



Name	@IITD Since	Department & Designation
N.K. GARG	1980	Civil Engineering , Professor

Degree	Specialization	Institute/University	Year
BE	Civil Engineering	University of Roorkee (now IIT Roorkee)	1976
M.Tech.	Water Resources	IIT Delhi	1978
Ph.D.	Finite Elements	Swansea, University of Wales (UK)	1985

Research Areas and Highlights
Water Resources System, Finite Element, Watershed Modelling, Irrigation Management, CAD, Sustainable Development

### Research Areas with Significant Publications

#### 1. Terrain and Watershed Modelling

- i. **Garg, N.K.**, Sen, D.J., 1994. Determination of Watershed Features for Surface Runoff Models. Journal of Hydraulic Engineering, ASCE. 120(4), 427 - 447 .
- ii. Sen, D. J. and **Garg, N. K.**, 1998. Efficient Solution Technique for Dendritic Channel Networks using FEM. Journal of Hydraulic Engineering, ASCE. 124(8), 831-839.
- iii. **Garg N.K.**, Sen D.J., 2001. Integrated physically based rainfall-runoff model using FEM. Journal of Hydrologic Engineering, ASCE. 6(3), 179-188.

#### 2. Integrated Irrigation Management Models

- i. **Garg, N. K.**, Ali, A., 1998. Two-level optimization model for lower Indus basin. Agricultural Water Management. 36,1-21.
- ii. **Garg, N. K.**, Ali, A., 2000. Groundwater management for lower Indus basin. Agricultural Water Management. 42,273-290.
- iii. **Garg, N. K.**, Dadhich, S. M., 2014. A proposed method to determine yield response factors of different crops under deficit irrigation using inverse formulation approach. Agricultural Water Management. 137,68-74.
- iv. **Garg, N. K.**, Dadhich, S. M., 2014. Integrated non linear model for optimal cropping pattern and irrigation scheduling under deficit irrigation. Agricultural Water Management. 140, 1-13.

#### 3. Design of Hydraulic Structures

- i. **Garg N.K.**, Bhagat SK, Asthana BN., 2002. Optimal barrage design based on subsurface flow considerations. Journal of Irrigation and Drainage Engineering, ASCE. 128(4), 253-263.

- ii. **Garg N.K.**, Chawre Bharti, Singh Amandeep (2014) Design of barrage on heterogeneous and anisotropic soils. Curr. Sci., 107, 1875–1879.

#### **4. Sediment Handling for Turbines**

- i. Pandit, H.P., Shakya, N.M., Stole, H., **Garg, N.K.**, 2009. Hydraulic and sediment removal performance of a modified hydrocyclone. Minerals Engineering. 22, 412–414.

#### **5. Sustainable Development of Water Resources of India**

- i. **Garg, N., K.**, Hassan, Q., 2007. Alarming scarcity of water in India. Current Science. 93, 932–941.

#### **6. Geo-Environmental Pollution**

- i. Gupta M, **Garg N.K.** et al., 2012. Persistence and mobility of 2,4-D in unsaturated soil zone under winter wheat crop in sub tropical region of India. Agriculture, Ecosystems and Environment. 146, 60-72.
- ii. **Garg, N. K.**, Gupta, M., 2015. Assessment of improved soil hydraulic parameters for soil water content simulation and irrigation scheduling. Irrigation Science. 33, 247–264.

### **Peer Reviewers Comments on the Research Work**

Prof. Douglas James, then Chief, Hydrological Sciences, National Science Foundation, USA had rated one of the research works as “**Outstanding Piece of Work.... Can Justifiably be Proud of...for the First Time to my Knowledge .....**”.

Prof. Neil Grigg, Head, Department of Civil Engineering, Colorado State University, U.S.A. had rated another research work as “**...of a High Level Quality...Similar to that at Colorado State University.....**”.

### **Recent Consultancy Work Completed**

Never involved in routine work and accepted the work only when high level of expertise was required. Recent important consultancy works are listed below:

1. “Design/Drawings for raising pondage of Wazirabad Barrage by 2.0 m”, DDA. **Amount: Rs. 1.3 Crores (\$201760 (USD)), Completed in 2008.**

**It was a very prestigious project as the Central Water Commission said that it would not be possible to raise the pondage even by 0.50 meter, following which the work was undertaken on the request of then hon’ble LG of Delhi. The work was successfully completed to raise the pondage by 2.0 meter with all the detailed drawings etc, accepted and it is going to save few hundred crores of rupees, when implemented.**

2. “Waterlogging Around Purana Quila Road/Mathura Road”, NDMC.

**Amount: Rs. 22.06 lacs (\$34237 (USD)), Completed in 2010.**

The problem was persisting at least since 1976. The project was monitored by a committee of hon’ble judges of Delhi High Court. The reason and design was accepted by all concerned and implemented.

3. “Investigation for the reason for flooding at Akbar Road and thereafter recommendation to avoid such type of occurrence”, NDMC.

**Amount: Rs. 33.09 lacs (\$51355 (USD)), Completed in 2013.**

Another difficult project but was completed successfully. The reason and design was accepted after discussion at high level committee.

### **Significant Recent Extension Activities**

S.No.	Activity	Body	Duration	Remarks*
1.	Member, The Technical Advisory Committee (TAC).	Central Water and Power Research Station, Pune	2007-2009	It primarily assists in the matters of research and associated technical programmes.
2.	(i) Examiner of Ph.D Thesis of IIT in the relevant area. (ii) Reviewer for technical papers in International Journals of Repute in the subject area.			
3.	Participated as Expert member on the Faculty Selection Committee in IIT, Member selection committee in UPSC, Public sectors etc			
4.	Member, Working Group on Water Database Development and Management for the 12 <sup>th</sup> Five Year Plan, Planning Commission of India.	Planning Commission of India	2011	Report was accepted by Planning Commission of India for the 12 <sup>th</sup> Five Year Plan.
5.	Member, Committee for re-assessment of water availability in India.	Ministry of Water Resources	Continuing since 2011	High level committee under the Chairman, CWC
6.	Visitor’s (President of India) Nominee on the Selection Committees in NITs in the area of Civil Engineering for a period of three years	MHRD	2013-2016	