come up with scientific design. So far, 175 bus stops have been spatially marked, available infrastructure documented and photographs taken. Land-use analysis and statistical analysis are in progress.

A STUDY ON AIR POLLUTION BY AUTOMOBILES IN BANGALORE CITY

By: Dr. Harish M

One of the biggest problems and challenge is the increasing number of vehicles due to economic development and their emissions which pollute the air in the city. Increasing vehicular population growth and human demands on ecosystems are changing the landscape with important atmospheric consequences. The study is based on the vehicle population of about 41 lakhs (estimated and projected) in Bangalore city. The main objective is to find the emissions from the vehicles, and their impact on the environment and health. The study deals with the present scenario of air pollution and the effects on health and environment in Bangalore city within Corporation limits. So far, the data regarding the number of registered vehicles, emission standard by the Central Pollution Control Board, Karnataka State Pollution Control Board, and Bangalore City have been collected and documented. The statistical analysis regarding the vehicles and the emissions will be analyzed in the report.

ANALYSIS OF LAND-USE PLANNING IN BANGALORE CITY

By: Ms. Minakshi Goswami

Land use can be defined as an activity or development which occupies land for a specific usage or purpose. The land use pattern of a region is an outcome of natural and socio-economic factors and their utilization by man in time and space. In an urban area information on land-use and possibilities for their optimal use is essential for the selection, planning and implementation of land-use schemes to meet the increasing demands for basic human needs and welfare of the urban people. This information assists in monitoring the dynamics of land-use resulting out of changing demands of increasing population over the decades in Bangalore city. The study is limited to the BDA area of Bangalore city. The main objective of the project is to study the earlier and existing land use pattern of Bangalore and to pre-empt the future land use pattern of Bangalore city.

Progress of the Projects carried out by Planners @ CiSTUP

So far, land-use data for different time periods (1975-2005) with the land-uses maps have been collected. With the help of this data a scenario will be developed for 2015 with references taken from the UDPFI guidelines. This study will help us know the future land-use pattern with the forecasted population, and according to the planning standards, what it should be? Currently, the land-use analysis and demography analysis are in progress.

STUDY ON CHARACTERISTICS OF TWO-WHEELER USERS IN BANGALORE CITY

By: Manjula, Assisted by: Minakshi Goswami

India is one of the developing countries as far as economic status of people is concerned. Economic development has made people acquire more luxuries and one amongst them is a two-wheeler. From the vehicle registration study it is very clear that the two wheelers registration from 2005 has gone very steeply. This has become a big concern in road congestion and accidents. So to reduce these problems it is necessary to shift two wheeler users to public transportation. For this purpose a sample study has been conducted in core areas covering 23 zones with a minimum sample of 30 from each zone. It is been observed from the study, that 84% of two wheeler users are employees going to their work place followed by education purpose which constitutes 10%. The prime reason stated by two wheeler users (whose income ranged between Rs 10-50K per month) for not using public transportation are less frequency and non-availability of seats. It is also observed that people with the monthly income between Rs 10-20K are more keen to shift to public transportation if the frequency is less than or equal to 5 minutes. Analysis is in progress to find the monthly expenses incurred in using two-wheelers; and identify the requirement of two wheeler users (from different monthly incomes group) to shift to public transport.

Mitigating Air Pollution from Transportation Sources for the City of Bangalore

By: Mahesh Kashyap, KV Gururaja and TG Sitharam

Bangalore is one of the fastest growing major cities in Asia with a population of over 9 million and growing rapidly in all directions. As the population increased, so has the number of vehicles on the road. According to the transport department, Bangalore has become more congested since 2008. There are about 40 lakh vehicles in the city of Bangalore. The city contributes nearly half of the total vehicle population in the state. Number of vehicles in Bangalore is growing by the day.

Air pollution arises from different sources such as industrial activities, open burning, fuel combustion, evaporation, etc. One of the major sources of air pollution is from transportation sources due to the exhaust gas from the tail pipe, mainly due to incomplete combustion of fuels. In urban areas such as Bangalore transport routes and residential areas are often very close to each other and therefore transportation sources are a major contributor to urban air pollution. Key air pollutants, also referred as Criteria Air Pollutants (CAP) are emitted due to the vehicular traffic.

CAP include Respirable Suspended Particulate Matter (RSPM), Suspended Particulate Matter (SPM), Sulphur Oxides (SOX), Nitrogen Oxides (NOX), Volatile Organic Compounds (VOCs), and Carbon Monoxide (CO). RSPM include Particulate Matter of two different sizes; Particulate Matter of size less than 10 microns (PM10) and Particulate Matter of size less than 2.5 microns (PM2.5).

Health effects of air pollution are already well known. For example, carbon monoxide (CO) slows the delivery of oxygen to the body's organs and tissues. Exposure to CO aggravates heart disease and can cause headaches and visual impairment. Number of traffic police personnel wear mask while on duty. Also many two wheeler drivers are wearing handkerchief covering their mouth and nose to prevent or reduce inhalation of vehicle exhaust gases and dust. Emissions of CAP also contribute to smog, poor air quality and acid rain.

A workshop was held on 28th Feb 2011 at CiSTUP, IISc primarily aiming at understanding and addressing the present status of Air Pollution in Bangalore, focusing on pollution from transportation sector. A detailed report was prepared by CiSTUP to address the issues. Recommendations with regard to the control measures were made as given below:

Location of Exhaust:

- Retrofitting the current exhaust system by installing vertical exhaust for heavy duty vehicles such as buses and trucks.
- All new heavy duty vehicles including buses and trucks must be fitted with vertical exhaust system.
- Start a pilot project for retrofitting the exhaust system for BMTC buses. Include ARAI as a stakeholder in technical feasibility study.

Old and Heavily used Vehicles

- Considering the implementation of Government of India policy regarding banning of vehicles that are 15 years old.
- Considering monetary incentive programme to trade old vehicles. Analyze the socio-economic impact.

Emission Testing

- Robust inspection and testing programme through government approved and certified centres.
- Ensure non-tampering of the engines in commercial vehicles.
- Ensure proper maintenance and calibration of testing equipment.
- Exploring the potential of implementing "no emission certificate no fuel" policy.

Use of Alternate Fuels

- Public transit buses need to be retrofitted with CNG as fuel. Ensure uninterrupted supply of CNG.
- Research the use of alternate fuels for new buses.

Four-stroke Engine Vehicles

- Increase the number of four stroke engine vehicles. Reducing two stroke engine vehicles through incentives and buy-back programmes. In addition, exploring completely banning two-stroke engine vehicles

Public Transport

- Expanding metro rail system and connecting with the suburban rail system. Also expanding metro / mono rail network progressively.
- Introduce more buses run by CNG.
- Explore the possibility of using battery powered buses on a pilot basis.



Fugitive Dust

- Un-asphalted roads to be asphalted as soon as possible along with building good quality roads with proper maintenance.
- Removing sand, mud, debris from the asphalted roads during and after construction related activities.

Non Motorized Transport

- Encouraging non-motorized transport such as walking and bicycling in the city specifically within the central business district by constructing bicycle only lanes and tiled or asphalted footpaths for walking.
- Build bicycle stands at the metro rail stations.
- Ensuring that the footpaths are used for walking only rather than for private parking and gardens, and market place for fruits and vegetables.
- Ensure any repair or upgrade of footpath is done quickly

Preventing Adulteration of Fuels

- Authorities must ensure that there is no adulteration of petrol and diesel through proper surveillance, inspections, spot checks and testing of the fuels in the trucks that transport the fuels and in the petrol bunks during the filling to the vehicles

Public Participation

- A massive public relation and awareness campaign including health effects of air pollution from transportation sources must be undertaken for the public to participate in the process.

Reducing Idling Time

- A massive public relation and awareness campaign must be undertaken to educate the public regarding idling of vehicles. Informing public regularly via radio and/or internet regarding the situation of the traffic flow in the city specifically for the high traffic areas during peak hours.

- Vehicles testing to be done during idling process to get a benchmark idling time.
- Exploring other modes of collecting toll rather than having toll booths that potentially may cause extra load of air pollution due to slow moving / idling of vehicles near the toll booths.

Traffic Management Measures

- Promoting the use of public transportation such as buses and metro / mono rail.
- Encourage car pooling,
- Expand paid motorcycle parking areas near Metro / Mono

Upcoming Events:

Certificate of Advanced Studies in Management of Development Projects (MaDePro) is being organized jointly by CISTUP and EPFL (Swiss Federal Institute of Technology) for the Indian part of the programme on Management of Development Projects, which will take place towards the end of February 2012 / beginning of March 2012 (27th February 2012 till 11th March 2012).

3 October 2011 – 19 February 2012 >> E-learning

27 February 2012 - 11 March 2012 >> Bangalore, India

12 March 2012 - 06 May 2012 >> Project

Objectives

To help professionals to adapt to these situations and promote an interdisciplinary and multicultural approach to these problems, the Swiss Federal Institute of Technology (EPFL), Lausanne with the support of the Indian Institute of Science (IISc), Bangalore, is organizing a Certificate of Advanced Studies in Management of Development Projects (MaDePro) targeted at project managers, engineers, architects, social scientists, and other equivalent university graduates. The program is based on three different aspects: knowledge, practice and skills.

27 February 2012-11 March 2012 >> Bangalore, India --This face-to-face module will enable participants to get in touch with and experience the development realities of a country such as India. Participants will relate what they learned during the first parts to concrete situations and environments. Besides some introductory lectures, there will be an in-depth field trip that will enable participants to experience different development issues and to learn about the complexities of a rural community. The part will end by one day of experience sharing and the final day will be devoted to prepare the project part.

Knowledge Acquisition

The program will allow participants to learn and broaden their understanding of three essential aspects for effective development action:

- Development: the concept and origins of sustainable development, the international environment and the main development issues.
- Technology: Given the impact of technology on society and development, it is important to understand its role and how it can be integrated effectively in a specific environment.
- Project management: The program will present several important tools and methods that will help manage development projects more effectively.

Foundation Day Third Annual Lecture on 7th December 2011 at 11.00 am in the Faculty Hall, IISc



By Prof. Kumares C. Sinha,
Olson Distinguished Professor of Civil Engineering
Purdue University

Title of the Lecture: "Towards a Systematic Management of Urban Transportation Infrastructure Systems"

Abstract

The presentation will discuss principles and procedures for developing an integrated urban transportation infrastructure management system. While the primary emphasis will be on highway facilities, the interaction between roads and urban transit and other facilities will be highlighted and a system of systems approach will be considered. Techniques for tradeoff analyses between facilities as well as between management objectives will be presented.

About the Speaker.

Kumares C. Sinha (NAE) is the Edgar B. & Hedwig M. Olson Distinguished Professor of Civil Engineering at Purdue University. His research interest is in the area of transportation planning and engineering, with particular emphasis on infrastructure management and financing. He has authored or co-authored over 400 journal articles and other publications including a recent book, *Transportation Decision Making: Principles of Project Evaluation and Programming*, published by John Wiley & Sons. He is a registered Professional Engineer and he consults for the World Bank on transportation and infrastructure issues. He is currently a member of the Executive Committee of the Transportation Research Board (TRB) and Editor-in-Chief Emeritus of the *Journal of Transportation Engineering*. He has served as the President of the American Society of Civil Engineers (ASCE) Transportation & Development Institute, President of the Research and Education Division of the American Road and Transportation Builders Association (ARTBA), President of the Council of University Transportation Centers (CUTC), and as a member of the Federal Advisory Council on Transportation Statistics.

He has been the recipient of ASCE James Laurie Prize (2011), TRB Roy W. Crum Award (2009), Award for Distinguished Contribution to University Transportation Education and Research given by the CUTC (2005), Wilbur S. Smith Distinguished Transportation Educator Award (2002) given jointly by the Institute of Transportation Engineers (ITE) and several other professional organizations, ASCE Francis C. Turner Lecture Award (2001), ARTBA Steinberg Award (2000), ASCE Harland Bartholomew Award (1996), Engineering Alumni Award of the University of Connecticut (1995), ASCE Arthur Wellington Prize (1992), ASCE Frank M. Masters Award (1986) and TRB Fred Burggraf Award (1972). He is an Honorary Member of the ASCE and a member of the U.S. National Academy of Engineering.

Visit the website for programme details-

<http://cistup.iisc.ernet.in/7thdec2011fal.html>

ACATECH National Academy of Science and Engineering, Germany and Centre for Infrastructure Sustainable Transport and Urban Planning, Indian Institute of Science, Bangalore

Invites you to Symposium

Titled

"Socio-Economic Challenges for Smart Cities in India"

on 9th December 2011 at 9:30 AM
in the Faculty Hall, IISc

The Objective:

The objective of this symposium is to set the platform for discussion on some of the significant factors such as the socio-economic challenges by megacities, urban governance topics, citizens' engagement, role of NGO's etc, for the effective deployment of technology to make cities smarter to overcome the challenges of rapid urbanization in India.

Please visit the below link for Programme details:

<http://cistup.iisc.ernet.in/9thdec2011acatech.html>

- **Sixth (6) RAAC meeting of CiSTUP held on Thursday the 11th August 2011 at 3.00 pm in New Council Chambers (GF), IISc Bangalore.**
- **Meeting of the 7th Executive Council of CiSTUP held on 4th October 2011 in Council Chambers, Main Building, IISc.**
- **Inauguration of Robert Bosch Centre for Cyber Physical Systems Indian Institute of Science, Bangalore**

About the Centre

Robert Bosch Centre for Cyber Physical Systems, Indian Institute of science, was inaugurated on November 8th, 2011, by Dr. A. P. J. Abdul Kalam. This Centre, supported by a generous philanthropic grant by the Robert Bosch Foundation, aims to engage in applied research on Cyber Physical Systems—an emerging interdisciplinary area that brings together advances in distributed sensing, wireless communication, networking, computing, controlling physical devices, algorithms, and other allied technologies. The Centre, in addition to focusing on fundamental and applicable research on Cyber Physical Systems, will consider applications such as tele-medical care, **urban transportation, water networks, environmental monitoring, energy-efficient buildings, emergency response, disaster management, smart agriculture**, etc. In line with the current view that Cyber Physical systems are likely to transform how we interact with the physical world by creating an Internet of physical objects and not just computing and communication devices, the Centre will undertake research projects that are likely to lead to innovative technology products that will have an enormous impact on society. The Centre will also interact with the industries and support entrepreneurial activities to help transfer the technologies developed in the Centre to the world at large.



Prof. T. G. Sitharam, CiSTUP, IISc gave lecture on “A Framework for Achieving Sustainable Urban Mobility: Applications of Cyber Physical Systems” during the inaugural symposium.

INDIAN ENGINEERING CONGRESS, BANGALORE

Chairman CiSTUP Prof. T.G. Sitharam is organising panel discussion on "Urban Mobility & Transportation" during the R&D Panel Discussions which is being held on 17th December 2011 in the Indian Engineering Congress(IEC).The panel discussions will also be having speakers talking on **Infrastructure issues and Intelligence transportation**

CISTUP-DULT Association

Commissioner DULT has now become the member of CiSTUP executive council. Earlier they were only invitees to the council. MOU has been signed with Commissioner DULT and Chairman CiSTUP in assisting DULT for the establishment of a Traffic Engineering and Transportation Cell (TETC) in the specific areas of Conducting traffic & Transportation related studies; appraising major project proposals having impact on Urban transport from sustainability and equity angles specifically in the area of public transport and non –motorized transport; conduct alternate analysis of various options; Recruitment of necessary Manpower; and to review the functioning of the TETC from time to time.

At present, there is no single technical body which scrutinizes the plans of all the stakeholders in BMR region from a holistic perspective. It is in this context that the creation of Traffic Engineering and Transportation Cell(TETC) is mooted for BMR. The TETC is expected to not only look into engineering techniques associated with safe and efficient traffic flow like road geometry, traffic lights,etc. but would also look into transport engineering and urban planning issues.

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