

CSIR CRRR Newsletter

सीएसआईआर-सीआरआरआई समाचार पत्रिका



In this issue

Down the Memory Lane

- Part I

- pg 1

Highlights of major R&D
Projects

- pg 2

Fast Track Translational
Projects

- pg 3

Consultancy Projects

- pg 5

Workshops

- pg 11

Meetings

- pg 13

Invited Talks

- pg 14

राजभाषा गतिविधियां

- pg 14

General Events

- pg 16

Training Programs

- pg 19

Retirements

- pg 19

CSIR-CRRR in the News

- pg 20



Down the Memory Lane - Part I

Need for the Central Road Research Institute was emphasized for the first time at the conference of Chief Engineers of Provinces and States held in December, 1943 at Nagpur. After prolonged discussions in different committees and forums, the General Body of the CSIR sanctioned staff strength of 37 for setting up of CRRR in March, 1950. Dr. Ernst Zipkes, an Eminent Road Engineer from Switzerland was appointed as the first Director of Central Road Research Institute (CRRR) in May, 1950. Dr. R. K. N. Iyengar and Dr. H. L. Uppal were appointed as Assistant Directors. CRRR started functioning in a temporary building in 1951 with 15 Technical Staff and 22 Administrative Staff members. The opening ceremony of the institute was held on July 16, 1952. A brochure on the institute highlighting its functions and problems being investigated in the



An animal drawn Road Roller for rural road works

institute was also brought out at this occasion.

The three divisions with which it initially started functioning were Soils, Concrete and Bitumen. Therefore, it is no wonder that the first notable achievement of the Institute was in the area of materials. Test method and test equipment were developed to assess the wear resistance of concrete and mortar in the laboratory. These details were later incorporated in an Indian Standard. Prof. S. R. Mehra became the first Indian Director of CRRR in 1955.

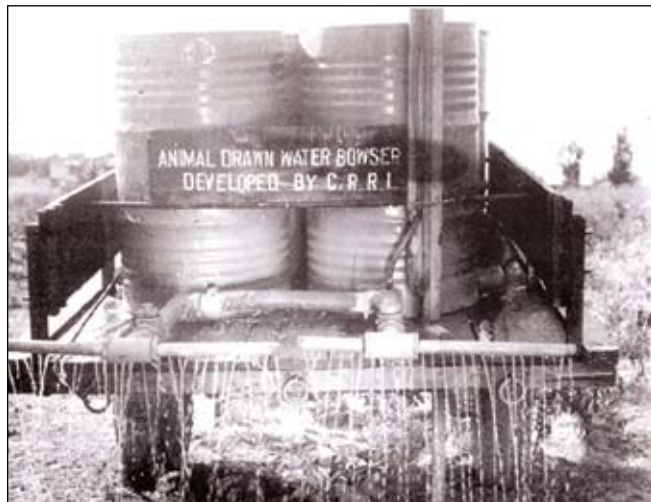
With this humble beginning, the CRRR has added many feathers to its cap over a period of 67 years. The first consultancy project to the Institute was probably the one sponsored by Bharat Heavy Electrical Limited (BHEL), Bhopal in mid 50s to design the cement concrete roads in its factory area with very special conditions of sub grade and wheel load. The soft soil was protected with heavy duty tar felt and pavement was designed using Pickett-Ray charts.



Construction of concrete slabs with dowel bar in BHEL Bhopal area

CRRRI made landmark contributions in providing rural connectivity right from its inception. It developed a cart mounted (animal drawn) water Bowser and an animal drawn road roller.

Over the years the Institute developed a number of improved bullock carts with innovative design and



A cart mounted (Animal drawn) Water Bowser



The bullock cart with self aligning wheels designed at CRRRI

released these designs for commercial manufacturer. A wheel-axle system tester was devised at the Institute and a bullock cart with self aligning wheels was designed and tested on the Institute test track during late 1950s.

Prototypes of these inventions were displayed at CRRRI stall at India 1958 Exhibition at Pragati Maidan, New Delhi. The CRRRI stall was visited by the then Prime Minister of India and the President, CSIR Society.

Highlights of Major R&D Projects

Twelfth Five Year Plan Projects

CSIR conceived various sectoral projects which aimed towards achieving its objectives and mandate during 12 Five Year Plan period (2012-2017). Under the theme area on 'Housing, Road, Construction, Structures and Safety' there are nine projects out of which three projects are executed by CRRRI, they are: (i) Sustainable transportation technologies; (ii) Highway capacity manual; (iii) Modeling of fuel loss and emissions at signalized intersections. These projects are classified as network and supra institutional projects. The network projects are executed with other CSIR laboratories and academic institutions such as IITs, NIT and Technological Universities/ Institutions. The outcome of these projects are aimed to develop industrial and societal oriented technologies, engineering design improvements, use of alternative and improved materials for better planning and management infrastructural facilities in India.

i) Development and Application of Technologies for Sustainable Transportation

The project has been divided into two different modules (a) Road Module - which deals with development of improved and alternative materials, construction technologies for road sector, development of methods to estimate carbon credit for road construction using different materials, specifications and construction technologies. (b) Transportation Module: application

of ITS technologies, travel demand estimation modeling, sustainable public transportation system, integrated urban transport system and design and development of indigenous car driving simulation. The major technology developed and commercialized under the project are harder grade bitumen for formulation of asphalt surfacing of roads and airfields pavements and car simulator with driver diagnostics. In addition, various guidelines are developed for sustainable public transport system and non-motorised modes. Some of the other leads emerged from the project are:

- Utilization of Waste Materials like Red Mud, Foundry Sand and Jerosite in road construction
- Recycled Asphalt Pavement (RAP) materials in road construction and maintenance
- Bitumen modified with Nanofibrous carbon (BNF) synthesized from leather waste
- Integrated Intelligent Dynamic Information System for Public Transport
- Superior Performing Bituminous Technology for Long Lasting Pavements
- Warm Mix Technology for Bituminous Roads

ii) Indian Highway Capacity Manual

An attempt was made first time in India to develop Indian Highway Capacity Manual for Indian condition

by incorporating all types of roads and vehicles according to our traffic characteristics. The project was executed by CRRRI along with other academic institutions viz., IIT Bombay, IIT Guwahati, IIT Roorkee, SVNIT Surat, Anna University Chennai, IISER Sibpur and SPA New Delhi in a networked manner. The manual provides methods and values for determining the roadway capacity and Level of Service (LoS) for various types of roads such as interurban roads and urban roads, separately by including varying types of intersections in urban / semi-urban areas coupled with assessment of pedestrian facilities. Engineers / Planners / Bureaucrats can look to follow the realistic capacity values evolved in this manual during the capacity augmentation of the existing facilities. The methodologies evolved will also be of academic interest to do further research in this field in India.

iii) Evaluation of Economic Loss due to Idling of Vehicles at Signalised Intersection and Mitigation Measures

The major objective of the project is to quantify

loss of fuel and emissions at the intersections and providing alternate solutions to reduce the same. The study mainly measured the fuel loss and emissions covering different categories of vehicles in the sampled intersection in the selected cities in India. The modeling has been evolved based on the traffic conditions in selected intersections of different cities in India. Guidelines are being framed for policy decision and implementation of investment interventions for intersection improvements. The developed guidelines will provide an assessment of Fuel loss at idling stage.

In addition to development of technologies, methodologies and guidelines the study outcomes also contributed to develop various standards, codes and specifications for Indian Roads Congress (IRC), Bureau of Indian Standards, etc. The projects have also generated knowledge base, skill development and produced many research papers and Ph.D thesis.

Fast Track Translational (FTT) Projects

Laying of Trial Sections of Cement Grouted Bituminous Mix (CGBM) in Surat City

Cement grout bituminous mix is a Semi flexible type of pavement comprising of open graded aggregates in the bituminous mix resulting high air void content in the mix. The voids in the bituminous mix are filled with cement grout. Cement grouted bituminous mixes have advantages of both flexible and rigid pavements. This hybrid mixture provides good rut resistance and a surface highly resistant to fuel and oil spillage.

CSIR-CRRRI has laid section of CGBM on experimental basis (Two sections of each 100

m length in July 2017) on roads under Surat Municipal Corporation.



View of Discussion about the CGBM laid section in Surat among various stakeholders of the Technology



View of pouring of Grout being done and squeezing on high voids bituminous Mix



Skid Resistance Measurement on CGBM section after two months of laying

Design of Noise Barrier based on different Frequencies

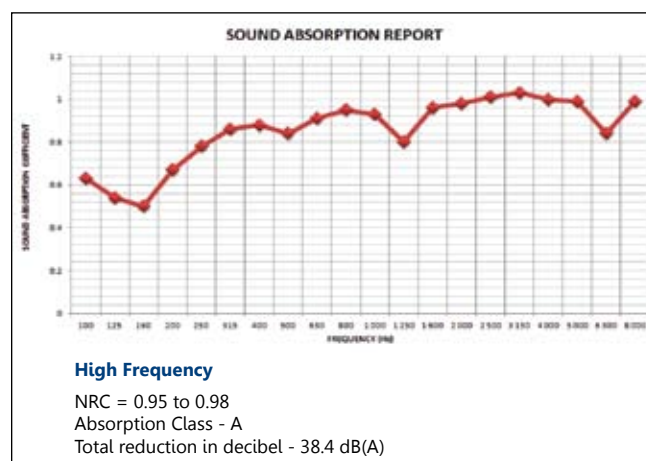
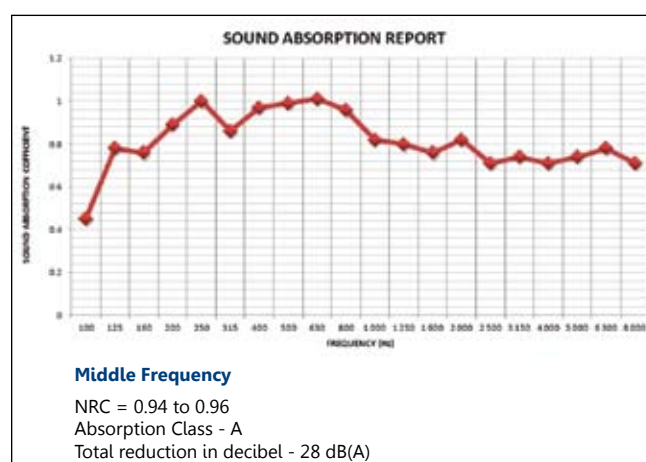
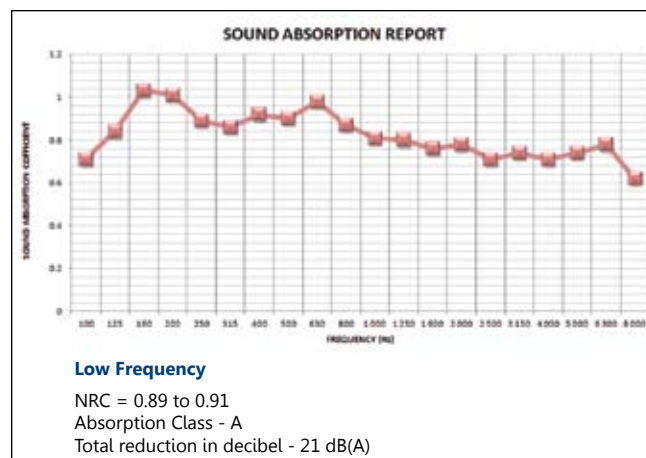
At global level, Noise Barriers are not designed based on the disturbing frequency generated from transport sector. In this study, noise barriers have been designed based on three types of frequency classes for maximum reduction of noise.

- Low frequency based Noise Barrier (<200Hz),
- Middle frequency based Noise Barrier (200-1k Hz) and
- High frequency based Noise Barrier (1k-20k Hz).

Different types materials have been used in different types of Noise Barrier :



CSIR-CRRI has achieved the following results in different types of noise barrier.



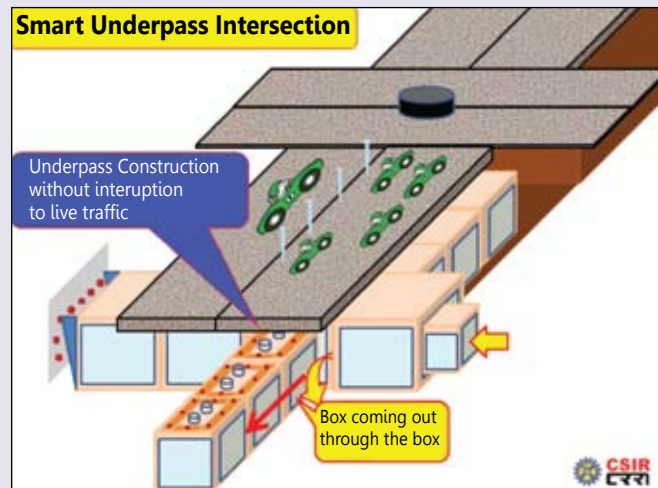
Economic / Social Impact Assessment Details

Socio-Economic Impact	
Industry Impact	Problem based solution for noise barrier manufacturers
Improvement in Quality of Life	Drastic reduction of noise level after installation of this noise barrier which will improve quality of life in surrounding area.
Environment Conservation	This noise barrier will be very much useful for human as well as animals in protection where train passes through forest areas.

Development and Evaluation of 'Soil Nailing Technique' for stabilisation of Slope for Underpass Intersection below Road/Railway

The rapid growth in population, industries and infrastructure development in country has led to shortage of land space in the metropolitan cities and also resulted in tremendous increase in traffic volume and congestion on roads. Many a times, further widening of road or provision of flyovers are not feasible due to many constraints. The underpass is the only viable solution in such situations.

Now-a-days, the precast RCC segments are gaining popularity in underpass constructions due to its many advantages. The shallow underpasses can be constructed by pushing pre-cast boxes under live



Construction of underpass intersection is in progress



Completed underpass, Yamuna Bazar, Delhi

loading and traffic conditions. Due to soil instability problems, most of the time the idea for construction of underpass is generally dropped and left behind.

CSIR-CRRI attempted this problem and recently invented the soil Nailing Technique by which, the underpass construction becomes simple, easy, safe, time saving, economical and user friendly in live loading condition. A stepwise de-stabilisation and stabilisation of Soil Nailing Technique for construction of underpass below live road /rails has been patented in India and abroad and the same is available at Google also.

Consultancy Projects

Geotechnical Investigations and Pavement Design for Basabani-Khamadi Road in District of Shimla, Himachal Pradesh

This study was sponsored by Public Works Department, Himachal Pradesh for design of Basabani-Khamadi Road in Shimla District from km 0.000 to km 52.000. The main objectives of the study were i) to carry out detailed geotechnical investigations and pavement evaluation of the existing road section of Basabani-Khamadi road, which passes through clayey subsoil condition and falls under high rainfall / snowfall condition, ii) to recommend a suitable pavement design for the entire road section and to suggest needed ground / drainage improvement measures to enhance life of constructed pavement.

To accomplish the above objectives the following activities have been performed:

- Inspected the project road area in order to make assessment of existing pavement surface distress and site conditions.



Basabani-Khamadi Road

- Full depth test pit observations were carried out.
- Collected soil / Water Bound Macadam (WBM) samples from various test pits dug along the project road.
- The engineering properties of materials retrieved from different test pits dug on the existing pavement surface were investigated at the laboratory.

Based on the laboratory study, recommendations have been made for crust composition of constituent pavement layers, specification and crust thickness for shoulders and also proposed longitudinal and cross drainage system for the road section.



Heavy Snowfall on the Study Section

Geotechnical Investigations, Ground Improvement and Pavement Design for Construction of a portion of Bakkarwala to Nangloi-Najafgarh Road

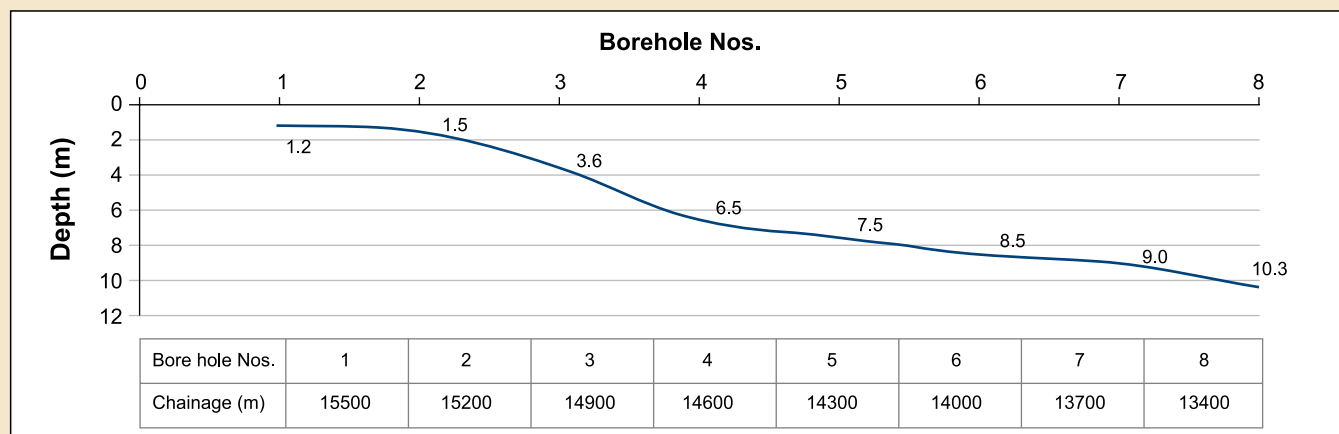
The design and construction supervision of Bakkarwala to Nangloi - Najafgarh Road which is approximately 3 km in length was awarded to CSIR-CRRI by Delhi Development Authority. DDA has developed a housing cluster / colony at Bakkarwala (Lok Nayak Puram) in North West Delhi, in order to

promote housing in different locations of Delhi. It was proposed to connect this colony with Delhi - Rohtak Road (NH-10) i.e. Connecting Bakkarwala to Nangloi - Najafgarh Road from RD18500 m to RD15500 m.



Sub Soil Investigations in Progress

The final report was submitted in the month of April 2017, includes recommendations for crust design and the ground improvement measures in which the use of construction and demolition waste material was suggested upto a suitable depth and re-use of the excavated soil in the subgrade and other applications.



Variation of Depth of Water Level along the Proposed Alignment

Design of Flexible Pavement for 60 m ROW Road Between Sector 36-31 & 37-32 in Rohini, Delhi

The work for Design of Flexible Pavement for 60 m ROW Road Between Sector 36-31 & 37-32 in Rohini, Delhi was awarded to CSIR-CRRI by Delhi Development Authority, with the objective to determine the suitability of available earth as subgrade material for flexible pavement design and provide specific design recommendations for the construction of 60 m wide road between Sector-36-31 and 37-32, Rohini, Delhi. To accomplish the above objectives the following activities have been performed. :

- Site visit / inspection of the project road area and proposed road alignment to assess the ground situation of proposed road site.
- Collection of limited number of soil samples from various locations along the proposed alignment.
- Laboratory testing of collected soil samples, in order to assess their suitability to be used as embankment / subgrade for the new proposed road.



Collection of Soil Sample from Site

- Analysis of data / results for design of flexible pavement, based on IRC: 37-2012 guidelines.

The final report was submitted in the month of May 2017, which includes recommendations for crust composition of pavement layer for proposed project road.

Evaluation of G.T Road from Shahdara Flyover to Apsara Border for Needed Overlay and Remedial Measures

The work for Evaluation of G.T Road from Shahdara Flyover to Apsara Border for Needed Overlay and Remedial Measures was awarded to CSIR-CRRI by Public Works Department, Division (Shahdara), Delhi with the objective to determine the strengthening and remedial measures. In order to achieve the above objectives, field investigations were carried out which includes

1. Visual assessment of pavement surface condition



Cracked Pavement Surface



BBD Test in Progress

2. Benkelman Beam Deflection (BBD) study
3. Classified Traffic Volume Counts

The report was submitted in the month of May 2017 and presents the results obtained from the field investigations and the details of the overlay thickness assessed. It also incorporates various construction practices and standards and suitable suggestions/recommendations to improve the existing condition of the road.

Feasibility Study of Foundry Sand Waste Material for Road Construction

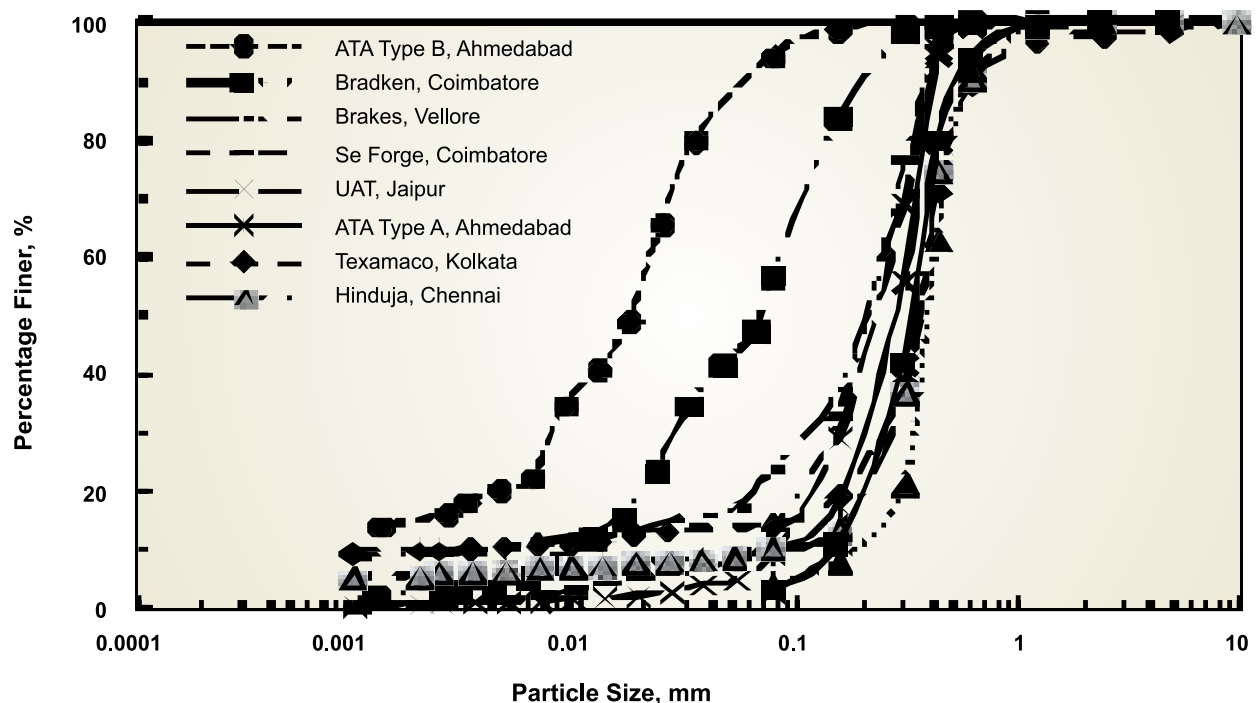
Natural sand is used as a moulding material in the ferrous and nonferrous metal casting industries. This sand is typically recycled and reused through many production cycles. After several cycles, it is not suitable for the industry and becomes as a waste material which is called foundry sand. The total production of this waste sand is about 3 million tons annually. To study the potential of foundry sand as a road construction material, a research programme is being carried out which is sponsored by M/s The Institute of Indian Foundry men. For this, foundry sand samples are collected from 10 different industries located in India. Its physical and geotechnical characteristics are evaluated. Design and stability analysis of foundry sand embankment is in progress under different conditions viz. seismic, saturation, sudden draw down etc. Development of specifications for utilization in embankment, sub grade, GSB, shoulder layers, Dry Lean Concrete and Pavement Quality Concrete is also in progress.

However, preliminary investigation of foundry sand reveals that it is a coarse grained material with percentages of sand (80 - 100 %), silt (0 - 20 %) and clay (0 - 10 %). It is a non plastic material. According to BIS:1498 (1970), most of the selected foundry sands are classified as SW i.e. well graded sand. The Maximum Dry Density and Optimum Moisture Content are observed to be in the range of 10 to 20

KN/m³ and 10 - 25 % respectively. It has good CBR and shear strength parameters. Based on preliminary investigation, it is observed that this material may be suitable for the construction of embankment and sub grade. Pictorial view of foundry sand and Grain size distribution curves of different foundry sand are shown in figures.



Foundry sand



Grain size distribution curves

Rural Road Development: A Case Study of Ramdiha Village (CSIR 800 Project of AcSIR)

Rural India mirrors the indigenous visage of our nation. According to Census 2011, 833 million people reside in rural areas. There are as many as 780 languages and people are involved in diverse occupations. Due to absence of proper connecting channels many far flung areas are cut off from mainland India. These hinterland need to be brought to the mainstream India for their overall prosperity and progress. Building rural roads to bring about this change is one of the major priorities of Gol and in 2000 it launched a nationwide program, the Pradhan Mantri Gram Sadak Yojna, (PMGSY- the Prime Minister's Rural Roads Program) under the Ministry of Rural Development (MoRD). The program envisages providing new connectivity to about 180,000 habitations through the construction of about 372,000 kms of roads, and upgrading about 370,000 kms of the existing core rural network to provide full farm-to-market connectivity. The total outlay for the program is 33 billion USD. PMGSY is being implemented as a 100 per cent centrally-funded program aimed at providing all-weather connectivity to all habitations of above 500 population (250 in case of hills, desert and tribal areas). Although many constructional work are being carried on under the scheme, large number of villages are have not been included and are still struggling to carry on their everyday activities. One such village is being studied here, Village Ramdiha in Buxar, Bihar.

Problems Identified in Study Area were Kachha road for connectivity, no drainage provision, lack of safety consideration and absence of sign boards.

Suggested Solution for Rural Road construction were



Location of Ramdiha Village on Google Map

- 1) Short term Solution of the use of alternative material available locally. Ramdiha village has many brick kilns in its vicinity. The burnt bricks can prove to be one of the alternative materials for road construction. It is a low cost solution and is very appropriate given the availability of cheap local material and community labour. Since the traffic load is very low, this seems to be a viable and sustainable method to improve the situation of Ramdiha and is thus highly recommended
- 2) Long term solution suggested construction of WBM roads. Long term solution proposes the construction of WBM road in accordance to IRC specifications. This method can be implemented only if proper funding is available and thus seems hard to be realized sooner.

The entire socio economic gambit of the villagers will be affected by this newly constructed road.

Site Impact assessment due to the proposed DMRC office complex at Jantar Mantar Area, New Delhi

The site impact study for the proposed Delhi Metro Rail Corporation (DMRC) office complex at 8 Jantar Mantar Road, New Delhi, was carried on behest of DMRC. This study was rightly initiated by the DMRC as it is prudent for any development resulting in 100 or more trips in peak hours to have a site impact assessment. The study was carried out to assess the impact of a proposed office complex on traffic in

the adjoining roads encompassing 8, Jantar Mantar Road.

The objectives of the study are to estimate the passenger/vehicular traffic generated by the proposed DMRC office complex and assess the impact of traffic on the adjoining road network and enumeration of the existing traffic flows on the major road links in the vicinity of the proposed development and

appreciate the present and future traffic scenarios on the adjoining road network.

The analysis shows that the proposed office complex at 8, Jantar Mantar road would in itself not make a substantial addition to the estimated traffic flow in the horizon years 2022 and 2027. Even in the case wherein 1/3rd of the trips originating from the proposed office complex would use private vehicles with single occupancy the contribution to the peak hour PCUs on Ashoka Road and Sansad Marg is expected to be (away from Patel Chowk) and 4.3% respectively. The above roads namely Ashoka Road, Jantar Mantar Road and Sansad Marg during the horizon year will experience congestion due to natural growth of traffic even in the absence of a proposed office complex. This is witnessed on most of the major arterial roads in Delhi during the effective part of the day due to absence of any restraint measures for private vehicle usage. It is hence mentioned that the above proposed office complex by its very existence in the horizon year would not contribute substantially towards the onset of traffic congestion. The congestion will occur naturally with the growth of vehicles in absence of proper policy measures to curb them.

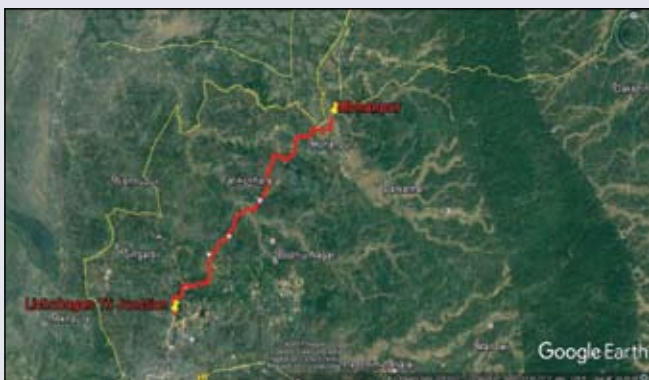
- Currently the percentage distribution of trips from the proposed office building is skewed towards Sansad Marg (50 % of the generated trips using Sansad Marg) and Jantar Mantar Road (29 % of the generated traffic using Jantar Mantar

Road). Therefore, it is recommended that a gate accessing the Ashoka Road be provided by DMRC such that the entry of trips into the proposed office complex during the morning hours can be made from Ashoka Road. During the days when blockage is implemented on Sansad Marg and Jantar Mantar Road the gate on Ashoka road shall act as both entry and exit point for all the vehicles from the proposed office complex.

- A policy revision in line with the objective to develop an office complex needs to be made to ensure a congestion free ride on these roads in future years. Usage of public transport needs to be encouraged along with encouragement of carpooling. The reduction in the number of vehicle traffic generated from the office complex, assuming a higher occupancy than single indicates the importance of carpooling. The impact of public transport on traffic growth is brought out by assessing the impact of Patel Chowk Metro station on Sansad Marg traffic. It is found that around 56.28% reduction in traffic growth rate is observed in the year 2017 with respect to the probable growth rate on Sansad Marg.
- A traffic circulation plan for the traffic generated from the proposed commercial complex shows the ease of integration of the traffic from the proposed complex during the horizon year traffic under various blockage situations.

Road Safety Audit of 20.00 Km Stretch of Agartala Capital City Road, Tripura

Agartala is the capital of state of Tripura and also is the second largest city in North-east India after Guwahati, both in municipal area and population. The city is the seat of the Government of Tripura. Agartala is one of the fastest developing cities of India. Agartala lies on the bank of the Haora River and is located 2 km from the Bangladesh Border.



(Source / Courtesy: Maps of India)

Geographical Location of Lichubagan Tri Junction to Mohanpur Road

National Highway 44 connects Agartala to Assam and the rest of India by road, also known as the lifeline of Tripura. The highways (NH44, NH 44A) connects Agartala with Silchar (317 km), Guwahati (599 km), Shillong (499 km), Dharmanagar (200 km) and Aizawl (443 km). A bus service connects it to Dhaka (150 km). Agartala is well connected by road to other parts of Tripura state. National Highway 44 has been extended to the south, thus improving the road connectivity between Agartala and south Tripura. Buses, Jeeps, Trekkers and SUVs are the most popular public carriers, and cars and vans are usually used for private hire. The Highway generally passes through hilly terrains, while travelling from the city towards the North one can experience the lavishing and lush green Baramura Hill Range Atharamura Hills and the Longtharai Hills and while moving towards the South Debatamura Hills can be seen.

Tripura state has National Highway Km 853, State Highway Km 329, Major District Road Km 90, Other

Districts Road Km 1,099 and Village Road (PWD) Km 9,674 (2015-16). The Vehicles population of Tripura consists Passenger Vehicles Nos 3,16,141, Goods Vehicles Nos 27,829, Other Vehicles Nos 3,123, Total Vehicles N 3,47,063 (2015-15). The location of the study area is shown in Figure.

The study objectives of road safety of 20 km stretch of Agartala capital road of PWD (R&B) from Lichubagan Tri Junction to Mohanpur Road are to Conduct Road Safety Audit (RSA) covering the road network of 20 Km from Lichubagan Tri Junction to Mohanpur Road and to understand the traffic characteristics and road crash scenario through the conduct of relevant traffic studies and critical data analysis of the traffic flow, road crashes and assessment of speed characteristics on the identified stretches in study area.

The scope of the study covers the Lichubagan Tri Junction to Mohanpur Road for the Road Safety Audit of existing stretch.

- To Study the Black Spots based on FIR data/ accident data provided by the client.
- To prepare the action plan to remove the black spots.
- To analyze the secondary data relating to the traffic volume / spot speed studies, road crash data and assessment of speed profile characteristics.
- To conduct traffic studies and analysis of the traffic flow data.
- Identification of problems being faced by different categories of road users during post-operational phase.
- Identification of shortcomings/ inadequacies with a view to improve / enhance the safety of all road users.
- Safety concerns & recommendations with full reasons and explanation to enable informed decision making regarding safety.

Workshops

Dissemination workshop of project titled “Estimation of Fuel Consumption during Idling of Vehicles at Bhikaji Cama Intersection and Savings after Employing Suitable Mitigation Measures

With increasing traffic at intersections it becomes essential to install traffic control devices to regulate the movements through the intersection. Automatic traffic signals are the most commonly used traffic control devices installed at the road intersections. When the vehicles are waiting for their turn to clear the intersection, the drivers normally do not keep the engines off and this results extra fuel consumption due

to idling. A vehicle engine consumes fuel even when it's running while idling. The idling during Red phase at signalized intersections contribute significantly in total Fuel Loss, Small amount of fuel aggregated over number of cycles per day, number of days per month and number of signalized intersections becomes a huge quantity.

The endeavour of Petroleum Conservation Research



Association (PCRA), New Delhi is to explore and implement ways and means to conserve the fast depleting fuel reserves. PCRA New Delhi initiated the installation of Countdown timers at signalized intersections to encourage vehicle drivers to switch off their vehicles if the Red phase is more than 15 seconds. With a view to assess the wastage of fossil fuels during idling of vehicles and to evaluate the effect of Countdown Timers and an Awareness Campaign to sensitize about the benefits of turning off engines of the vehicle and encourage to do so, on 'switching off' behaviour of vehicle drivers during Red phase at signalized intersection. PCRA entrusted CSIR-Central Road Research Institute, New Delhi with a research project entitled "Estimation of Fuel Consumption during Idling of vehicles at Bhikaji Cama Intersection and savings after employing suitable mitigation measures. With this background the objectives of the study are as follows.

- Quantification of fuel loss during idling of vehicles at selected intersection.
- To know the effect of awareness program on switching-off behaviour.
- To estimate the saving potentials of engine switching-off behaviour at selected intersection.
- To compare fuel loss and emission change 'before and after' employing mitigating measures (Switching off of engines of vehicles)

This study is limited to only one location i.e. Bhikaji Cama Intersection.

The study was divided into three phases, One 'BEFORE' scenario, where the existing situation without any intervention was assessed. Then a One week rigorous Awareness Campaign was undertaken. A Switching Off behaviour assessment survey was conducted 'DURING' the ongoing campaign and

'AFTER' 7 days campaign was over. Various types of primary & secondary data have been collected including Classified Traffic Volume Counts (CTVC), Delay studies; switching-off behaviour observations, fuel consumption and emission levels.

At-grade traffic observed at intersection was 1.03 lakh; out of this 62161 (62% of total traffic) is potential traffic that can switch off during idling. A rigorous on-site campaign was undertaken employing the above measures to draw the attention of the vehicle drivers during the campaign and spread the message of Switching off their vehicles during Red Phase. More than 50,000/- bilingual Pamphlet were distributed to the drivers directly during idling and with the help of newspaper distributors. Advertisements were published in English and Hindi newspaper as well. On-site banners, stationary boards, enumerators holding placards, etc. were at site for 7 days.

Number of switched off vehicles were observed during all three scenarios manually. 19.96% vehicles were observed switching off before campaign which increased to 62.33% during campaign and reduced to 52.88% after campaign. Apart from this, 7.15% increase in switching-off behavior has been observed due to corrected positions of Countdown timers.

Estimated fuel savings in monetary terms is ₹5499, ₹17368 and ₹13518 for "Before", "During" and "After" scenarios respectively.

The CO₂ loads reduction in Before scenario were 280.23 Kg per day due to switching off of vehicles during Red phase. With increase in incidence of switching off the reduction in pollutant loads was estimated to be 893.38 Kg per day and 689.03 Kg per day during and after campaign respectively. In other pollutants like NO_x and CO similar trends were observed.



PCRA Workshop

1st Meeting for World Bank Research Project on "Megacity Logistics: Metrics, Tools and Measures for Sustainability (MEGALOG)"

The World Bank Group has funded a research project on "Megacity Logistics: Metrics, Tools and Measures for Sustainability (MEGALOG)" which is to be carried out at this institute in association with TNO, Netherlands and TU Delft, Netherlands. As part of the project, the stakeholders need to be involved in conducting meetings so as to understand and reach the actual ground level problems and difficulties in implementing transport policies related urban freight traffic. Accordingly the first meeting for this purpose was conducted on May 9, 2017 at the C. V. Raman Hall of CSIR - CRRRI, Mathura Road, New Delhi. This meeting was attended by the policy makers, development authorities,

practising engineers representing national / state level and local bodies, academia, research institutes and decision makers etc. Some of the views of the meeting are given below:



Director (CSIR-CRRI) chairing the MEGALOG Meeting



Dr. Errampalli Madhu (CSIR-CRRI) making presentation



Prof. Lori Tavasszy (TU-Delft, Netherlands) making presentation



Mr. Jeroen Borst (TNO, Netherlands) making presentation



View of the Stakeholders participated in the MEGALOG Meeting

Invited Talks

Dr. Errampalli Madhu, Principal Scientist (CSIR-CRRI) participated in Panel Discussion in SAFE (a SIAM initiative) Annual Convention 2017 on "Vision towards Safer Roads: Technology, Education & Enforcement" in association with Ministry of Road Transport and Transport Department & Highways, Government of Odisha on 20th April 2017 at Mayfair Lagoon, Bhubaneswar, Odisha.



Nature Awareness Talk Followed by Nature Walk

Dr O P Sharma, IFS, Director Ecology Environment & Remote Sensing, J&K delivered a talk on nature awareness followed by nature walk. It was organised inside the CRRI campus, acquainting us with eco stories of plants around the campus. The staff members attended this Nature Awareness event on 3rd May 2017.



हिंदी में स्वास्थ्य संबंधी व्याख्यान

संस्थान के कार्मिकों में राजभाषा हिंदी के प्रति सकारात्मक वातावरण का निर्माण करने के लिए प्रत्येक तिमाही में हिंदी व्याख्यान का आयोजन किया जाता है। इस श्रृंखला में स्वास्थ्य से संबंधित जागरूकता उत्पन्न करने के लिए दिनांक 19 मई 2017 को संस्थान में प्रो. एस.सी. मनचंदा (पद्मश्री) का “स्वस्थ जीवन शैली, बीमारियां एवं उनका उपचार” विषय पर हिंदी में व्याख्यान का आयोजन किया गया। अखिल भारतीय आयुर्विज्ञान संस्थान (एम्स) से सेवानिवृत्त और पद्मश्री से सम्मानित डॉक्टर मनचंदा ने सरल हिंदी में आधुनिक मानव की असंतुलित जीवन शैली की चर्चा की और बताया कि अपने जीवन में हमें जिन बीमारियों का सामना करना पड़ता है उनसे बचाव और



उनके उपचार के बारे में जानकारी प्राप्त करना आवश्यक है। भोजन और जीवन शैली के संतुलन तथा नियमित योग और व्यायाम के द्वारा जीवन में उत्तम स्वस्थ का लक्ष्य प्राप्त किया जा सकता है।

इस अवसर पर सभागार में उपस्थित संस्थान के कार्मिकों ने स्वास्थ्य से संबंधित अपनी शंकाएं डॉ. मनचंदा के समक्ष रखीं और उन्होंने विस्तार से इनका समाधान दिया। डॉ. मनचंदा ने अपने व्याख्यान में इस बात को रेखांकित किया कि जीवन शैली को सुव्यवस्थित बनाना तथा अवसाद और तनाव से बचाव के लिए शारीरिक, मानसिक एवं आध्यात्मिक उन्नति के लिए प्रकृति सम्मत एवं भारतीय संस्कृति के अनुरूप जीवनचर्या को अपनाना महत्वपूर्ण है।

संस्थान में दिनांक 19 मई 2017 को आयोजित हिंदी व्याख्यान के कार्यक्रम में सभी अधिकारियों एवं कर्मचारियों को आतंकवाद विरोधी शपथ भी दिलाई गई। दिनांक 21 मई को मनाए जाने वाले आतंकवाद विरोधी दिवस के उपलक्ष्य में संस्थान के निदेशक महोदय प्रो. सतीश चंद्र और वरिष्ठ प्रशासन नियंत्रक श्री ओ. उम्मन पणिकर ने यह शपथ दिलवाई।



संस्थान की राजभाषा कार्यान्वयन समिति की तिमाही बैठक

सीएसआईआर-सीआरआरआई राजभाषा कार्यान्वयन समिति की तिमाही बैठक में संस्थान की पिछली तिमाही की बैठक की कार्यवाही और निर्णयों पर कार्यवाही पर विचार एवं तिमाही प्रगति रिपोर्ट पर विचार किया गया और संसदीय राजभाषा समिति की दूसरी उपसमिति को

दिये गए आश्वासनों पर विचार किया गया। राजभाषा विभाग, गृह मंत्रालय के वार्षिक कार्यक्रम 2016-17 के निर्धारित लक्ष्यों के आधार पर संस्थान की राजभाषा प्रगति पर भी विचार किया गया।

कंप्यूटर पर वॉइस टाइपिंग द्वारा हिंदी में कार्य विषयक हिंदी प्रशिक्षण

वॉइस टाइपिंग के माध्यम से कंप्यूटर पर राजभाषा हिंदी के कार्य को बढ़ाने हेतु संस्थान में दिनांक 30 मई 2017 को हिंदी कार्यशाला-सह-प्रशिक्षण सत्र का आयोजन किया गया। प्रशिक्षण के दौरान संस्थान के कार्मिकों को विस्तार से यह बताया गया कि किस प्रकार कंप्यूटर में कुछ सेटिंग के माध्यम से हिंदी वॉइस टाइपिंग का उपयोग किया जा सकता है। इसके लिए कंप्यूटर में



माइक्रोफोन/इयरफोन का प्रयोग करके कंप्यूटर पर हिंदी में कार्य किया जा सकता है।

कार्यशाला-सह-प्रशिक्षण कार्यक्रम में अभ्यास-सत्र के अंतर्गत बड़ी संख्या में प्रतिभागियों ने स्वयं बोलकर कंप्यूटर पर 'वॉइस टू टेक्स्ट' नामक इस प्रणाली का व्यावहारिक ज्ञान प्राप्त किया। कई प्रतिभागियों ने इयरफोन/हेडफोन की सहायता से अपने मोबाइल फोन पर भी इसका अभ्यास किया। कर्मचारियों को सरकारी कामकाज में हिंदी कार्य की मात्रा बढ़ाने के लिए हिंदी टाइपिंग का यह सरल उपाय बताया गया।

General Events

समन्वय महिला क्लब द्वारा पेरेंटिंग लैक्चर का आयोजन

सीएसआईआर-सीआरआरआई में समन्वय महिला क्लब के सौजन्य से 20 अप्रैल 2017 को संस्थान के सभी अधिकारियों एवं कर्मचारियों एवं उनके परिजनो को बच्चों के पालन पोषण के विषय पर सुश्री संतोष जावा (सत्या साई बाल विकास) ने अपने द्वारा दिये व्याख्यान के अंतर्गत उनको बताया गया कि आप लोग हमारे बताए गए दिशानिर्देशों का अपने जीवन में प्रयोग करके एक अच्छे अभिभावक के रूप में अपने बच्चों का सही पालन पोषण कर सकते हैं, और उनका जीवन सफल बना सकते हैं।





National Technology Day Celebration

National Technology Day was celebrated at CSIR-CRRI on 11th May, 2017. On this occasion, a lecture on "Use of Information Technology for Traffic Management in Delhi ", was delivered by Shri Ajay Kashyap (Spl. Commissioner of Police, New Delhi), who was invited as the Chief Guest for the Function



सीएसआईआर-सीआरआरआई में निर्मल एकादशी पर छबील का आयोजन

दिनांक 29 मई, 2017 को श्री गुरु अर्जुन देव जी के शहीदी दिवस और निर्जला एकादशी पर संस्थान में मीठे पानी और कड़ाह-प्रसाद का वितरण किया गया।



World Environmental Day Celebrations

On the 5th June, occasion of World Environment Day 2017, Tree Plantation was done by Prof. (Dr.) Satish Chandra, Director CSIR-CRRI at CRRI Campus and the quiz competition on Environment Awareness was organised by Dr. Anuradha Shukla, Head, Environment Science division, CSIR-CRRI.



Celebration of International Yoga Day at CSIR-CRRI

CSIR-CRRI celebrated International Yoga Day in its premise on 21st June 2017. Yoga exercise session for the Institute's staff was conducted by Dr. Neelam J. Gupta, Principal Scientist. More than 75 staff member attended the Yoga session. The session consisted of short warm-up period that focuses on relaxation, centring, and breath. This was followed by Surya Namashkar to build heat and get the heart rate moving. Finally Pranayam for focusing on breathing and relaxation.

Prof. Satish Chandra, Director CSIR-CRRI and Mrs. Sunita Chandra graced the occasion by their presence.



Training Programs

Training Programme on "Construction of Cement Concrete Pavement for Low Volume Traffic Roads" for the Engineers of Rural-Engineering Department, Uttar Pradesh. (5-8 June, 2017)



Training Programme on "Design, Construction & Maintenance for Flexible Pavements, Quality Control and Quality Assurance for Road and Bridges" for the Engineers of Rural-Engineering Department, Uttar Pradesh. (12-16 June, 2017)



Certification Course on "Road Safety Audit and Other Road Safety Related Aspects" for Road Safety Auditors/ Highway Engineers/Traffic Engineers/ Transportation Planners/Student Interns. (15-30 May, 2017)



As per the requirements of National Highway Authority of India (NHAI), Fifteen days Certificate Course on 'Road Safety and Other Road Safety Related Aspects' was organised by CSIR-CRRI, New Delhi for Consultants of Highway Engineers/Traffic Engineers/ Transportation Planners Organised by 30 participants were attended. The course covering the theory and practical road safety audits and field visits and practical audit findings presentations.

Retirements

Following staff members got retired from service of the Institute during the period.



Sh. Suresh Chandra
Sr. Tech. Officer on
28/04/2017

Ms. Kavita Jain
Sr. Tech. Officer on
28/04/2017



Ms. Pawan Chabra
Pr. Scientist on
30/05/2017

Ms. P. Pramadavalli
Sr. Pr. Scientist on
30/06/2017



Sh. Tek Chand Thapa
Work Assistant on
30/06/2017

Sh. U.S. Rao
Sr. Scientist on
30/06/2017



CSIR-CRRI Welfare Committee organized functions to bid all of them a grand farewell.



Published by:

Prof. Satish Chandra, Director, CSIR-CRRI, New Delhi

Editorial Committee:

Sh. T.K. Amla, Chief Scientist & Head (ILT); Dr. Neelam J Gupta, Principal Scientist (ILT)

Sh. R.C. Agarwal, Pr. Technical Officer (ILT); Sh. R.C. Pardesi, Technical Officer (Retd.)