



CSIR - Central Road Research Institute  
केन्द्रीय सड़क अनुसंधान संस्थान

# CSIR CRRI Newsletter

सीएसआईआर-सीआरआरआई समाचार पत्रिका



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## National Get-together on Road Research and its Utilization (NGT-2012), March 1-2, 2012

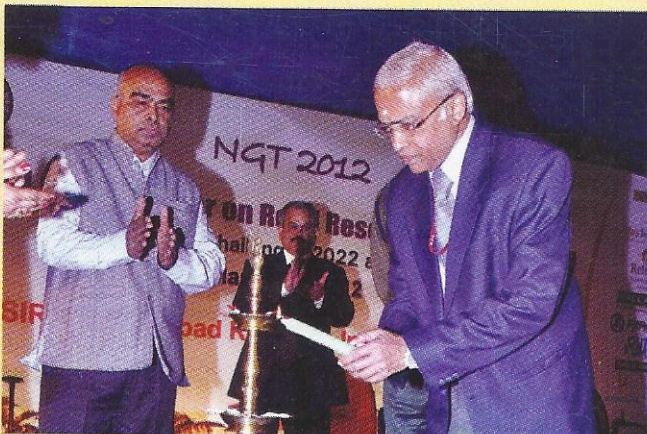
CSIR-Central Road Research Institute, organized a National get-together on "Road Research and its Utilization (NGT-2012)" at its premise on March 1-2, 2012. This was done with an aim to provide appropriate forum to highway engineering fraternity – researchers, experts, academicians, consultancy and contracting firms, manufacturers of materials and equipments associated with road development in our country. The main purpose was to hold deliberations on emerging issues related to roads and road transportation for ensuring sustainable development of infrastructure in the country. The get-together was sponsored by 15 organizations and was attended by more than 400 delegates representing DDA, MoRTH, NHAI, State PWDs, various R&D and academic Institutions.

The get-together was inaugurated by Sh. C. Kandasamy, Director-General (RD), MoRTH, while Lt. Gen. R. Ravi Shankar, PVSM, VSM, DG(BRO) was the Guest of Honour. Dr. S. Gangopadhyay, Director, CSIR-CRRI extended a warm welcome to the dignitaries and delegates. In his welcome address, Dr. Gangopadhyay mentioned that NGT-2012 is being organized to provide a forum for interactions between the road researchers and user agencies including in-depth discussions on various measures required to be taken for increased utilization of R&D



Sh. C. Kandasamy, Director-General (RD), MoRTH inaugurating the technical exhibition

findings available. He highlighted that issues related with "Energy and Environment", as far as road development activities/policies are concerned would play a key role in years to come. Hence, appropriate technological advancements and innovations in the areas of road building materials and economical designs are essential to achieve sustainable development and to conserve precious and scarce natural resources. Need for undertaking R&D studies towards improving road safety and integration of different modes of transport in order to promote public transport and to provide efficient, effective and economical transportation solutions were also highlighted by him.



Lighting of lamp by Director General (RD), MoRTH



Lighting of lamp by Lt. Gen. R. Ravi Shankar, PVSM, VSM, DG(BRO)



Lt. Gen. R. Ravi Shankar, PVSM, VSM, DG(BRO) addressing the delegates

Sh. Kandasamy, Director-General (RD), MoRTH, emphasised future transportation needs of the country highlighting the problem of congestion in urban environment. He also stressed the need to use locally available materials, adopt stabilization techniques and different aspects to be considered while planning and designing new expressways and highways.

Lt. Gen. R. Ravi Shankar, PVSM, VSM, DG(BRO) addressed the gathering and stressed the need to develop appropriate technologies for use of local inferior materials, adoption of soil stabilization techniques and materials resource crunch in border areas of the country.

Sh. T.K. Amla, Organizing Secretary, NGT read the messages of good wishes received from VIPs and many important dignitaries for the success of National Get-Together. Sh. Sudhir Mathur, Head, Geotechnical Division proposed the vote of thanks.

During the Get-together, a technical exhibition was also organised in which about 32 agencies/firms/organisations including CRRI displayed their products. On this occasion, a souvenir containing messages of good wishes from dignitaries and papers/articles of general interest was released by Sh. C. Kandasamy, Director-General (RD), MoRTH.

The two-day meet comprised seven Technical sessions which included Panel discussions and presentations on important themes. The interactions



Welcome address by Dr. S. Gangopadhyay, Director, CSIR-CRRI



resulted into a number of priority R&D areas pertaining to road and road transportation, which can be seen in CRRI website - [www.crridom.gov.in](http://www.crridom.gov.in)

The salient recommendations of the session on way forward are:

- Need to develop appropriate framework and policies to implement PPP projects.
- Encourage private investment by providing financial support, long term debt policies.



Release of Souvenir by Director General (RD), MoRTH

- Research activities and new technologies to be initiated, developed and imported for implementation in the country.
- Thrust on road safety audit, asset management and sustainable road development.
- Compile research report(s) from India and other developed/developing countries on different thrust areas of research, so as to avoid repetition in research activities and to develop guidelines suited to local environment and traffic conditions.
- Formulate dedicated road safety programmes to avoid accidents.
- Develop adequate policies, strategies and training programmes for proper implementation of road safety audits.

## Traffic Studies for Junction Improvement on Major Road Corridors in Ahmedabad

Ahmedabad Municipal Corporation (AMC) entrusted CSIR-Central Road Research Institute (CRRRI) a study to prepare Junctions Improvement Plan for selected junctions on AMCs road network. The objectives of this Project are to conduct appropriate traffic studies to quantify the traffic problems and to study traffic characteristics at identified intersections. Estimation of future traffic and its distribution at peak hours for each intersection for the next 10 years and preparation of typical junction improvement plans for identified junctions is the major output. The scope of study is limited to the conduct of traffic surveys and preparation of junction improvement plans for 23 identified intersections based on traffic projections for the next 10 years, as per IRC guidelines.

Various field studies undertaken include road inventory and traffic studies which were carried out to collect primary data to understand the existing problems and to analyze traffic demand. In addition, secondary data information such as vehicle population, land-use data, ongoing and future envisaged developments in the surrounding areas were also collected. This data will be useful in evolving junction improvement plans. Data analysis will be done to find out the estimated base year traffic volume based on traffic volume survey and estimated future demand by considering primary and time series data (secondary data) for next 10 years. Traffic growth was estimated by considering two methods; first one is by considering Net State Domestic Product (NSDP) of Gujarat state and the second one is based on past trends of motor vehicles registered in Gujarat State. Maximum growth rate obtained for each category of vehicle was considered for estimation of traffic in the next 10 years. The projected peak hour traffic volume at the five intersections has been estimated for the horizon year 2017 and 2022 and is presented in Figure 1.

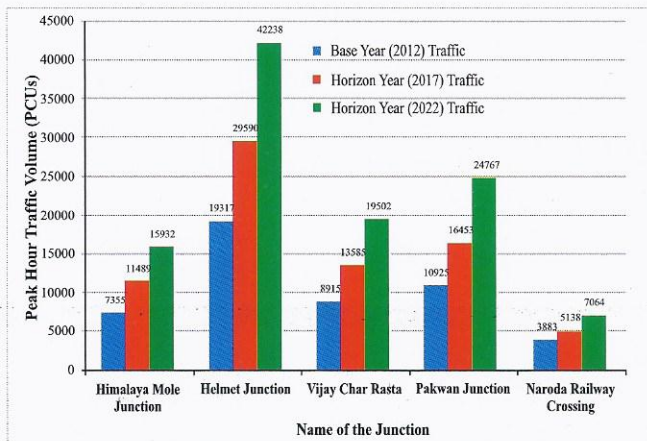


Figure 1: Year Peak hour Traffic in Base and Horizon Year

Peak hour flow projections in the horizon year were considered for junction improvement plans for the identified five intersections. It can be observed from Figure 1, that the total traffic coming from all the arms of 4 intersections namely Himalaya, Helmet, Vijay Char Rasta and Pakwan exceed 10,000 PCUs per hour by 2017. According to IRC: SP-41 and IRC: 62-1976, it may be recommended that space separated intersections are required besides other signalized facilities at grade junctions to handle traffic flow at these junctions. Therefore, for smooth traffic flow and reduction in delays and traffic congestion, grade separated intersection is essential on major road directions to cater to maximum amount of traffic at all the four intersections.

**Speed Profiles along the Corridor:** The speed profile curve along the corridor was measured through probe vehicle technique (V-Box) as presented in Figure 2. Red color profile in the figure indicates speed profile along the study corridor (Thaltej to Delhi Darwaja) during early morning hours (6:44AM). Travel time taken for this corridor at this time is about 13 minutes 34 seconds. Similarly, speed profile was measured during morning peak hour (Blue color) and Evening peak hour (Green color). Travel time taken during morning peak hour is about 31 Minutes 8 Seconds while it is about 36 minutes 37 in evening peak hour.

**Junction Improvement Plans:** Junction improvement plans are proposed to be developed by taking into account results of traffic survey and prevailing site conditions. The main influencing parameters such as traffic volume and composition, turning movements, design speeds and Right of Way (ROW) were considered while developing the conceptual junction improvement drawings. Besides, the frequency of trains and number of gate closures at railway crossings were also considered for recommendations of ROB at Naroda railway crossing.

The Junction improvement plans for each junction have been prepared. The conceptual junction improvement drawings for Himalya Mall junction is presented in Figure 3.

Based on the classified traffic volume and turning movements' data, this junction needs at grade improvement and also a grade separation facility for through traffic plying on drive in road. While preparing the improvement plans at this location, the position of Gurukul junction was also considered and it is recommended to extend this grade separated facility up to the end of Gurukul junction.

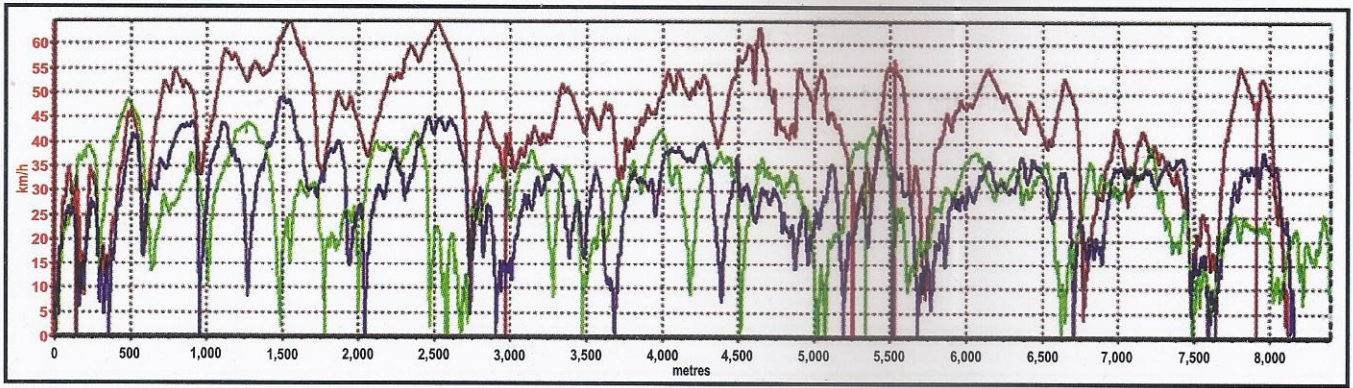


Figure 3: Proposed Junction Improvement Plan for Himalaya Mall Junction

## Study on Corrosion Susceptibility of Steel Reinforcement Protected with Anti-Corrosive Coatings / Special Treatments on Ordinary and High Performance Concrete

Corrosion of steel reinforcement in concrete structures in marine or urban environments is well known. A reduction in service life of concrete bridges and buildings due to corrosion is also well documented. Many methods to control reinforcement corrosion are being adopted and use of protective coatings on reinforcement is a common method. Amongst the protective coatings, the fusion bonded epoxy coating is widely used. However, there have been concerns about usage of fusion bonded coating due to (i) loss of bond between the coated rebar and the concrete, and (ii) the breakages (pin-holes) of coating during the use and subsequent initiation of corrosion at those locations which is considered as more severe than an uncoated reinforcement bar would undergo. Similar shortcomings were noticed with other types of

coatings also such as galvanized coating, cement polymer coating, etc. Hence, there have been attempts to minimize the usage of coatings on reinforcements and to address the problems of corrosion by improving the quality of concrete.

A research project sponsored by the Ministry of Road Transport and Highways was taken up to investigate the comparative performance of steel reinforcement bars coated with anti-corrosive/ special treatments embedded in ordinary concrete as against the steel reinforcement bars without protective coatings / special treatments embedded in high performance concrete. The purpose of this study was to verify if the use of coated reinforcements or special steels can be eliminated by the use of high performance concrete (HPC). The protective coatings / special steels included in the study are (i) Galvanizing; (ii) Fusion bonded epoxy coating; (iii) Zinc-Aluminium coating; (iv) Cement polymer composite coating; (v) Thermo mechanically treated (TMT) bars, and (vi) Corrosion resistant steel (CRS). The grades of concrete to be used are M-35 and M-40 for both conventional concrete as well as high performance concrete. Work on the casting specimens and their testing is in progress.



## Assessment of Driving Characteristics using Advanced Driving Simulator

The study covered the nature and severity of different risk taking ability of drivers in a simulated driving environment under different terrains e.g. near crash or crash tendency, frequent and abrupt lane changing, high speed, driving out of the road or on pavement etc.

Further, this study attempts to analyze driver's behaviour in simulated driving environment and investigates different distraction exposure and driving behaviour to identify the major source(s) of distraction that contribute to traffic accidents or near accident situations including developing taxonomy of the most identified distractions. This study also determines the frequency of various distractions and investigates the effect of various driver's distractions on driving performance.

The following salient findings have emerged out of this study:

- a) 37% drivers were frequently showing aggressive driving behaviour as they were crashing their simulated vehicle with some static or dynamic objects.
- b) 29% drivers were not adhering to correct lane and were showing frequently lane changing behavior.
- c) 81% drivers were not giving right indicators or were not at all giving any indicator while turning
- d) 62% drivers overtook from the wrong sides
- e) 26% drivers have shown over speeding behaviour since they speeded their vehicles beyond the stipulated speed
- f) 78% drivers had shown stalling errors
- g) 10% drivers jumped red light and disobeyed the traffic signal.
- h) The drivers who were talking on cell phones had higher crash rates and signal violation rate (i.e. crashing-59.46%; signal violation-57%) as compared to the same group of drivers when they were driving without using the cell phone.



## EVENTS

### New Year Celebration

New Year was celebrated at CRRRI on January 3, 2012. Dr S. Gangopadhyay, Director, CRRRI addressed staff members and expressed his best wishes to them and to their family.

Dr Gangopadhyay highlighted the achievements of CRRRI during the preceding year (2011) and expressed

the hope that each one will show more out put in the coming year. A calendar depicting CRRRI achievements was also released on this occasion. Earlier, a get-together was organized at Director's Bungalow on 31st December 2011 for the staff members of CRRRI to bid farewell to 2011 and to welcome the New Year 2012.



New Year 2012 celebration



## Road Safety Week

Road Safety Week was observed at CRRI during January 1-7, 2012. On January 4th, a function was held in the Institute. Dr. Geetam Tiwari, TRIPP Chair, Indian Institute of Technology-Delhi, delivered a talk on “Road Safety Issues”. A debate competition on the “Use of Mobile Phones while Driving”: and “Boon or Bone and Pros & Cons of Use of Safety Gadgets (Helmets/Seat Belt) while Driving”, was held amongst the staff.



A view of inaugural session

## Road Safety Audit Training for Officials of CRAPHTS Consultants Pvt. Ltd.

A training programme on “Road Safety Audit” was organized at CSIR- Central Research Institute (CRRI) on February 8-11, 2012. This workshop was conducted for officials involved with seven packages viz. Package # 7 (Punjab); Package # 8 (MP); Package # 22 (MH); Package # 23 to 25 (Orissa) & Package # 26 (RJ). In all, 60 delegates attended this Workshop cum Training. The delegates included officers from NHAI, Project Directors of the respective packages and Independent Engineers. The inaugural session was addressed by high ranking officials which included Mr. R P Khandelwal, CGM (Safety); Dr. Nishi Mittal, Head-TES Division, CSIR-CRRI; and Mr. D. Sanyal, MD, CRAPHTS Consultants Pvt. Ltd.

## National Science Day



Dr. Mohit Kumar Ray delivering National Science Day Lecture

National Science Day was celebrated on 28th February, 2012 to commemorate the great discovery of Raman Effect by Nobel Laureate Prof. C.V. Raman in 1928. The occasion was marked by the observance of an Open Day when the laboratories of Institute were kept open to general public and school children. Besides, a special function was arranged to pay homage to Nobel Laureate. Dr. Mohit Kumar Ray, was the Chief Guest on this occasion who gave a talk on “An Environmental Journey Through Roads”.



A view of inaugural session

## Workshop on Issues and Strategies for Non-Motorized Transport Mode

As part of Diamond Jubilee Celebrations in CRRI, a workshop on “Issues and Strategies for Non-Motorized Transport Mode” was held on March 23, 2012. The Chief Guest of the workshop was Mr J B Kshirsagar, Chief Town Planner, Ministry of Urban Development, Govt. of India. About 56 delegates attended the workshop from various organizations like, IIT-Delhi, IIT-Roorkee, School of Planning & Architecture, New Delhi, SVNIT Surat, Local Governments for Sustainability (ICLEI), CRAPHTS consultants, Institute for Transportation and Development Policy (ITDP), Town & Country Planning Organization, Delhi, and Urban Mass Transit Company Limited.

There were four technical sessions covered in the

Workshop and included Pedestrians, Barrier Free Mobility, Cycles and Cycle Rickshaws, followed by Way Forward. Shri Satyendra Garg, Joint Commissioner of Police (Traffic) gave an insight into



The Chief Guest Delivering his Lecture

the accident scenario in Delhi including major reasons for accidents, and measures being taken by Delhi Police to abet these accidents.

The major recommendations that emerged out of Workshop deliberations include the following:

- (a) Non-motorized transport is required not only for sustainable transport option but also for integrated society building.
- (b) Have NMT inclusive planning to focus on movement of people and goods rather than vehicles.

- (c) Traffic calming measures in neighborhoods' and shopping/market areas are amongst the most effective indirect planning concepts which can be used for better NMT planning.
- (d) An extensive network of streets with proper NMV lanes and footpaths is recommended.
- (e) Performance of street design should be reviewed periodically and interventions made to respond to changing conditions.
- (f) Develop a balanced multi-modal transport plan on priority with inclusion of all NMT users.

## TRAINING PROGRAMMES

### Regular Training Programme

CSIR-CRRI organized a regular training programme on Geo-Spatial Technology (GIS, GPS, RS etc.) for Roads and Transportation from Feb 6-9, 2012.



### Customized Training Programmes

The Institute organized following customized training programmes:

1. On the request of NRRDA, CRRI organised a Training Programme on Project Preparation, SBD, Quality Assurance and Maintenance of Rural Roads for the field engineers involved in PMGSY, in two batches from Jan. 3-7, 2012 and Jan 9-13, 2012. Forty engineers attended these training courses.



2. On the request of Road Construction Dept., Bihar a Training Programme was organised on Material Testing, Laboratory and Quality Control Aspects for Assistant Research Officers and Research Assistants during Jan. 30 to Feb 02, 2012. Twenty one Engineers/Research Officers attended this course.

## VISITORS

1. Prof. Shrinivas S. Arkatkar, Birla Institute of Technology and Science visited the Institute on January 16, 2012.
2. Dr Umesh Dayal, Senior Lead Engineer, M/s Paul C. Rizzo Associates Inc., Pittsburgh, PA, USA delivered a lecture on "Sustainability and Geotechnical Engineering" on February 7, 2012.
3. Mr. Tal Gryam, Managing Director, TAAL Collaborative Solutions Pvt. Ltd., delivered a

lecture on "Green Geopolymers, Construction Materials for Sustainable Development and Use of 100% Flyash" on March 19, 2012.

4. Mr. P. Chris Gibson, Support and Engineering Applications Manager for VTI Instrument, Lake Stevens Instrument Group, Washington made a presentation on "Instrumentation for Roads, Bridges and Tunnel & Structural and Model Analysis" on March 22, 2012.

### Surveillance Audit

The surveillance audit of ISO 9000:2008 Quality Management System was carried out on March 5-7, 2012 by a team of auditors from Bureau of Indian

Standards (BIS). The audit was successfully completed.

## SPORTS

### Diamond Jubilee Games Tournament

As a part of the Diamond Jubilee Year Celebrations, an in house tournament was organized for the staff members on the eve of Republic Day. Results for various games organised on knockout/Round Robin basis are as follows:

#### Table Tennis Gr. A (Men's Double)

##### Winners

- Sh. S. K. Biswas
- Dr. Vasant Havanagi

##### Runners UP

- Dr. S. K. Sharma
- Sh. Pankaj Goel

#### Table Tennis Gr. B (Men's Double)

- Sh. Dinesh Ganvir
- Sh. Ramesh Badola
- Sh. Vijay Kumar
- Sh. Rajesh Rana

#### Carom (Men's Single)

- Sh. S. K. Biswas
- Sh. S. C. Saha

#### Carom (Women's Single)

- Ms. Mitali Mohapatra
- Mrs Kamlesh Verma

#### Carom (Men's Double)

- Sh. Daleep Mutreja
- Sh. S. K. Biswas
- Sh. Sushil Kumar
- Sh. Deepak Mukherjee

#### Volley Ball

- Sh. Farid Mohammed -Captain
- Sh. Rajiv Chopra -Captain
- Sh. Ramesh Badola
- Jai Bhagwan
- Sh. B. D. Sharma
- Sh. Pankaj Goel
- Sh. Devender Kumar
- Sh. Daleep Mutreja
- Sh. S. K. Biswas
- Sh. Laliteswar
- Sh. Narendra Kumar
- Sh. Vikas Singh Negi
- Sh. Sushil Kumar
- Sh. Sam Kurien
- Sh. Satish Kumar
- Sh. Chandrakant
- Sh. Surender Kumar
- Sh. Sumer Singh
- Sh. Pratyush Kumar Pal
- Sh. Ashok Pant

## STAFF NEWS

### Retirements

The following staff members have retired from the service of the Institute during the period. CRR I Welfare Committee organized farewell party to bid farewell to all of them.

Sh. Harcharan Singh      Group III      31-01-2012

## हिन्दी कार्यशाला का आयोजन

संस्थान में दिनांक 21-3-2012 तथा 22-3-2012 को हिन्दी कार्यशाला का आयोजन किया गया। इस कार्यशाला में व्याख्यान देने एवं अभ्यास कार्य कराने के लिए श्री एम एस कठैत, पूर्व उपनिदेशक, केंद्रीय हिन्दी प्रशिक्षण संस्थान, राजभाषा विभाग, गृह मंत्रालय तथा आर. बी. दुबे, सहायक निदेशक, (राजभाषा) सड़क परिवहन एव महामार्ग मंत्रालय को आमंत्रित किया गया। कार्यशाला में 15 कार्मिकों ने भाग लिया जिसमें वैज्ञानिक, तकनीकी तथा प्रशासन क्षेत्र के कार्मिक शामिल थे। कार्यशाला काफी उपयोगी तथा लाभदायक सिद्ध हुई।

## कम्प्यूटर पर हिन्दी में कार्य करने का प्रशिक्षण

संस्थान के कार्मिकों को कम्प्यूटर पर हिन्दी में कार्य करने के प्रशिक्षण देने की आवश्यकता अनुभव की जा रही थी। इस निमित्त संस्थान से 10 कार्मिकों को नेशनल पावर ट्रेनिंग इंस्टीट्यूट, बदरपुर, नई दिल्ली में प्रशिक्षण दिया गया।

## संस्थान की राजभाषा कार्यान्वयन समिति की पहली बैठक का कार्यवृत्त

संस्थान की राजभाषा कार्यान्वयन समिति की वर्ष 2012 की पहली तिमाही बैठक संस्थान के निदेशक डा. एस. गंगोपाध्याय की अध्यक्षता में दिनांक 10.1.2012 को हुई जिसमें नई वेबसाइट के हिन्दी रूप में बनाने, प्रतिमास हिन्दी व्याख्यान का आयोजन, ईमेल में हिन्दी का प्रयोग आदि विषयों पर चर्चा हुई तथा निर्णय लिए गये।

Sh. Hawa Singh Mann	Group II	31-01-2012
Sh. Rampal	Group I	31-01-2012
Sh. R. C. Dass	Group I	31-01-2012
Sh. Krishna Paswan	Admin.	31-01-2012
Sh. Jiwan Lal	Group II	31-03-2012
Sh. V. P. Sharma	Group II	31-03-2012

## सम्पादक मंडल

संरक्षक : डा. एस. गंगोपाध्याय, निदेशक

सम्पादक :

श्री टी. के. आमला, वैज्ञानिक एवं प्रमुख, सूचना, सम्पर्क एवं प्रशिक्षण, श्री बी. एम. शर्मा, वैज्ञानिक जी, सड़क मूल्यांकन प्रभाग

श्रीमती अनिता अरोरा, तकनीकी अधिकारी, श्री मुकेश कुमार मीणा, वैज्ञानिक

फोटोग्राफी :

श्री अशोक कुमार