

Format for providing information (CV) of each scientist for CRRI website

1. Name : Ganesh Kumar Sahu
2. Designation and complete address including email id. : Senior Principal Scientist
Bridge Engineering and Structures Div.
gksahu1865@gmail.com
3. Areas of Interest : Performance Monitoring of Structures
Preferably two but through Instrumentation, Load Test and
not more than three Rating of Bridges
4. Educational Qualification : M.E. Civil(Structures), B.E Civil
– starting from the
highest degree
5. Professional Experience - in reverse chronological order



- *31st October'2013 to till date:* Working as a Senior Principal Scientist in Bridge and Structures Division, CSIR-CRRI, Project Leader for the project, “Collection of data, inventory and condition rating of all bridges on NH in Jharkhand State and checking for ODC/OWC movements.” Responsible for Visits for Assessment of Bridges, Quality Supervision of Four six lane Bridges across Agra Canal at Faridabad and one two lane bridge at Ghaziabad across Hindon river, Quality supervision of Agra Bypass under construction.
- *27th May'2008 to 30th October'2013:* Worked as a General Manager, Technical (North East Region) on deputation in National Highway Highways Authority of India (NHAI), It involves Monitoring of Consultancy Services for Preparation of **Detailed Project Report/Feasibility Report/Condition Assessment of Structures** for Up-gradation of Selected Stretches of National Highways in the States of North East Region. The same comprises of monitoring of 20 stretches about 2000 km in Assam, Meghalaya, Nagaland, Tripura, Sikkim, Manipur, Arunachal Pradesh & Mizoram. The structures in the each stretch having several major and minor bridges, ROB, Flyovers, Bypasses and VUPs. All these bridges in which superstructure has been proposed are of different types as per their span arrangement like RCC Solid Slab, RCC T Beam, PSC I Girder & Steel Plate girder with composite deck slab in ROB's and box girder. In all these structures foundation adopted comprises of well, pile and open type foundation as per soil investigation report.
- *Monitoring of construction of 670km length of ,4-laning works in north east region comprises of 26 civil packages on item rate contract, 112Km length on BOT(Annuity) in Meghalaya. It also involves inspection of several major and minor bridges for taking decision for strengthening /rehabilitation measures. The work also involve taking decision of realignment of major and minor bridges and bypasses, provision of additional underpasses, flyovers during implementation. The work also comprises of scrutiny of PPPAC/ HPC documents, invitation of tender, evaluation of technical and financial proposals and award of works.*

- *20th June. 2006 – 26th May 2008, Worked as a Principal Scientist in Bridge and Structures Division, CSIR-CRRI, Responsible for Field Visits for Condition Survey, Inventory, Assessment of Structures, Repair and Rehabilitation Scheme, implementation of Instrumentation Scheme for Long Term Health Monitoring of Existing Bridges/Structures, Development of mobile bridge inspection unit and Data Base Management System for inventory, inspection, condition rating, capacity assessment, rehabilitation and maintenance of bridges .*
- *20th June. 2000 – 25th May 2008, Worked as a Senior Scientist in Bridge and Structures Division, CSIR-CRRI, Responsible for Field Visits for Assessment of Bridges, Load Testing and Quality Supervision of Bridges .*
- *20th Jun. 1990 – 19th June, 2000, worked as a Scientist in Bridge and Structures Division, CSIR-SERC, Ghaziabad Responsible for implementation of Instrumentation Scheme for Long Term Health Monitoring of Existing Bridges/Structures, such as Bridges at Varanasi, ITO New Delhi and Airoli New Mumbai and nuclear power containment vessels at Kota and Kaiga. Load testing of bridges and proof test of nuclear power containment vessels had been carried out*

6. Membership to Professional Bodies

Indian Concrete Institute

Indian Society for Wind Engineering

Indian Road Congress

Indian Society of Science Academy

7. Achievements

- Honours and Awards: -
- Research Projects – Some of the Projects in which recently involved are described below:

SI.	Title of Project	Project Category	Participating Agencies	Role as defined
1	Health monitoring of a 6-lane Roadway over Palam Drain at Dwarka, New Delhi through instrumentation.	In-House Project OLP-0558	CRRI	<p>Working as a Project Leader</p> <p>Project Status: On going</p> <ul style="list-style-type: none"> • Identification of location of sensors, data acquisition through data loggers, study of various performance parameters and fixing of base line data for the long-term health monitoring of the bridge. • This -6lane Roadway over

				Palam Drain is already instrumented during construction through various embedded sensors for strain, temperature, pressure and corrosion (for detail please refer - Annexure-1).
2.	Innovative Technologies for Health Assessment and damage Mitigation of structures	12th Five year plan project ESC-0110	SERC& CRRI	<p>Working As a team member Project Status: On going</p> <p>Working in development of sub modules :</p> <ul style="list-style-type: none"> • Monitoring of pre-stressing cable forces and • Condition assessment and forensic analysis of concrete structures.
3.	Intelligent Remote Health Monitoring System for Bridge Structures.	<p>Grant-in - Aid Project,</p> <p>Funded by DST, New Delhi</p> <p>GAP-4539</p>	DST, SERC and CRRI	<p>Working As a Team Member Project Status: On going</p> <ul style="list-style-type: none"> • Configuration of Health Monitoring System for the Structural Response of the bridges using different type of sensors. • Validation of Health Monitoring System and sensors performance in the field by surface strain mapping, deflection and dynamic characteristic measurements on real bridge structure • Collection of field data, analysis & Interpretation of results.
4	Development of Fiber Bragg Grating based Distributed Strain Sensor System for Concrete	<p>GAP-4492 Project,</p> <p>Funded by DST, New Delhi</p>	DST, CSIO and CRRI	<p>Working As a Team Member Project Status: On going</p> <ul style="list-style-type: none"> • Validation of sensors performance in the field by surface strain mapping on real bridge structure with different type of sensors. • Collection of field data using Mobile Bridge Inspection Unit and Bridge Diagnostic

				<p>System, different data acquisition systems and</p> <ul style="list-style-type: none"> • Analysis of data & Interpretation of results(For details please refer Annexure-I).
5.	Project Monitoring and Quality Assurance of Link Road between NH-24 to NH 58 at Ghaziabad.	Sponsored Project, SSP-4521, funded by GDA.	CRRRI & GDA	<p>Worked As a Team Member Project Status: On going</p> <ul style="list-style-type: none"> • Monitoring of the project progress, solutions of the site specific problems during construction of well foundation, pier and super structures. • Monitoring of the project activities i.e. testing of aggregates, mix design, random checking of reinforcement at site and testing of samples.
6	Data collection, inventory and condition rating of bridges on all NHs in the Jharkhand State	SSP-4551	MoRTH	<p>Working as a Project Leader Collection & inventory of data and analysis for condition rating of bridges on NHs in Jharkhand State has been awarded By the Ministry of Road Transport and Highways to the Joint venture of ICT Pvt. Ltd and CSIR- CRRRI New Delhi. The work requires continuous use of Mobile Bridge Inspection Unit(MBIU) developed by CSIR-CRRRI New Delhi to inspect bridges, flyover at the various sites on the National Highways in the Jharkhand State. The work comprises of followings:</p> <ul style="list-style-type: none"> • Collection & inventory of data and condition rating of bridges • Analysis of bridges for ODC/OWC • Six sets of data collection, inventory and condition rating of all bridges at an interval of six months
7.	Development of Data Base Management System for performance monitoring of	GAP, Funded by DST, New	CRRRI	<p>Worked as a Project Leader/ Team Member The work comprises of inventory</p>

	bridges in GIS environment.	DelhiDelhi		of data, condition rating of bridges, Development of various modules such as load carrying capacity, repair/rehabilitation module, budgeting module etc.
8.	Assessment of Load Carrying Capacity of railway bridges steal as well arch masonry for increased axle loads.	Sponsored Projects funded by Chief Engineer(Bridges) of Northern, SE, Eastern, Central and Western Zone	CRRRI	Worked as a Project leader as well as member The work comprises of planning of instrumentation scheme, installation of sensors and data acquisition systems for strain, deflection, vibration etc, Data acquisition for various load combinations, Analysis of data and overall assessment of load carrying capacity of the bridges.

c. Research Publications :

Papers in Journals:

1. P. Lakshmy, Sahu G.K., Ram Kumar, "Effect of Carbonation on Concrete Bridges", Journal of Bridge Engineering, American Society of Civil Engineering (ASCE), USA, Jan'2008
2. Garg Rajeev, Sahu G.K., Ram Kumar, "Performance Evaluation and Rating of Bridges", Journal of Scientific and Industrial Research (R&D), Volume 67 (9), Sept'2008
3. Goyal J.K., Sahu G.K., Ram Kumar, A paper entitled "An approach for characterization of Vehicle loading using Bridge Weigh in Motion on full scale bridge", Journal of Bridge and Structural Engineers (ING-IABSE), India, Volume 36 No-02, pp 35-53, June' 2006.
4. Garg Rajeev, Sahu G.K., Garg Seema, Ram Kumar, "Sensors and Actuators for Bridge Management-Recent Trends", Journal of Bridge and Structural Engineers (ING- IABSE, India) Volume 36, No-2 pp 1-21.
5. P. Lakshmy, Sahu G.K., Kayal S.," Properties of concrete for thermal flow analysis of bridges", Journal of bridges and structures, ING-IABSE, Vol33 No. 3, September, 2003
6. Ram Kumar, Sahu G.K., Rao VVLK," Retrofitting of A three span two girder PSC Bridge ", Journal of bridges and structures, ING- IABSE Sept. 2004.
7. Ram Kumar, SahuG.K., Garg Rajeev, Rao VVLK," Eval.uation and Rehabilitation of PSC girder Bridges ", Constructional Journal of India, Sept. 2005

Papers in Conferences:

1. Sahu G.K., " Health Monitoring of structures thorough instrumentation",

seminar organized by Indian Concrete Institute, WUPC Ghaziabad, 19th September, 2015 at Agra, UP.

2. Sahu G.K., Goel R., Garg R.K., Lakshmy P., Jangpangi L., " Health Monitoring thorough instrumentation of six lane roadway over Palam Drain at Dwarka, New Delhi", International conference on Trends and Challenges in Concrete Structures at Ghaziabad, organized by ICI from 19-21 Dec'2013.
3. Goel R., Sahu G.K., Garg R.K., Lakshmy P., A paper entitled "Development of Bridge Maintenance Management system in GIS Environment", 36th IABSE Symposium on long span bridges and roofs development, design and implementation at Kolkata from 24th to 27th Sept'2013.
4. Sahu, G.K., Goyal, J.K., Kapla, M.S. "Response Monitoring of concrete bridge during rehabilitation through instrumentation", International IABSE conference at Lucerne(Switzerland) held in Sept., 2000.
5. Sahu, G.K., Kapla, M.S. "Long-term Performance Monitoring of concrete bridge through instrumentation"., New Building Material. and Construction World, New Delhi, July2001.
6. Sahu.G.K., Jangpangi Lalita, Ram Kumar, " A Data Base Management System onPerformance Monitoring of bridges", Ninth international conference on ," Current trends in Aqueducts, Road, Rail and Marine bridges ,20-22 Dec, 2004 at Hyderabad.
7. Rao, VVLK, Sahu G.K., Sikdar P .K., Rao ," Corrosion monitoring in concrete structures through embedded and surface mounted probes". International conference on corrosion, CORCON-2004, Dec, 2004

d. Any Other information

Lecturers Delivered:

1. Lecture on "Instrumentation and Bridge Health Monitoring" , **in the** Workshop on "Project Preparation and Repair/ Rehabilitation of Bridges and Flyovers" organized by ING-IABSE at Lucknow on 10th and 11th June 2015
2. Lecture on ,"Instrumentation, Rating and Performance Monitoring of Bridges", in the Foundation Training Programme for Assistant Executive Engineer of MORT&H organized by Indian Academy of Highway Engineers, Noida on 22/05/2015.
3. Lecture on ,"Instrumentation, Rating and Performance Monitoring of Bridges", in the Training Programme on Survey Investigation & Pavement Evaluation for Roads &Bridges organized by Indian Academy of Highway Engineers, Noida on 18/03/2015.

Training:

- Training on Design aspects of bridges, at CRRRI New Delhi, 2013
- Training on Limit State Design of bridges IS Code 1112, organized by ICI Delhi Chapter, 2013
- Training on road safety at IIT, New Delhi, 2012

- Training on Bridge Diagnostic System for condition rating of bridges at Denvor-Boulder, Colarado, USA, December, 2005
- Training on Bridge Weigh-in-Motion System at CRRI, New Delhi, 2005
- Training on JT Map Software at CRRI, New Delhi, 2006
- Training on Road Information and Computerized Project Information System at CRRI, New Delhi, 2006
- Training on Experimental Methods and Analysis at IIT, New Delhi, 2006
- Training on Material Testing and Quality Control at CRRI, New Delhi, 2006