



Dr. Harsh K. Gupta (Director, CSIR-NGRI (July 1992-February 2001)

Padmashri Dr. Harsh Gupta (born in 1942) served as the Director of the National Geophysical Research Institute (NGRI) Hyderabad for nearly a decade from 1992. Under his stewardship, NGRI rose to be the top geosciences research institute in India. His visionary leadership led NGRI to use the pool of basic research capabilities to address the country's needs in hydrocarbons, minerals, and groundwater resources, a crucial question for agriculture in India.

Positions held by Dr. Gupta:

Member of the National Disaster Management Authority of India (Status: Minister of State, Government of India, 2011-2014); Secretary to Government of India, Department of Ocean Development (2001- 2005); Director, N.G.R.I. (1992- 2001); Advisor, Department of Science and Technology, Government of India (1990- 1992); Vice Chancellor, Cochin University of Science and Technology (1987- 1990); Director, Centre of Earth Science Studies, Trivandrum (1982- 1987); and Project Director, Kerala Mineral Development and Exploration Project (1982-1987); Adjunct Professor, University of Texas at Dallas (1978- 2001); Research Scientist, University of Texas at Dallas (1972-1977); Senior UNESCO Fellowship, International Institute of Seismology and Earthquake Engineering (IISEE), Tokyo (1971-1972); Scientist N.G.R.I. (1967-1971); UNESCO Fellowship, IISEE, Tokyo (1966-1967); Scientist NGRI (1964-1966). Visiting Professor at a number of Universities and Institutes in Europe and USA. Advisor/Consultant to UNESCO, Common Wealth Science Council, International Atomic Energy Authority, ICSU etc on several occasions.

Major Scientific Contributions:

Prof. Gupta's work is globally recognized for 1) Providing the first evidence of an extremely thick crust (65~70 km) below Himalaya and Tibet Plateau region in 1967, later confirmed by seismic surveys in 1980's 2) Developing criteria to discriminate artificial water reservoir triggered earthquakes from normal earthquakes, which are globally applied and finding safe sites for construction of reservoirs, 3) Making a medium term forecast of an M~8 earthquake in north-east India region in 1986 which came true on August 6,1988, 4) Chairing the Steering Committee of the Global Seismic Hazard Assessment Program (G-SHAP) where some 500 scientists worked from 1992 to 1999 and produced the Global Seismic Hazard map, 5) Pioneering the Gas Hydrate program and delimiting the zones for stability of gas hydrates within the exclusive economy zone of India, 6) Taking up detailed studies of genesis of triggered earthquakes in the Koyna region and making successful short term earthquake forecasts.

Indian Tsunami Warning System:

After the occurrence of the devastating December 26, 2004 Mw 9.3 Sumatra earthquake and the resultant tsunami that claimed over 250,000 human lives in south and south east Asia, Prof.

Gupta spear headed setting up India's tsunami warning system, which was completed in just 30 months time. This is now assessed to be among the best tsunami warning systems globally.

Low Temperature Thermal Desalination:

Under the stewardship of Prof. Gupta, the first low-temperature thermal desalination plant was set up in Kavaratti, Laksha Dweep in 2005. This is the first of its kind anywhere in the world and has been producing over 100,000 liters/day for the past 7 years. Kavaratti has a population of about 10,000 people. Consequently, the cases reported in the hospital have dropped to less than one-half in the subsequent years as most cases were related to water borne deceases.

Legal Continental Shelf:

Prof. Gupta directed the Legal Continental Shelf program of India, where 31,000 line km of seismic data, intense gravity, magnetic and other geo-data were collected. This has led to India's submitting a claim to the UN Commission on the Limits of the Continental Shelf.

Publications:

Dr. Gupta has published over 200 scientific papers in internationally reputed journals, has authored 5 books, published by Elsevier and Springer, and edited 21 volumes. One of his papers was adopted as a chapter in the Open University (U.K.) text book on Geophysics. His first book, "Dams and Earthquakes", published in 1976 was translated into Russian and Chinese languages. Prof Gupta compiled and edited "Encyclopedia of Solid Earth Geophysics". This monumental 1500+ pages two volume treatise, published by Springer is globally a landmark (website: www.spinger.com).

ANTARCTICA:

Prof Gupta was the Leader of the Third Indian Scientific Expedition to Antarctica (1983- 1984), which succeeded in establishing a permanent base station for scientific research in a record time of one Antarctic Summer, against very heavy odds. This record still holds good. This led to India joining the exclusive club of nations as a member of "Antarctic Treaty".

IUGG/ICSU/AGU/AOGS Etc.

Long time involvement with IUGG (President 2011-2015, Vice President 2007-2011, Bureau Member for two terms, 1999- 2003 and 2003- 2007); IASPEI (Vice President, 1995- 1999, Executive Committee Member 1991- 1995); Chair, Steering Committee of Global Seismic Hazard Program (GSHAP), 1992- 1999; ICSU (Member C SPR, two terms, 2005-2008 and 2008-2011); Chair, Hazards Group, ICSU Regional Office for Asia and Pacific; ILP (Bureau Member, 1986- 1989; and was made a Bureau Member of ILP for life in 1996); Founder President of the Asian Seismological Commission (1996- 2000); IUGS (Councilor, 2000- 2004); Vice President and President AOGS (2010-2013); Member Scientific and Technical Committee of ISDR (2009-); Member AGU Committee on Public Affairs, The New AGU and a member of AGU Committee on International Participation, etc.

International Union of Geodesy and Geophysics (IUGG) has over 70 countries as members. In its history of 96 years, Prof Gupta is the second scientist from India to have been elected as its president. Asia Oceania Geoscience Society (AOGS) has jurisdiction from Japan in the north to

New Zealand in the south involving over 40 countries. Prof Gupta is the only scientist from India to have been elected as its President.

Institution Building

Dr. Gupta has been involved from a very young age in senior administrative positions of institution building. He built Centre for Earth Science Studies at Trivandrum from a scratch. This included development of a whole campus in a short time of two years (1984-86). He also had the responsibility of building Indian Scientific Station in Antarctica which he did with distinction and completed all the tasks in a record time of one Antarctic summer (1983-84). In his capacity as Vice-Chancellor of Cochin University of Science and Technology (at the age of 45 years he was the youngest Vice-Chancellor in the country at that time), among several things, he created DRDO – Cochin University of Science & Technology, Computer Centre equipped with the then latest available computers for joint research projects. He also hosted the Science Congress in January 1990, the first Science Congress in Kerala, which, people still remember as one of the best conducted Science Congress meetings. At DST, during his stay of two years (1990-92) he initiated many new programmes including consolidating DST inputs on IGBP projects.

During 1992-2001, Dr Gupta was the Director at the National Geophysical Research Institute (NGRI), Hyderabad. NGRI has risen to the position of one of the top few CSIR laboratories. From a meager rupees one crore external cash flow during 1993-94, it has grown to 11 crores during 1996-97. NGRI won the prestigious Technology Prize for Business Development and Technology Marketing during 1997. At NGRI, Dr Gupta has revolutionized application of earth sciences to the basic needs of the country. This has included delineation of Mesozoic sediments (which could be petroliferous) under Deccan Trap cover, and a new chapter has been opened in looking for Gas Hydrates in offshore region of India. NGRI has also significantly contributed in water resource finding, rain water harvesting and water pollution related studies as well as ways and means of assessing and safeguarding against earthquake hazards.

Indian Science Congress Association:

As the Vice Chancellor of the Cochin University of Science and Technology, Prof. Gupta hosted the Science Congress in 1990 at Cochin. He was the President of Earth Science Section in 1993/1994. He was elected General President of ISCA and organized a very successful Science Congress at Annamalai University in 2007 with the theme “Planet Earth”. The previous earth scientist to hold this position was Prof W. D. West in 1972.

Awards: Many, including:

- 1977 Indian School of Mines Golden Jubilee “Outstanding Alumni” Award
- 1978 Krishna Gold Medal of the Indian Geophysical Union
- 1983 Shanti Swarup Bhatnagar Prize for Science & Technology in Earth Sciences
- 1985 USSR Academy of Sciences “100 Years of International Geophysics” Memorial Medal
- 1989 The first “Dr Anil Kumar Ganguli” Memorial Oration Award, BARC, Bombay
- 1991 National Mineral Award, Government of India
- 1993 The Department of Atomic Energy, Government of India “C.V. Raman Lectureship”.
- 1995 Indian Science Congress Association Jubilee Lecture

- 1995 CSIR Technology Prize for Business Development and Technology Marketing
- 1997-98 Ninth Professor K.P. Rode Memorial Lecture of the Indian Science Congress Association
- 1998 Second Outstanding performance Award by the 11th International Kharazmi Festival of Iranian Research Organization for Science and Technology, Teheran, Iran
- 1998 Indian Geophysical Union Decennial Award
- 1999 Federation of Indian Chambers of Commerce and Industry, New Delhi, Award for Physical Sciences, 1998-99
- 1999 IGU Millennium Award
- 2000 Indian Society of Applied Geochemists Millennium Award
- 2001 Vikram Sarabhai Memorial Lecture, Department of Space
- 2001 First Dr. H.N. Siddiquie Memorial Lecture, Indian Geophysical Union
- 2002 22nd G.P. Chatterjee Memorial Award, Indian Science Congress Association
- 2003 Jawaharlal Nehru Visiting Fellowship 2003, Indian National Science Academy
- 2003 The 4th Prof. C. Karunakaran Endowment Lecture
- 2003 Bruun Memorial Lecture, 22nd session of the Assembly of International Oceanographic Commission, Paris.
- 2003 National Mineral Award for Excellence-2002
- 2004 Prof. K. Naha Memorial Medal (2004) of INSA
- 2004 Sir Alladi Krishnaswamy Aiyer Endowment Lecture 2004
- 2005 Prof. J.B. Auden Memorial Lecture 2005
- 2005 Prof. M. Kurup Memorial Lecture 2005
- 2005 Prof. Y. Nayudamma Memorial Lecture 2005
- 2006 Padma Shri 2006
- 2008 Prof. Y. Nayudamma Memorial Gold Medal Award for 2008 from APAS
- 2008* Waldo E. Smith Medal Award for 2008 from AGU
- 2008 Rotary Vocational Excellence Award 2009 by Rotary Club of Hyderabad Deccan
- 2009 Sivananda Eminent Citizen Award 2009 by Sanathana Dharma Charitable Trust
- 2012 Distinguished Alumnus Award, I. I. T. Roorkee; 2012
- 2013 Basant Samman (Outstanding Alumnus award), Indian School of Mines,
- 2014 The Daulat Singh Kothari Memorial Lecture (2014) of Indian National Science Academy
- 2016 The 59th Holland Memorial Lecture (2016) of the Mining, Geological & Metallurgical Institute of India
- 2016 Prof. K.R. Ramanathan Memorial Lecture of Indian Geophysical Union.
- 2016 Axford Gold Medal of the Asia Oceania Geosciences Society (2016)

* Prof Gupta is the first so far and the only scientist from the developing world to be awarded Waldo E. Smith Medal by the American Geophysical Union. He is also the second from Asia, the only other awardee being from Japan.