

**Dr. N.NAGARAJ**

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 University of Agricultural Economics  
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**Date of Birth:** 03/04/1956

**Academic Positions**

- **Professor**, Dept. of Agricultural. Economics, University of Agricultural, Sciences, GKVK campus, Bangalore, Since, June, 2003 .
- **Professor & Head**, Department of Agricultural Economics, University of Agricultural Sciences, VC. Farm, Mandya-571405, Karnataka, India, from 22, Oct. 99 to 30th May, 2003
- **Associate Professor**, Department of Agricultural Economics, University of Agricultural Sciences, Bangalore, from Jan 1994 to 22 Oct. 98
- **Assistant Professor**, Department of Agricultural Economics, UAS, Bangalore, from April 1983 to April 1994
- **Research Assistant**, All India Maize Improvement Scheme, Regional Agricultural Research Station UAS, Mandya, Karnataka, from 1981 to April 1983.

**Academic qualifications**

- Ph.D. Agril. Economics, University of Agricultural Sciences, Bangalore, 1990-94.
- M.Sc. (Agri), Agril. Economics, University of Agricultural Sciences, Bangalore, 1980-82.
- B.Sc. (Agri), University of Agricultural Sciences, Bangalore, 1975-79.

**Awards and Distinctions**

- Conferred the **Jawaharalal Nehru award** for the best Ph.D. dissertation entitled "*Groundwater Irrigation from Low Yielding Borewells in Hard rock areas of Karnakata - An economic analysis*" by Indian Council of Agricultural Research for the year 1995.
- **D. K. Desai award** for the best article in Agricultural Economics by Indian Society of Agricultural Economics, for the year 1995, entitled "Low yielding irrigation wells in peninsular India - An economic analysis".
- **Post-doctoral Fellowship** from French Government for the year, 1997-98 at National Institute of Agronomic Research (INRA) and CERNA, Paris, France.
- **Fulbright Fellowship** for the postdoctoral studies for the year 1998-99 at the University of Colorado, Fort Collins, USA.
- Environmental Economic Research Oversea Fellowship for Short-term visit to oversea university/Institution under the World Bank aided India Capacity Building Project for the year 2000- **As Visiting Professor** at the University of Arizona, Tucson, US, (From April, 2001 to June 16th, 2001

**Postdoctoral Work Experience**

1. Worked in the area of Institutional Management Regimes and Economic Instruments for Sustainable Use of Water- The French Model Lessons for India (From Nov, 1997 to Oct 1998, at INRA and CERNA, Paris France).
2. Groundwater Institutions in Western US and India: Sustainable and Equitable Resource Use-Lessons for India (From Nov, 1998 to June 1999, at the University of Colorado, Dept of Agril and Resource Economics, Fort Collins, US).
3. Environmental implications of groundwater depletion and quality degradation -Methods to Estimate the Marginal opportunity cost and Economic Value of groundwater (From April to June, 2001, at the University of Arizona, Dept of Agril and Resource Economics Tucson, US).

**Projects under progress**

- Institutional and Economic Analysis of Water Harvesting in Different Micro-watersheds in Eastern and Central Dry Zones of Karnataka (Sponsored by World Bank-Sujala watershed, GOK).
- The Next Generation: Developing India's Institutional Capacity to Confront Agriculture's 21st Century challenges

(sponsored by ALO-USAID).

- Partnership with higher education in India for improving nutritional quality of food by biotechnology approach (Sponsored by ALO-USAID).
- Techno economic feasibility of horticultural enterprises in Hilly/Tribal districts of South Canara and North Canara (funded by Ministry of Agriculture and co-operation GOI).

### **Important Projects completed**

- Impact of globalization on Indian seed industry-Implications for the integration of biotechnology-funded by NATP-(World Bank) under competitive grants program, ICAR, New Delhi.
- Team of Excellence in Natural Resource Economics funded by NATP-World Bank, as Associate member (My Research focuses on valuation of irrigation induced negative externalities in surface irrigation and water policy).
- Designing Methodologies for Evaluation of Economic and Environmental Implications of Groundwater Depletion and Quality Degradation effects - A study in Karnataka Peninsular India (Funded by Indira Gandhi Institute of Development Research, Mumbai), 2003.
- Resource Characterization and socioeconomic constraint analysis of maize based crop production systems in Rainfed Ecozones of Karnataka (Funded by NATP-World Bank, ICAR, New Delhi), 2002.
- "Degradation and rehabilitation of irrigation tanks in Karnataka: An Institutional Analysis" (Sponsored by WINROCK INTERNATIONAL), completed June 1996.
- Economic viability of small farmers in Karnataka, State Planning Board, Government of Karnataka, Jan, 1996.
- Ex-ante evaluation of Sannabommarahalla and Upparahalla watersheds, Bellary district, Karnataka", as requested by Overseas Development Agency, U.K.", 1995.
- An Economic Analysis of Fruit processing - A case of Karnataka Agro? Fruits Limited 1994.

### **Training Programmes Organized**

- Organized ICAR-sponsored Summer Institute on Natural Resource and Water Resource Management in Agriculture for the benefit of State Agricultural University Faculty from July 29th to Aug 18th of 2004 at UAS, Bangalore.

**Students Guided:**As chairmen: M.Sc.: 10; Ph.D.: 1

**Presently guiding:** M.Sc.: 3

### **Nominated Member in the High-level Committee**

- Served as Economist in the High-level committee constituted by Chief Minister, Government of Karnataka, to estimate the economic loss incurred by the farmers on account of shortage of water for sugarcane in the Mandya District and Cauvery Basin of KRS, Karnataka. 2003-2004

### **Membership in Professional Societies**

1. Indian Society of Agricultural Economics
2. International Society of Ecological Economics
3. Agricultural Economics Research Association
4. Economic and Political Weekly

### **Special invitations**

- Invited to present a key note paper for the National Seminar on WTO and Environment, Kuvempu University, Department Studies in Economics, PG Centre, Davanagere, Karnataka, March 30th 2005.
- Invited to present a paper on Economic analysis of groundwater markets in Central Dry zone of Karnataka, In IWMI-Tata Annual Partner's Workshop 2005 at Institute of Rural Management, Anand, Gujarat, Feb 24-26, 2005.
- Invited to present a paper on theoretical and empirical issues in impact assessment of watershed development projects including environment: National Seminar on Impact assessment of watershed development-conceptual and methodological issues: organized by Water Technology Centre, Tamilnadu Agricultural University Coimbatore, Nov 24-26, 2004.
- Invited to present a paper entitled "Methods to estimate the marginal opportunity cost and economic value of groundwater, International Symposium on Environmental Economics, Texas A&M University, College Station, US, May 28, 2001.
- Invited to deliver a lecture pertaining to Implications of Liberalization on Groundwater Irrigation Sector in India, by the Centre for Studies of India and South Asia (CEIAS), Paris France, dated 15th May 1998.
- Invited as a resource person for the seminar entitled "Coping mechanisms in response to groundwater scarcity" held at Tamilnadu Agricultural University, Madurai campus, Tamilnadu, India. October 1997.
- Invited as a resource person to deliver a talk on "Depletion of groundwater in hard rock areas of Karnataka and corrective measures", for a group of Indo-Canadian students organized by Institute for Socio-economic Change, Bangalore, June 7, 1996.
- Invited to present a research paper entitled "Economics of tank rehabilitation in Karnataka", at the seminar on

environmental economics organized by Centre for Science and Environment, New Delhi. June 27-29 1996.

- Co-management of Power and Groundwater Issues in Equity and Sustainability in Water Scarce Areas held at Tata Energy Research Institute New Delhi on 19th December 1994.
- Invited to present the paper entitled Electricity pricing for groundwater irrigation in the Hard Rock Areas of Deccan-plateau?VIKSAT, Ahmedabad Dec.14-16, 1993.
- Invited to prepare curriculum and syllabus for International Training Course in Tropical Sericulture at Central Sericultural Research and Training Institute, Mysore December - February 1992.

#### Participation in International Workshop / Seminars

- Impact of globalisation on Indian seed sector-Paper presented at the South Asia Regional Conference of International Association of Agricultural Economics, 23-25, Hyderabad, India.
- Economic and Ecological Implications of Groundwater Transfer from Rural to Urban Areas and Its Impact on Food Security- A study in Peninsular India- Paper presented at the Stockholm Water Symposium Workshop, Aug, 12-18th, 2001, Stockholm.
- Groundwater depletion issues in India and France: Comparative study of institutional management regimes and economic instruments for sustainable use -Lessons for India. Paper presented in the workshop on Ecological Economics, Trade liberalization and Sustainable agriculture at Swedish University of Agricultural sciences, Uppsala, Sweden, June 11-15,1998.
- Attended workshop on "participatory approaches to natural resource management in developing countries", as a discussant, Mansfield College, Oxford, UK, April, 6-7th, 98.
- Intra and Inter-generational equity effects of irrigation well failures on different classes of farmers in hard rock areas of India - paper presented in the research seminar organized by Beijer Institute, Royal Swedish Academy of Sciences held at Kota Kinabalu, Malaysia, May 16-21, 1995.

#### Some important Research Publications

1. N. Nagaraj, K.P. Mangala, H. Chandrashekar and K. Shankar, (2005), Assessing the Impact of Groundwater Pollution Induced Externalities-A case of Vrishabbavathi River Basin, Karnataka, Peninsular India, *Water and Energy International*, Vol: 62, (1), pp: 48-60.
2. M. G. Chandrakanth, A.C. Hemalatha and N. Nagaraj, (2004), Estimation of Externalities due to Sand Mining in Water streams in affected Riparian Areas of Karnataka, *International Journal of Ecology and Development*, Vol: 2, PP: 27-42.
3. N. Nagaraj, K. Shankar and M. G. Chandrakanth, (2003) Pricing of Irrigation Water in Cauvery basin - Case of Kabini command, Karnataka, *Economic and Political Weekly* Vol: XXXVIII, (43), PP: 4518-4520.
4. N. Nagaraj, H.Chandrashekar and H.S.Yatheesh (2003). Sustainability and equity implications of ground water depletion in hard rock areas of Karnataka- An economic analysis. *Indian Journal of Agricultural Economics*, Vol. 58, No.3, PP: 438-447
5. B. Chinnappa and N. Nagaraj (2003), Reasons for Non-Adoption of Land Reclamation Technology by the Farmers in Thungabhadra Command Area, *Agricultural Extension Review*, Vol: 15, (5) PP: 25-26.
6. H. Diwakar and N. Nagaraj, (2003), Negative Impacts of Emerging Informal Groundwater Markets in Peninsular India: Reduced Local Food Security and Unemployment, *Journal of Social and Economic Development*, Vol: 5. (1), PP: 90-105
7. N. Nagaraj and M.N. Venkataramana, (2003), Relative Importance of Livestock in a Typical Irrigated and Dryland Farming system: A study in Mandya District Karnataka, *Current Research*, Vol: XXXII, (11-12), PP: 109-202.
8. H. Diwakar and N. Nagaraj, (2002), Impact of Water Pollution on Food Security and Environment, *Bearing the Brunt*, *Wastelands News*, Vol: XVIII, pp: 31-34.
9. N. Nagaraj, (1999). Institutional Management Regimes For Pricing of Irrigation Water The French Model-Lessons for India, *Agricultural Systems*. Vol: 61, pp: 199-205.
10. N. Nagaraj and R.K. Sampath, (1999) A comparative study of institutions in Western USA and India for water resource management, *Water and Energy International*, Vol: 56 (4), pp: 54-62
11. N. Nagaraj, W. Marshall Frasier and R.K. Sampath, (1999) Groundwater Institutions in US and India: Sustainable and Equitable Resource Use, *Economic and Political Weekly*, June 26-July 2, 1999, Vol: XXXIV, pp: A-93-A 104
12. N. Nagaraj, (1998). Institutional Management Regimes and Economic Instruments For Sustainable Use of Water: The French Model-Lessons for India, Edited by B. Dorin and M. H. Zerah, *Center De Sciences, Humaines*, New Delhi.
13. N. Nagaraj and Chandrakanth, M.G., (1996). Intra and inter-generational equity effects of irrigation well failures - Farmers in Hard rock areas of India, *Economic and Political Weekly*, March 29, 1997, pp: A41-44.
14. M. Gireesh, N. Nagaraj and M. G. Chandrakanth, (1997). Rehabilitation of Irrigation Tanks in Eastern Zone of Karnataka- An Economic Analysis. *Indian Journal of Agricultural Economics*, Vol. 52, No.2, PP: 231-243
15. P.G. Changappa, N. Nagaraj, M.G. Chandrakanth, H. Chandrashekar, and D. S. Gundurao, *Economic Viability of Small Farmers in Karnataka*, State Planning Board, Government of Karnataka, Bangalore, Jan 1996.
16. Nagaraj, N. and Shivakumaraswamy, B. (1996). Economic feasibility of Gherkin Production in the Eastern Dry Zone of Karnataka *Financing Agriculture*, Vol. XXVII, No.3, Oct-Dec, p.16-18
17. Nagaraj, N. and Chandrakanth, M.G., (1995) Low Yielding Irrigation Wells in Peninsular India- An Economic Analysis *Indian Journal of Agril. Economics*, Vol.L pp.47-58.
18. Nagaraj, N. (1993?94) Ground water utilization in India: Current status and future focus. *Rural Link*. Vol.1 pp: 34-

- 38.
19. Nagaraj, N., Chandrakanth, M.G. and Gurumurthy (1994) Borewell Failure in Drought Prone Areas of Southern India. *Indian Journal of Agril. Economics*, Vol. XLIX pp.101-106.
  20. Nagaraj, N. and Chandrakanth, M.G. (1993) Electricity Pricing for Ground water Irrigation in the Hand rock Areas of Deccan?plateau? Estimation of willingness to pay ? Proceedings of the Work shop on Water Management Indian Ground water challenge ? Dec 14?16 Ahmedabad organized by VIKSAT/Pacific Institute.
  21. Nagaraj, N., Venkataram, J.V. (1992) Economic Analysis of Eucalyptus vis?a?vis competing crops in Drought Prone Areas of South India. *MYFOREST*, Vol.28 pp.311-316.
  22. Eswar prasad, Ramanna, R. and Nagaraj, N. (1980) Impact of IRDP on employment generation under area based schemes. *ManPower Journal*, Vol. pp. 73-79.
  23. Nagaraj, N. (1991) Economics of inter?cropping in Rainfed Agriculture *Current Research*. 20: 44-47.
  24. Nagaraj, N. (1986) Prospectus of commercial crops in Karnataka. Seminar on Perspective Plan for the Development of Agriculture in Karnataka during VIII Plan. UAS and Planning Department, Government of Karnataka, pp. A9-A16.
  25. Nagaraj, N. (1993) Prospects and potentials of fruits and vegetable processing in Karnataka some empirical evidence. Indo?U.K. Workshop on Agril. and Food Marketing. UAS January.
  26. Nagaraj, N. and Chandrakanth, M.G., (1992) Market performance of perishables ? A case of vegetables and fruits. *Agril. Marketing*, Vol. XXXI No.1 April'92, pp.15-20.
  27. Eswara prasad, Lalith Achoth and Nagaraj, N., (1989) Impact of IRDP on creation of Asset?An Empirical Evidence. *Land Bank Journal* Vol.28, No (11) 1989, pp.49-57.
  28. Nagaraj, N. and Prakash, T.N., (1989) Economic Analysis of Fruit Processing in Karnataka: A case of Karnataka Agro Fruits Ltd. *I.J.M.* Vol. XIX No. 8-10.
  29. Nagaraj, N., and (1989) Economic Analysis of Fruit processing and its impact on Employment generation: A case of Karnataka Agro Fruits Ltd. *Indian Journal of Agril. Economics*. Vol. 44, No. 3, July?Sep. 1989, p. 327-328.
  30. Nagaraj, N., Narayanaswamy, (1989) Economics of Turmeric Farming in Coconut garden. *Spice India*. Vol. 11 No. 10, 1989, pp. 17-19.
  31. Nagaraj, N., Narayanaswamy, (1989) An Economic Evaluation of Drip Irrigation for coconut plantation. A case study. *Financing Agriculture*. Vol. XXI No. 1, 1989, pp. 3-5.
  32. Eswara prasad, Lalith Achoth and Nagaraj, N., (1989) Perceptions of Beneficiaries on I.R.D.P. performance. *Agril. Banker*. Vol.11 No.14, 1989, pp.37.
  33. Nagaraj, N. and Chandrakanth, M.G., (1989) An Economic Evaluation of Sericulture. Some empirical evidence; International Congress and tropical sericultural practices and Proceedings.
  34. Nagaraj, N., Narayanaswamy, (1988) Economics of Drip Irrigation for Coconut gardens. *Indian coconut Journal*. Vol. XIX No. 8, 1988, pp.
  35. Lalith Achoth and Nagaraj, N., (1988) A Study of the growth and variability of pulse production in Karnataka. *The Asian Economic Review*. Vol. XXX No. 2, Aug. 1988, pp. 275-287.
  36. Nagaraj, N. and Lalith Achoth (1985) Prospect of exporting Horticultural crops plausible strategies for 21st Century. National Seminar on Agrarian structure and strategies for Agricultural Development for the 21st Century, UAS., Dec. 1985.
  37. Nagaraj, N. and Chandrakanth, M.G., (1986) Economics of Sericulture in Karnataka ? An empirical analysis, All India Seminar on Sericulture, University of Madras, Vellore, March 1986, pp: 259.
  38. Nagaraj, N. and Chandrakanth, M.G., (1986) Development of Tobacco Industry ? An Socio?ecological perspective Golden Jubilee of D.M.I., Govt. of India, 30-31st Jan. 1986.
  39. Nagaraj, N., and K.N.R. Shastry (1987) Economic considerations and selecting Coconut enterprise. *Journal of plantation crops*, vol.15, No.1 June 1987, pp.15-22.
  40. Nagaraj, N., and Bisalial (1987) Production utilization and parity price of sugarcane in India *Cooperative sugar*, Feb. 1987 vol. 18, No. 6 pp. 393-396.
  41. Nagaraj, N., and Lalith Achoth (1987) Spatial Integration of an price leadership in Silk Cocoon markets of Karnataka, *Seriocolgia* issue No. 27 (2), 1987 pp. 229-236.
  42. Nagaraj, N., (1987) Debt Relief Act in Karnataka An Impact study in Bangalore Taluk, *Southern Economist*, Vol. 25, No. 19, Feb. 1987, pp. 17-19.
  43. Eswara prasad, Lalith Achoth and Nagaraj, N., (1987) Estimation of Growth Rates ? An application of Orthogonal polynomials. *Southern Economist*, Vol. 25, No. 19, Feb. 1987, pp. 17-19.
  44. Nagaraj, N., (1986) The Economics of Sericulture in Karnataka, *Indian silk* Vol. XXV, No. 4, Aug. 1986 pp. 13?20. p73.
  45. Nagaraj, N. and Chandrakanth, M.G., (1986) Market appraisal for a few fruits and vegetables. *Indian Journal of Marketing* Vol. 16, No. 4, Dec. 1985, pp. 13-19.
  46. Nagaraj, N., and Bisalial (1985) Credit Requirement Estimates for optimal Input?output level, A Study of Dryland Farmers, *Mysore Journal of Agricultural Sciences*, Vol. XIV No. 2, 1985, pp. 101-108.
  47. Bisalial and Nagaraj, N., (1985) Production credit overdue: A study of Dryland small farmers, *Financing Agriculture* Vol. XVII. No.1. Jan-mar. 1985. Pp.17-20.

#### Books / Monographs

- Electricity Prices: A tool for Groundwater Management in India edited by Marcus Moench, VIKSAT/ Natural Heritage Institute, Ahmedabad, Gujarat, India.
- John M. Kerr, N.Nagaraj and S.Surya Prakash, 1997 Eucalyptus: The controversial tree, in J.M.Kerr, D.K.Marothia,

Katar Singh, C.Ramasamy and W.R. Bentley (Ed) Natural Resource Economics: Theory and Application in India, Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi, 1997, pp. 188-197.

### Books brought from the research projects

- Chinappa, B., Nagaraj, N ., Chandrakanth, M.G and Chandra Shekar.H., (2004) Valuation of irrigation Induced Soil Degradation in Tunga Badra Project Area of Karnataka - An economic analysis, Department of Agricultural Economics, University of Agricultural Sciences, G.K.V.K Bangalore.
- Sankar Ganesh.S., Nagaraj, N ., Chandrakanth, M.G and Shyama.V.Ramani, (2004) Market for seeds of principle crops in Karnataka in the era of Globalisation- An economic analysis, Department of Agricultural Economics, University of Agricultural Sciences, G.K.V.K Bangalore.
- Nagaraj, N ., Prathima.R.,Chandrakanth, M.G and Shyama.V.Ramani., (2004) Economics of vegetable seed production and marketing -An analysis of contract farming in Karnataka, Department of Agricultural Economics, University of Agricultural Sciences, G.K.V.K Bangalore.
- Nagaraj, N ., Prakash.P., Hanumantha Raju and Basavara C Rajur, (2003) Resource characterization and socio economic constraint Analysis of maize based crop production system in transitional belt of Karnataka state, College of Agriculture, V.C.Farm, Mandya, University of Agricultural Sciences, Bangalore.
- Nagaraj, N ., Chandra Shekar.H. and Mangala.K.P., (2003) Economic and environmental implications of ground water degradation on farm economy, Department of Agricultural Economics, University of Agricultural Sciences, G.K.V.K Bangalore.
- Nagaraj, N ., Chandra Shekar.H. Yatheesh. H.S., and Aravind Kumar.M.K., (2003) Designing methodologies for evaluation of economic and environmental implications of ground water depletion- A study in Karnataka peninsular India, Department of Agricultural Economics, University of Agricultural Sciences, G.K.V.K Bangalore.

### Policy Briefs

N. Nagaraj, A.H. Suvarna Kumar and M.G. Chandrakanth, (2005), Economic Analysis of Groundwater Markets in Central Dry Zone of Karnataka, Water Policy Research IWMI-Tata Water Policy Programme, Institute of Rural Management, Anand, Gujarat

S. C. Deepak, M.G. Chandrakanth and N. Nagaraj (2005) Groundwater Markets providing efficiency in water use in agriculture in Karnataka, Water Policy Research IWMI-Tata Water Policy Programme, Institute of Rural Management, Anand, Gujarat

### Courses Taught

- **a) Under graduate courses:**
  1. Introduction to Agriculture and Resource Economics
  2. Farm Management Economics
- **b) Post graduate courses:**
  1. Research Methodology
  2. Farm Management and Production economics
  3. Advanced Production Economics.
  4. Development of Economic Thought

### Training undergone

- 1. Trained in the workshop on problem solving in Natural Resource Economics held at UAS, August 1991 sponsored by WINROCK International.
- Trained in participative Rural Appraisal conducted by MYRADA at Telavadi, Tamilnadu from 1st to 5th June 1992.
- Completed the train the Trainers' workshop on problems solving methods in Natural Resource Economics Research and Research Management from 23 July to 4th August 1992.
- Participated in the Summer Institute on Advances in Agricultural Economics with special reference to Natural Resources and Environmental Economics at TNAU (Tamilnadu Agril. University) Coimbatore from May 10th to June 4th 1994.

