Government of India
Ministry of Mines

A COMPILATION OF
NATIONAL MINERAL AWARDEES 1995-2008
FOREWORD

The National Mineral Awards Scheme was instituted by the Ministry of Mines, Government of India in the year 1966 with the objective of honouring individual and teams of scientists for their extraordinary achievements. Outstanding contributions in the field of fundamental or applied geosciences, mining and allied areas and recognized at the National Level as an incentive. The awards are given Annually. Over a period of time, the scheme of National Mineral Awards has grown with inclusion of more disciplines and enhancement of the Award money. A National Mineral Award for Excellence was instituted in the year 1996 for Lifetime Achievement in the field of Geosciences. 589 geoscientist and technologists from various organisations and institutions of the country have so far received National Mineral Awards in different fields of specialization. 7 eminent Geoscientists have been conferred the National Mineral Award for Excellence.

The National Mineral Award scheme is being enlarged into a National Geoscience Award scheme, to foster further research in Geosciences. To encourage excellence in young minds, a “Young Researcher Award” is also being introduced in the National Geoscience Award scheme from this year onwards.

This publication contains details of the National Mineral Awardees, year of the award, names, photographs, brief citation and organisation with which they were associated at the time of the award. I am sure this publication will be useful to the Geo-scientific community and would be a source of inspiration to young researchers. The effort made by Centre for Techno- Economic Mineral Policy Options in bringing out this publication is appreciated.

(Santha Sheela Nair)
Secretary,
Ministry of Mines,
Government of India

24 February, 2010
New Delhi
NATIONAL MINERAL AWARD FOR EXCELLENCE
NATIONAL MINERAL AWARD FOR EXCELLENCE – 2008

Professor Sisir Kumar Sen former Dean, Indian Institute of Technology, Kharagpur, has been an academician and researcher par excellence who has pioneered the study of advanced metamorphic petrology in India. In recognition of his lifetime contribution in the advancement of modern trends in teaching and research in metamorphic petrology in India, the National Mineral Award of Excellence -2008 was conferred on him.

Professor Sen has made seminal contribution in teaching metamorphic petrology for over three decades by introducing modern techniques and nurturing a pool of eminent researchers and teachers in the subject. His outstanding research in metamorphic petrology is based largely on the patterns of distribution of major elements among common metamorphic minerals. He has innovatively combined the mineral and rock chemistry to obtain a better insight into the origin of various minerals in different types of metamorphic rocks. He is credited with the formulation and fine calibration of several geo-thermometers. The orthopyroxene-garnet geothermometer developed by him in 1984 is still most widely used and internationally accepted.

Studies carried out by Prof. Sen along with his students and fellow researchers have also provided information on the evolution of various high grade rocks of Eastern Ghats and South Indian terrains. Prof. Sen is internationally recognized through his publications in acclaimed journals. He has been a member of the IUGS Subcommission on Metamorphic Rocks and had also held the editorship of the prestigious ‘Journal of Metamorphic Geology’ published from UK, for seven years.
NATIONAL MINERAL AWARD FOR EXCELLENCE – 2006

Dr. Syed Mahmood Naqvi, was Senior Scientist, National Geophysical Research Institute, Hyderabad. He is a scholar of repute who has made immense contribution through his studies in last four decades towards the understanding of the crustal evolution of the Indian subcontinent.

Through sustained petrological and geochemical studies on various rock types of the Dharwar craton and the greenstone belts, Dr. Naqvi has put the Precambrian Geology of India on the International map.

One of the earliest proponents of the Plate Tectonics theory even when it was not much in vogue, Dr. Naqvi has shown that horizontal compression and accretion operated even at 2.7 Ga for the development of the Dharwar greenstone belts. His painstaking work on the Archaean has brought many facts of the early history of the earth to light.

Dr. Naqvi is one of the most internationally cited scientists of the country who has over 180 scientific papers to his credit. He has also authored seven books and has produced thirty PhD’s under his supervision.
NATIONAL MINERAL AWARD FOR EXCELLENCE – 2002

Dr. Harsh K. Gupta, Secretary to the Government of India, Department of Ocean Development, an eminent geo-scientist, who has brought glory to the earth science community in India, through his outstanding contribution in the field of geophysics, earthquake and ocean development was conferred the National Mineral Award for Excellence in 2002.

Dr. Gupta’s investigated artificial reservoir induced earthquakes all over the world and developed criteria to discriminate between reservoir induced earthquakes and normal earthquakes. The criteria generated are now globally applied to locate safer dam sites. His first book on “Dams and Earthquakes” has been extremely cited and has been translated in Russian and Chinese. He also carried out detailed studies on Latur earthquake, one of the most devastating earthquakes in the stable continental region and has established that fluids existing at shallow crustal depths played an important role in the genesis of the Latur earthquake.

Dr. Gupta held many important positions in various organizations included Director, Centre for Earth Science Studies, Trivandrum, Vice-Chancellor, Cochin University of Science & Technology, Cochin, Adviser, Department of Science and Technology, Government of India, New Delhi, Director, National Geophysical Research Institute, Hyderabad, and Secretary to the Government of India, Department of Ocean Development. Dr. Gupta in his capacity as Vice Chancellor, Cochin University of Science & Technology was responsible for establishing a well equipment computer centre in its joint research project of Defence Research & Development Organisation (DRDO) and Cochin University of Science & Technology. As Adviser, Department of Science & Technology, he initiated many new programmes including consolidating inputs on International Geosphere Biosphere Programme (IGBP) projects.

While at NGRI Dr. Gupta initiated detailed work on Gas Hydrates in the Exclusive Economic Zone of India. A comprehensive report was prepared under his leadership entitled “Gas Hydrate Exploration along the Continental Margins of India – Evaluation of Available Geophysical and Geological Data”. During the his tenure as Secretary, Department of Ocean Development, he has left his imprint in Antarctica and established the Indian Ocean-Global Ocean Observation System (IO-GOOS) involving all the Indian Ocean Rim countries and initiated detailed seismic survey in the entire Exclusive Economic Zone of India for laying its legal claims on the continental shelf.
NATIONAL MINERAL AWARD FOR EXCELLENCE – 2001

Padamshree Dr. Hari Narain, Former Director and Emeritus Scientist, NGRI, Hyderabad is an eminent geoscientist who has made outstanding contributions in a career spanning 56 years. He is recognized as a person who has played a stellar role in developing geophysics and making it an important applied branch in India. He has been active in the fields of exploration, exploitation, management, conservation of natural resources and education. For his outstanding contribution in the field of geosciences, National Mineral Award for Excellence -2001 was conferred upon him.

Dr. Narain was instrumental in the establishment of a research institute under the aegis of ONGC, which is presently known as ‘K.D. Malaviya Institute of Petroleum Exploration’. His tenure as Vice Chancellor of Banaras Hindu University form 1978 to 1981 is another landmark for referencing his skill in creating harmonious atmosphere congenial for serious studies and research. He was also successful in reorienting academic courses and provided direction for research activities. Dr. Narain enjoys the significant distinction of having been the first civilian Surveyor General of India from 1972 till 1976. He has also held many other important positions in various universities and organizations, including Director, National Geophysical Research Institute, Hyderabad.

Recognizing his distinguished record and meritorious services in the field of geosciences, he was conferred the coveted “Padamshree” award in 1974. Dr. Narain is a recipient of M.N. Saha Barth Centenary Gold Medal of Indian Science Congress, Commemoration Medal by USSR Academy of Science and Petrotech-1999 Lifetime Achievement Award.
NATIONAL MINERAL AWARD FOR EXCELLENCE – 2000

Padmashree Dr. Bangalore Puttaiah Radhakrishna, President, Geological Society of India, Ex-Director, Department of Geology and Mines, Karnataka and an eminent geoscientist of the country was conferred National Mineral Award for Excellence in 2000 for his outstanding contributions in the field of geosciences in his career spanning over 60 years.

Dr. Radhakrishna has carried out significant studies in the field of geology and physiography of Indian sub-continent. He presented an original concept on the break-up and reassembly of different segments of Indian continent. Dr. Radhakrishna was the first to point out, way back in 1952, that the Indian Peninsula is not a static mass unaffiliated by recent static tectonic movements. Dr. Radhakrishna has provided a masterly review and synthesis on the influence of crustal evolution on ore deposition based on a thorough survey of the metalliferrous deposits of India.

Dr. Radhakrishna is one of the founder members of Geological Society of India and served as its first Secretary, editor of the official Journal of the Society and become its President in 1992. In recognition of his outstanding achievements, Dr. Radhakrishna was elected as Fellow of Indian Academy of Science in 1956, Indian National Science Academy in 1972, Honorary Fellow of the Geological Society of London in 1986 and Geological Society of America in 1988. He was awarded the Pramatha Nath Bose Medal of Asiatic Society, Calcutta in 1990 and conferred with Honorary degree of Doctor of Science in 1992 by Indian School of Mines.

In recognition of his meritorious services rendered in the field of geosciences, the President of India conferred “Padmashree” on him in 1993.
NATIONAL MINERAL AWARD FOR EXCELLENCE – 1997

Professor K. S. Valdiya of the Jawahar Lal Nehru Centre of Advanced Scientific Research, Bangalore is an eminent teacher and geologist of International repute was conferred National Mineral Award for Excellence – 1997 for his outstanding contributions on the geodynamics of Himalayas including its sedimentation history, tectonics and environment.

Professor Valdiya’s research work on Himalayas is internationally cited. The salient features of his studies include pioneering research on Cyanobacteria - built stromatolites for refinement of stratigraphic order in Lesser Himalayas and reconstruction of the paleogeography of the subcontinent during Proterozoic - Lower Precambrian time. The stratigraphic and structural studies done by him on the Himalayas have contributed significantly on the understanding of the evolutionary history of this young mountain belt. Professor Valdiya has also made significant contribution on the characterization and genetic aspect of the mangesite and sopstone deposits in eastern Kumanun.

He has been actively involved in the study of neotectonics of the lesser Himalayas and Southern Indian shield in South Karnataka and adjoining Tamilnadu. The field-based studies carried out by him has demonstrated that geomorphological rejuvenation of landforms, changes in courses of rivers, and their blockages besides modification of landform due to acceleration of gully erosion are related to continuous activity along planes of weakness in the rocks. His work has shown that there has been continuing movements on ancient faults. His studies have made widespread impact on the hazard assessment and mitigation aspects of these earthquake-prone belts.

The societal aspect of his research work had been the pioneering hydrogeological studies on reduced stream flow and depletion of mountains springs in relation to environmental degradation.
Professor V.K. Gaur of the Indian Institute of Astrophysics, Bangalore is an eminent teacher and a researcher in geoscience of international repute. He was conferred the first National Mineral Award for Excellence – 1996. He is an outstanding geophysicist who has given a new dimension to the research on this subject in India. He has left a mark in all spheres of his activities, i.e. as an academician in the University of Roorkee, as a researcher in the National Geophysical Research Institute and as a Secretary, Department of Ocean Development, Government of India. He has been instrumental in creating several schemes of research and developing schools of capable scientists in all of these institutions.

Professor Gaur has made pioneering contributions in acquiring new knowledge in Earth System Science including the host rock effect in geo-electromagnetics and seismotectonic setting of the Central Himalayas. His fundamental contribution in enhancing the understanding of the seismic hazard in Himalayas and in particular of mega hydroelectric projects in this geologically and ecologically sensitive terrain had provided a useful input for construction and planning of such projects.

He is credited with the research leading to the identification of a thick lithospheric root beneath the Dharwar Craton using seismic tomography and crustal strain field in South India using GPS constrained baselines. He has designed and implemented modern programmes in Antarctic Science, the National Ocean Information System (NOIS), the Marine Satellite Information Services (MARSIS), Coastal Ocean Monitoring and Predication System and productive Coastal Ocean System (CODAPS)
NATIONAL MINERAL AWARDS
NATIONAL MINERAL AWARDS-2008
Coal, Lignite and Coal Bed Methane Discovery & Exploration

**Shri Pradip Kumar Nanda** of Geological Survey of India, Kolkata has carried out concept based regional exploration for coal in the Talcher Coalfield of Orissa. He and his team members have successfully demarcated thick coal seams at moderately shallow depths with total coal resources of 5.35 billion tonnes in Saradhapur-Tribira and Jalatap areas of central Talcher Coalfield, of which 1.49 billion tonnes occurring within 300m depth.

**Shri Biplab Kumar Chakraborty** of the Geological Survey of India, Kolkata has carried out concept based regional exploration for coal in the Talcher Coalfield of Orissa. He and his team members have successfully demarcated thick coal seams at moderately shallow depths with total coal resources of 5.35 billion tonnes in Saradhapur-Tribira and Jalatap areas of central Talcher Coalfield, of which 1.49 billion tonnes occurring within 300m depth.

**Shri Sajal Pal** of the Geological Survey of India, Kolkata has carried out concept based regional exploration for coal in the Talcher Coalfield of Orissa. He and his team members have successfully demarcated thick coal seams at moderately shallow depths with total coal resources of 5.35 billion tonnes in Saradhapur-Tribira and Jalatap areas of central Talcher Coalfield, of which 1.49 billion tonnes occurring within 300m depth.

**Shri Satyanarayan Behera** of the Geological Survey of India, Kolkata has carried out concept based regional exploration for coal in the Talcher Coalfield of Orissa. He and his team members have successfully demarcated thick coal seams at moderately shallow depths with total coal resources of 5.35 billion tonnes in Saradhapur-Tribira and Jalatap areas of central Talcher Coalfield, of which 1.49 billion tonnes occurring within 300m depth.
Oil, Natural Gas and Gas Hydrates Discovery & Exploration

Professor Tarkeshwar Kumar of the Indian School of Mines University, Dhanbad, has made immense contributions towards the advancement of education in Petroleum Engineering and for research leading to enhanced recovery and increased productivity in the oil sector.

Mining Technology

Dr. Autar Krishen Raina of the Central Institute of Mining & Fuel Research, Nagpur, has made outstanding contributions in making blasting activity more safe and environment friendly in mining operations that has resulted in enhanced productivity in coal mines.

Dr. Shaitan Singh Rathore of the University of Technology & Engineering, Udaipur, has carried out outstanding work in developing innovative techniques for dimensional stone mining sector resulting in enhanced productivity, reduction in waste generation and energy consumption.

Stratigraphy, Structural Geology, Palaeontology, Geomorphology, Economic Geology and Geodynamics

Dr. Joydip Mukhopadhyay of the Presidency College, Kolkata, has made contributions in economic geology particularly on the origin of iron and manganese deposits that would have implications in developing future exploration strategy for these deposits.
Professor Tapas Kumar Biswal of the Indian Institute of Technology, Mumbai, has made significant contributions on the understanding of the evolutionary history of the Indian subcontinent through his research on the Eastern Ghats mobile belt.

Petrology and Geochemistry Including Mineralogy, Geochronology and Isotope Geology

Dr. Pulak Sengupta of the Jadavpur University, Kolkata, has made fundamental contributions on the genesis of high grade metamorphic rocks.

Applied Geology

Dr. Sukanta Roy of the National Geophysical Research Institute, Hyderabad, has made significant contributions towards better assessment of the geothermal energy potential of the country and developing strategies for its utilization.

Geophysics / Applied Geophysics

Dr. Ajai Manglik of the National Geophysical Research Institute, Hyderabad, has made significant contributions in theoretical geophysics that has led towards a better understanding of the geological evolution of the Indian subcontinent.
Dr. Vishnubhotla Chakravarthi of the National Geophysical Research Institute, Hyderabad, has made significant contributions in experimental geophysics that have found wide application in hydrocarbon exploration and has resulted in identification of several potential areas in Gujarat and Central India.

Disaster Management (Team Award)

Dr. Om Prakash Mishra of the Geological Survey of India, Kolkata and his team has made significant contribution for developing a deep insight into the earthquake generating processes through geophysical studies. The public awareness campaigns organized by the team had been helpful in reducing panic and trauma associated with the natural disasters amongst the people of Andamans.

Shri Gautam Kumar Chakrabortty of the Geological Survey of India, Kolkata and his team has made significant contribution for developing a deep insight into the earthquake generating processes through geophysical studies. The public awareness campaigns organized by the team had been helpful in reducing panic and trauma associated with the natural disasters amongst the people of Andamans.

Dr. Om Prakash Singh, Geological Survey of India, Kolkata and his team made significant contribution for developing a deep insight into the earthquake generating processes through geophysical studies. The public awareness campaigns organized by the team had been helpful in reducing panic and trauma associated with the natural disasters amongst the people of Andamans.

Disaster Management

Dr. Sridevi Jade of the Centre for Mathematical Modeling and Computer Simulation, Bangalore, has made seminal contributions in the propagation and understanding of global positioning system (GPS) technology related geoscientific studies in India for earthquake hazard assessment.
NATIONAL MINERAL AWARD – 2007
Coal, Lignite and Coal Bed Methane Discovery & Exploration

Shri P. Kurmaraguru of the Geological Survey of India has carried out concept oriented exploration to discover lignite deposits in Mannargudi and Ramnad sub-basins of Tamilnadu. The basin analysis studies including interpretation of sub-surface, tectonic and geophysical data coupled with micro facies analysis and palaeotological data, led by him and his team members established 302 million tonnes of lignite deposits and a resource of 1172 million tonnes of lignite in southern and northern parts of the Mannargudi sub-basin.

Shri K. Bhaskaran of the Geological Survey of India has carried out concept oriented exploration to discover lignite deposits in Mannargudi and Ramnad sub-basins of Tamilnadu. The basin analysis studies including interpretation of sub-surface, tectonic and geophysical data coupled with micro facies analysis and palaeotological data, led by him and his team members established 302 million tonnes of lignite deposits and a resource of 1172 million tonnes of lignite in southern and northern parts of the Mannargudi sub-basin.

Dr. T. S. Giritharan of the Geological Survey of India has carried out concept oriented exploration to discover lignite deposits in Mannargudi and Ramnad sub-basins of Tamilnadu. The basin analysis studies including interpretation of sub-surface, tectonic and geophysical data coupled with micro facies analysis and palaeotological data, led by him and his team members established 302 million tonnes of lignite deposits and a resource of 1172 million tonnes of lignite in southern and northern parts of the Mannargudi sub-basin.

Dr. A. Balukkarasu of the Geological Survey of India has carried out concept oriented exploration to discover lignite deposits in Mannargudi and Ramnad sub-basins of Tamilnadu. The basin analysis studies including interpretation of sub-surface, tectonic and geophysical data coupled with micro facies analysis and palaeotological data, led by him and his team members established 302 million tonnes of lignite deposits and a resource of 1172 million tonnes of lignite in southern and northern parts of the Mannargudi sub-basin.
Oil, Natural Gas and Gas Hydrates Discovery

Shri Rajesh Kumar Srivastava of the Oil & Natural Gas Corporation Limited, Dehradun has carried out geological modeling of oil and gas fields of Mumbai-offshore, Assam Shelf, Bengal, Mahanadi and Andaman basins. The field techniques as well as geo-cellular modeling developed by him has lead to the discovery of oil and gas at Kalyanpur in Assam and gas in deep water blocks of Mahanadi. He has been instrumental in accreting more than 100 MMbl of oil plus oil equivalent gas in the extension areas of existing fields of Assam.

Groundwater Exploration

Professor Nandipati Subba Rao of the Andhra University, Hyderabad has carried out extensive hydrogeological and hydrogeochemical studies in the different parts of Andhra Pradesh. Through remote sensing techniques he has been useful in delineation of groundwater resources in the hard rock terrains. His work on various remedial measures to improve the groundwater quality in rural and urban areas of Guntur, Anantapur and Visakhapatnam districts has been of immense societal value.

Dr. Shivendra Nath Rai of the National Geophysical Research Institute, Hyderabad has developed new mathematical models that have found application in ground water resource management. He has also made sustained efforts in the field of ground water exploration through geophysical surveys by locating potential zones within and below the Deccan Traps and in the Gondwana Formations in Maharashtra.

Mining Technology

Dr. Pradeep Kumar Singh of the Central Mining & Fuel Research Institute, Dhanbad has carried out research on the stability of underground coal mines and related structures from blast induced vibrations. The predictive models developed by him have helped in enhancing the safety and productivity in coal mines.
Dr. Ashok Kumar Singh of the Central Mine Planning And Design Institute, Ranchi has been a pioneer in introducing several innovative techniques in the underground mining and promoting mechanization in open cast mines. His adoption of best practices in opencast mine layout with high degree of mechanization has led to successful implementation of Nigahi coal project in Singrauli coalfields for achieving higher coal production.

Mineral Beneficiation

Dr. Barda Kanta Mishra of the Institute of Mineral & Materials Technology, Bhubaneshwar and his coworker Dr. Asim Kumar Mukherjee of the Tata Steel, Jamshedpur has done well acclaimed research in mineral engineering. Work done by them has found immense industrial application in improving the quality of coal and iron ores.

Dr. Asim Kumar Mukherjee of the Tata Steel, Jamshedpur and his coworker Dr. Barda Kanta Mishra of the Institute of Mineral & Materials Technology, Bhubaneshwar has done well acclaimed research in mineral engineering. Work done by them has found immense industrial application in improving the quality of coal and iron ores.

Stratigraphy, Structural Geology, Palaeontology, Geomorphology, Economic Geology and Geodynamics

Professor Dilip Saha of the Indian Statistical Institute, Kolkata has worked on the theoretical and computational aspect of structural geology besides regional geological synthesis on various Purana basins of India that has thrown immense light on the basin evolution and inversion history. His research on the fabric and microstructures in shallow crustal granites has been helpful in gaining information on continental tectonics and constraining emplacement history.
Petrology and Geochemistry including Mineralogy, Geochronology and Isotope Geology

Professor Abhijit Bhattacharya of the Indian Institute of Technology, Kharagpur has carried out outstanding studies on metamorphic petrology and magmatic evolution for constraining the massif anorthosite genesis as well as the nature of craton-mobile belt contact in Eastern India.

Geophysics / Applied Geophysics

Dr. Virendra Mani Tiwari of the National Geophysical Research Institute, Hyderabad has carried out intensive gravity and magnetic studies on different parts of the Indian lithosphere, including southern Indian shield and the Himalaya. The plate tectonics model proposed by him for the Central Indian Suture zone and Aravalli- Delhi fold belt have been internationally recognized.

Dr. K.A. Kamesh Raju of the National Institute of Oceanography, Goa has done innovative research in Marine Geophysics for obtaining a deeper insight into the morpho-tectonic evolution of the Central Indian Ocean Basin. His studies on the role of West Andaman Fault have provided useful information towards the understanding of the mechanisms involved in the earthquakes in the Andaman Sea region.

Geo-Environmental Studies

Dr. Vinay Mohan Choubey of the Wadia Institute of Himalayan Geology, Dehradun has undertaken studies to characterize the behavior of sub-surface radon migration in relation to various geo-environmental conditions in the Himalayan region. Radon emanation Studies carried out by him across landslide profiles helped in landslide hazard assessment and mitigation.

Disaster Management

Dr. Prantik Mandal of the National Geophysical Research Institute, Hyderabad has carried out studies on the various mechanisms involved in the intraplate earthquakes occurring in India. His work on the seismic hazard assessment of Bhuj area and Koyna region by monitoring the aftershocks of region have been extremely useful in the earthquake disaster mitigation in this region.
Shri Suresh Chander of the Geological Survey of India, Jaipur has carried out integrated surveys for gold and associated base metals on the basis of aero-geophysical anomalies in Sanjela-Manpur-Dugocha belt of Udaipur District, Rajasthan. He has been successful in locating new target areas for mineralization. His work has led to the estimation of reserves of 1.0 million tonnes of Gold ore at depths of 100 m in Dugocha Main and North Blocks with average of 2.07 ppm gold.

(Team Award)

Dr. Soney Kurien P of the Geological Survey of India, Thiruvananthapuram and his coworkers have evolved and executed an exploration strategy that has led to estimation of 2.38 million tonnes gold ore resource (1.25g/t grade) at 0.5 ppm cut off which includes, 1.0 million tonnes (2.52g/t grade) at 1 ppm cut off and 0.26 million tonnes (6.48 g/t grade) at 3 ppm cut off in Lungtu-Parasi- Sindauri area of Ranchi district.

Dr. Radha Nand Singh of the Geological Survey of India, Patna and his coworkers have evolved and executed an exploration strategy that has led to estimation of 2.38 million tonnes gold ore resource (1.25g/t grade) at 0.5 ppm cut off which includes, 1.0 million tonnes (2.52g/t grade) at 1 ppm cut off and 0.26 million tonnes (6.48 g/t grade) at 3 ppm cut off in Lungtu-Parasi- Sindauri area of Ranchi district.

Shri Shashi Ranjan of the Geological Survey of India, Patna and his coworkers have evolved and executed an exploration strategy that has led to estimation of 2.38 million tonnes gold ore resource (1.25g/t grade) at 0.5 ppm cut off which includes, 1.0 million tonnes (2.52g/t grade) at 1 ppm cut off and 0.26 million tonnes (6.48 g/t grade) at 3 ppm cut off in Lungtu-Parasi- Sindauri area of Ranchi district.
Shri Radhika Ranjan Sharan of the Geological Survey of India, Patna and his coworkers have evolved and executed an exploration strategy that has led to estimation of 2.38 million tonnes gold ore resource (1.25g/t grade) at 0.5 ppm cut off which includes, 1.0 million tonnes (2.52g/t grade) at 1 ppm cut off and 0.26 million tonnes (6.48 g/t grade) at 3 ppm cut off in Lungtu-Parasi- Sindauri area of Ranchi district.

Coal, Lignite and Coal Bed Methane Discovery & Exploration (Team Award)

Dr. Ashutosh Mondal of the Geological Survey of India, Kolkata and his teammates have made valuable addition to the National Coal Inventory by discovering about 400 million tons of superior grade non-coking coal resources at shallow depth in the Malachua, Panwari and Shahpur blocks of Sohagpur Coalfield of Madhya Pradesh. The most noteworthy aspect of this discovery is that about 129.24 million tons of these coal resources lie at the shallow depth and amenable to opencast mining.

Dr. Manas Roy Chowdhury of the Geological Survey of India, Kolkata and his teammates have made valuable addition to the National Coal Inventory by discovering about 400 million tons of superior grade non-coking coal resources at shallow depth in the Malachua, Panwari and Shahpur blocks of Sohagpur Coalfield of Madhya Pradesh. The most noteworthy aspect of this discovery is that about 129.24 million tons of these coal resources lie at the shallow depth and amenable to opencast mining.

Dr. Anjan Rai Choudhauri of the Geological Survey of India, Kolkata and his teammates have made valuable addition to the National Coal Inventory by discovering about 400 million tons of superior grade non-coking coal resources at shallow depth in the Malachua, Panwari and Shahpur blocks of Sohagpur Coalfield of Madhya Pradesh. The most noteworthy aspect of this discovery is that about 129.24 million tons of these coal resources lie at the shallow depth and amenable to opencast mining.
Shri Naresh Prasad Patel of the Geological Survey of India, Kolkata and his teammates have made valuable addition to the National Coal Inventory by discovering about 400 million tons of superior grade non-coking coal resources at shallow depth in the Malachua, Panwari and Shahpur blocks of Sohagpur Coalfield of Madhya Pradesh. The most noteworthy aspect of this discovery is that about 129.24 million tons of these coal resources lie at the shallow depth and amenable to opencast mining.

Shri Subhasis Kabiraj of the Geological Survey of India, Kolkata and his teammates have made valuable addition to the National Coal Inventory by discovering about 400 million tons of superior grade non-coking coal resources at shallow depth in the Malachua, Panwari and Shahpur blocks of Sohagpur Coalfield of Madhya Pradesh. The most noteworthy aspect of this discovery is that about 129.24 million tons of these coal resources lie at the shallow depth and amenable to opencast mining.

Groundwater Exploration

Dr. Shakeel Ahmed of the National Geophysical Research Institute, Hyderabad has developed new methods of geostatistics utilizing easily available parameters for application in groundwater hydrology. He is internationally known for his skill in aquifer modelling and has established an advanced modelling laboratory at NGRI.

Mining Technology

Shri Ramendra Gupta of the Uranium Corporation Of India Ltd., Jharkhand has made immense contribution in the field of deep and metal mining technology leading to increased productivity. He has successfully used his long experience in deep underground mines like Kolar for innovative applications in Jaduguda and Narwapahar mines for achieving an increased supply of uranium to meet the immediate needs of nuclear power programme of the country.
Shri Akhilesh Joshi of the Hindustan Zinc Limited, Udaipur, during his association with Rampura Agucha Mine for past one decade has developed it to be the lowest cost producer for zinc and among one of the highly productive mines of the world. His dedicated efforts and technological skills have resulted in the enhancement of lead and zinc resources of the country by around 52 million tonnes.

Dr. Ran Vijay Kumar Singh of the Central Mining Research Institute, Dhanbad has carried out outstanding research & development work for prevention and control of fire in underground and opencast coal mines. He has developed a fire protective coating material, fire resistant grout pack material for preventing spontaneous heating in coal mines and a mechanised device that can spray fire protective coating material up to a height of 20m and is also capable of coating a large surface area in a very short time.

Mineral Beneficiation

Dr. Swarna Prabhakar of the National Metallurgical Laboratory, Chennai along with his coworker has done pioneering work in developing fully automated laboratory model, pilot size and semi-commercial flotation columns for beneficiation of various ores and other minerals. These have been successfully used for beneficiation of lead-zinc ores of Dariba and Rampura-Agucha, copper-lead-zinc ore of Ambaji, fluorspar of Kadipani, gold ore of Kolar, low-grade iron ores of Goa and Karnataka, sillimanite of Orissa sands and low-grade limestone deposits of Salem.

Dr. G. Bhaskar Raju of the National Metallurgical Laboratory, Chennai along with his coworker has done pioneering work in developing fully automated laboratory model, pilot size and semi-commercial flotation columns for beneficiation of various ores and other minerals. These have been successfully used for beneficiation of lead-zinc ores of Dariba and Rampura-Agucha, copper-lead-zinc ore of Ambaji, fluorspar of Kadipani, gold ore of Kolar, low-grade iron ores of Goa and Karnataka, sillimanite of Orissa sands and low-grade limestone deposits of Salem.
Stratigraphy, Structural Geology, Palaeontology, Geomorphology, Economic Geology and Geodynamics

Dr. Talari Ramakrishnaiah Chetty of the National Geophysical Research Institute, Hyderabad has carried out extensive research by combining field geology and geophysics with modern techniques for obtaining a better understanding of the Precambrian structural and geodynamic processes. His studies on the Cauvery Shear Zone System, Eastern Ghats Mobile Belt and the Southern granulite terrain has provided useful information for the reconstruction models of Rodinia and Gondwana Supercontinents.

Petrology, Geochemistry Including Mineralogy, Geochronology and Isotope Geology

Dr. Anil Kumar, Scientist of the National Geophysical Research Institute, Hyderabad is credited with developing a vast geochronological knowledge base and providing the first precise dating of Sevathur carbonatite (770±20 Ma) and another much older carbonatite (1990 Ma) at Hogenakkal besides proposing different mantle compositions for these two. Dr. Kumar’s work on precise dating of the primitive Piplia Kalan meteorite at 4.570±0.019 Ga is also widely recognized.

Applied Geology

Professor T. N. Singh of the Indian Institute Of Technology, Mumbai has done extensive research in the field of engineering geology, rock mechanics and environmental geotechnology. He is credited for developing instrumentation for large underground excavations made during the construction of hydroelectric power projects in difficult terrains of Himalaya and carrying out pioneering research on various aspects of rock blasting.

Geophysics / Applied Geophysics

Dr. Hari Venkata Ram Babu of the National Geophysical Research Institute, Hyderabad has done extensive studies on the interpretation of regional gravity and aeromagnetic data over various parts of India including Gadarwara in the Vindhyan basin that has led to the identification of sulphide mineralization, Kalyandurg area that resulted in discovery of a few more kimberlites besides locating deep-seated uranium deposits in the Vindhyan basin.
Ocean Development

*Dr. Ram Krishna Tiwari* of the National Geophysical Research Institute, Hyderabad has done outstanding research on global coupled earth system processes utilizing latest technology including spectral analyses and non-linear dynamical system theory. His work has enhanced our understanding on the issues of global changes and the climatic variability.

Geo-Information System

*Dr. Bishwajit Chakraborty* of the National Institute Of Oceanography, Goa has done outstanding work in development of software packages for application in marine geology. The Artificial Neural Network (ANN) method developed by him is useful in quick demarcation of the seafloor sediment type.
**NATIONAL MINERAL AWARD – 2005**

Mineral Discovery and Exploration  
(Team Award)

*Dr. Kameswara Rao Tadicherla* the Geological Survey of India, Hyderabad along with his team members has carried out invigorative search with a conceptual approach and was successful in locating diamondiferous kimberlite pipes in Kurnool and Anantapur districts of Andhra Pradesh. The Timmasamudram kimberlite pipe (TK-4) located by his team is of immense economic significance with recovery of hundred percent gem quality diamonds.

*Shri V. Srinivas Chowdhary* of the Geological Survey of India, Hyderabad along with his team members has carried out invigorative search with a conceptual approach and was successful in locating diamondiferous kimberlite pipes in Kurnool and Anantapur districts of Andhra Pradesh. The Timmasamudram kimberlite pipe (TK-4) located by his team is of immense economic significance with recovery of hundred percent gem quality diamonds.

*Shri M. Sridhar* of the Geological Survey of India, Hyderabad along with his team members has carried out invigorative search with a conceptual approach and was successful in locating diamondiferous kimberlite pipes in Kurnool and Anantapur districts of Andhra Pradesh. The Timmasamudram kimberlite pipe (TK-4) located by his team is of immense economic significance with recovery of hundred percent gem quality diamonds.

*Shri Nalabolu Suryanarayana Reddy* of the Geological Survey of India, Hyderabad along with his team members has carried out invigorative search with a conceptual approach and was successful in locating diamondiferous kimberlite pipes in Kurnool and Anantapur districts of Andhra Pradesh. The Timmasamudram kimberlite pipe (TK-4) located by his team is of immense economic significance with recovery of hundred percent gem quality diamonds.
Shri Krishan Kant Sinha of the Geological Survey of India, Hyderabad along with his team members has carried out invigorative search with a conceptual approach and was successful in locating diamondiferous kimberlite pipes in Kurnool and Anantapur districts of Andhra Pradesh. The Timmasamudram kimberlite pipe (TK-4) located by his team is of immense economic significance with recovery of hundred percent gem quality diamonds.

Mineral Exploration (Team Award)

Dr. Surendra Singh Garhia of the Geological Survey of India, Jaipur along with his co-workers has made dedicated efforts in gold exploration activities in Rajasthan and have established gold reserves of 40.49 million tonness in Bhukia gold prospect from surface to 150 m vertical depth with 2.02 ppm average gold content containing 81.58 tons gold metal at 0.5 ppm cut-off grade.

Dr. Dipendu Bhushan Guha of the Geological Survey of India, Jaipur along with his co-workers has made dedicated efforts in gold exploration activities in Rajasthan and have established gold reserves of 40.49 million tonness in Bhukia gold prospect from surface to 150 m vertical depth with 2.02 ppm average gold content containing 81.58 tons gold metal at 0.5 ppm cut-off grade.

Shri Ram Lal Jat of the Geological Survey of India, Jaipur along with his co-workers has made dedicated efforts in gold exploration activities in Rajasthan and have established gold reserves of 40.49 million tonness in Bhukia gold prospect from surface to 150 m vertical depth with 2.02 ppm average gold content containing 81.58 tons gold metal at 0.5 ppm cut-off grade.
Mining Technology

**Dr. Pijush Pal Roy** of the Central Mining Research Institute, Dhanbad, has carried out outstanding work on conduction of eco-friendly blasting operations with conventional blasting accessories and non-electric initiating devices for enhanced production and productivity.

Mineral Beneficiation

**Dr. Raghavan Pattathil** of the Regional Research Laboratory, Thiruananthapuram, has made significant contribution in generating knowledge on the flotation separation of impurities from China Clay besides beneficiation of other minerals such as ilmenite and silica sand.

Stratigraphy, Structural Geology, Palaeontology, Geomorphology, Economic Geology and Geodynamics

**Professor Biswajit Mishra** of the Indian Institute of Technology, Kharagpur, has made an exhaustive research in theoretical and experimental sulfide mineralogy. His studies have provided new scientific rationale for genesis of diverse ore deposits.

Stratigraphy, Structural Geology, Palaeontology, Geomorphology, Economic Geology and Geodynamics

(Shared Award)

**Professor Hari Bahadur Srivastava** of the Banaras Hindu University, Varanasi has evolved conceptual models on the process of lithospheric deformation as a result of collision of Indian plate with Asian plate providing a critical insight into the geodynamics of Himalayas.
Dr. Rohtash Kumar of the Wadia Institute of Himalayan Geology, Dehradun, along with his team members has developed the multi-technique integrated approach to resolve the significant problems in the understanding of the Late Neogene tectonic and climatic evolution of the Himalayan Foreland Basin. The research work by his team is of great significance in socio-economic planning and developmental aspects of the Himalayan region.

Dr. Sumit K. Ghosh, Scientist- E of the Wadia Institute of Himalayan Geology, Dehradun, along with his team members has developed the multi-technique integrated approach to resolve the significant problems in the understanding of the Late Neogene tectonic and climatic evolution of the Himalayan Foreland Basin. The research work by his team is of great significance in socio-economic planning and developmental aspects of the Himalayan region.

Dr. Satish J. Sangode of the Wadia Institute of Himalayan Geology, Dehradun, along with his team members has developed the multi-technique integrated approach to resolve the significant problems in the understanding of the Late Neogene tectonic and climatic evolution of the Himalayan Foreland Basin. The research work by his team is of great significance in socio-economic planning and developmental aspects of the Himalayan region.

Applied Geology

Dr. Shailesh Nayak of the Indian Space Research Organisation, Ahmedabad, has done extensive work in the development of techniques and algorithms using Indian Remote Sensing (IRS) satellite data for the coastal zone management and sustainable use of marine living resources. GIS-based models developed by him are now being used for identifying vulnerable and environmentally sensitive areas besides the sites for aquaculture and industries.
Geophysics / Applied Geophysics

Dr. N. Sundararajan of the Osmania University, Hyderabad has done outstanding research in designing tools and techniques for processing and interpretation of geophysical data. The “Sundararajan Transform” developed by him paves way for interpretation of potential field data when the conventional method fails to yield a viable solution.

Geochemistry as Applied to Earth Sciences, Geochronology, Isotope Geology

Dr. N.V.Chalapathi Rao of the Indian Bureau of Mines, Nagpur, has carried out extensive research work leading to the recognition and genesis of the kimberlites in southern India and within the Eastern Ghat mobile belt. The Sr and Nd isotopic studies undertaken by Dr. Rao have shown the existence of an anomalously enriched mantle beneath the Cuddapah basin and its northeastern margin. He also explained, India’s most celebrated diamondiferous ultramafic pipe at Majhgawan in Panna area to be a transitional variety.

Environmental Geosciences and Management Studies

Dr. Govind Joseph Chakrapani of the Indian Institute of Technology, Roorkee, has done outstanding research on the rivers and lake systems of India through sediment and chemical mass balance, heavy metals fractionation and radioisotopic signatures. Dr. Chakrapani related the Himalayan uplift with the osmium isotopic compositions in the oceans through geochemical models. He reported the strontium isotopic compositions and dissolved trace elements in Himalayan lakes establishing their toxic potential.

Disaster Management

Dr. Imtiyaz Ahmed Parvez of the Centre for Mathematical Modelling and Computer Simulation, Bangalore, has done pioneering work on the probabilistic assessment of earthquake hazard. He has used his models for the Indian subcontinent, North-East Indian Peninsula and Hindukush region and defined the probability of occurrences of the future earthquake during a specified interval of time.
Ocean Development

Dr. Abhey Ram Bansal of the National Geophysical Research Institute, Hyderabad, has been instrumental in the derivation of a high-resolution, free air gravity data for Indian Ocean from the geodetic mission of ERS1 and GEOSAT. This data set has been used in terms of isostatic compensation of submarine features in the Indian Ocean and their geodynamical implications.

Studies on Oil & Natural Gas Discovery, Exploration

Shri Lehmbar Singh of the Oil & Natural Gas Corporation Ltd., Ahmedabad, has put in dedicated efforts resulting into a phenomenal rise of 20% in oil production from Ahmedabad Asset of ONGC. He has also been instrumental in the discovery of three new oil fields namely Nambar, Safrai and Panidhing in the Eastern region.

Dr. Kalachand Sain of the National Geophysical Research Institute, Hyderabad has made valuable contribution through investigations of gas hydrates along the continental margins of India and imaging Mesozoic sediments below basalt cover in Western India. His research includes delineation of ~200-350 m thick ‘free-gas’ zone beneath ~160 m thick hydrated sediments in the Arabian Sea besides gas-hydrate bearing structure in the western offshore (Kerala-Konkan basin) of India.
NATIONAL MINERAL AWARD – 2004

Mineral Discovery

Dr. R.K. Sharma of the Geological Survey of India, Jaipur, has located for the first time a gold bearing Copper deposit in a new geological setting in Dausa district of Rajasthan in the Archaean basement rocks. This finding would contribute additional reserves of about 4 million tonnes of copper with average copper content of about 1.08% along with average gold concentration of 0.8 ppm.

Mining Technology

Dr. Hindupur Srinivas Venkatesh of the National Institute of Rock Machanics, Karnataka, has made significant contribution in the field of mining technology through his innovative research in excavation and controlled rock blasting for mining and civil engineering projects.

Dr. Jagdish Kumar Mohnot of the Central Mining Research Institute, Roorkee, has made significant contribution in the field of mining technology by developing a new mathematical mine planning model which helped in quick and economic evaluation of mining ventures.

Mineral Beneficiation

Dr. Swapan Kumar Pan of the Steel Authority of India Limited, Ranchi, along with his teammate, has developed an expertise in mineral beneficiation for upgradation of iron ore through application of innovative technology. The work carried out by the team has augmented the recovery of fines from the waste and their enrichment from 55% to 64% iron content.
Dr. Manish Jain of the Steel Authority of India Limited, Ranchi, along with his teammate, has developed an expertise in mineral beneficiation for upgradation of iron ore through application of innovative technology. The work carried out by the team has augmented the recovery of fines from the waste and their enrichment from 55% to 64% iron content.

Geoinformation System

Shri P.K. Mittal of the Oil & Natural Gas Corporation Limited, Dehradun, has made remarkable contribution in the field of geo-information system through development of a number of softwares applicable to oil exploration and geological mapping. These include a software package for reserve estimation for oil and gas, computer programme for processing marine gravity-magnetic data and a new algorithm for mis-tie adjustments. This method has been accepted internationally and is widely used in India and abroad.

Geology: Stratigraphy, Structural Geology

Professor Harendra Nath Bhattacharya of the Presidency College, Kolkata has carried out brilliant studies on the evolutionary models of the Damodar Valley coal basin, Agnigundala Sulphide mineralization in the Cuddapah basin, banded-iron-formation hosted iron ores of Chitradurga in Karnataka and lead-zinc sulphide mineralization at Zawar in Rajasthan studies have led to understanding the genetic aspects these deposits.

Dr. Ashok Kumar Dubey of the Wadia Institute of Himalayan Geology, Dehradun has made significant contribution in the field of structural geology that has helped in refining the structural evolution of Himalayas. Dr. Dubey’s experimental work on the deformation patterns has also led to a better understanding of many tectonic features of the Himalayas.
**Applied Geology**

**Dr. R. K. Goel** of the Central Mining Research Institute has made significant contribution in the field of engineering geology. His work in the area of tunneling and underground space technology has been outstanding. He has proposed new user-friendly and globally acclaimed concepts and correlations in tunnel mechanics. He has patented and marketed two geotechnical instruments.

**Dr. Ahsan Absar** of the Geological Survey of India, Shillong, has made significant contribution in the field of geothermal exploration. His conceptual work on numerous geothermal field of Himalayan region in Jammu and Kashmir, Himachal Pradesh, Utranchal and Haryana has been successfully utilized in formulation of genetic models of geothermal systems and renewable energy development programmes.

**Geophysics / Applied Geophysics**

**Dr. Shyam Sunder Rai** of the National Geophysical Research Institute, Hyderabad, has made valuable contribution in the fields of seismology and geomagnetism by modeling of geophysical data to decipher the crust and mantle structure of India. He is also credited with providing the first seismological evidence of plate tectonics during early Achaean

**Ocean Development: Oceanography, Antarctic Research, Marine Geology (Team Award)**

**Dr. Sharadindu Mukerji** of the Geological Survey of India, Faridabad, along with his teammates, has made valuable contribution in the field of Antarctic geology mapping of Gruber, Payer and Weyprecht mountains of Antarctica. His work on the glaciology of the Antarctic sheet near Schirmacher Oasis and Filchner Ice Shelf is widely acclaimed.
**Shri Mervin J. D’Souza** of the Geological Survey of India, Faridabad, along with his teammates, has made valuable contribution in the field of Antarctic geology by carrying out detailed petrological studies in various regions of central Dronning Maud Land of East Antarctica.

**Shri Arun Chaturvedi** of the Geological Survey of India, Faridabad, along with his teammates, has made valuable contribution in the field of Antarctic glaciology and paleoclimatic studies through his participation in five Antarctic expeditions. The thermal profiling of glaciers initiated by him has provided useful information on global warming.

**Shri Mirza Javed Beg** of the Geological Survey of India, Faridabad, along with his teammates, has made valuable contribution in the field of Antarctic glaciology including collection of extensive data on the accumulation/ablation and fluctuation of the continental ice margin in the Schirmacher Oasis that has implications on the understanding of the long term climatic changes.

**Coal & Lignite Exploration & Discovery (Team Award)**

**Shri Naresh Nautiyal** of the Mineral Exploration Corporation Limited, Nagpur, along with his teammates has successfully planned the exploration programme in the sand covered Riri block of Bikaner to establish 224 million tonnes of lignite resources at shallow depths of 93 to 168 m with the thickness of lignite horizons varying between 2 to 54 meters.

**Shri Dinesh Chandra Shah**, Manager (Geology) of the Mineral Exploration Corporation Limited, Nagpur, along with his teammates has successfully planned the exploration programme in the sand covered Riri block of Bikaner to establish 224 million tonnes of lignite resources at shallow depths of 93 to 168 m with the thickness of lignite horizons varying between 2 to 54 meters.
**Shri Rakesh Kumar Jain** of the Mineral Exploration Corporation Limited, Nagpur, along with his teammates has successfully planned the exploration programme in the sand covered Riri block of Bikaner to establish 224 million tonnes of lignite resources at shallow depths of 93 to 168 m with the thickness of lignite horizons varying between 2 to 54 meters.

**Dr. Jayant Sharma** of the Mineral Exploration Corporation Limited, Nagpur, along with his teammates has successfully planned the exploration programme in the sand covered Riri block of Bikaner to establish 224 million tonnes of lignite resources at shallow depths of 93 to 168 m with the thickness of lignite horizons varying between 2 to 54 meters.

**Shri Kripa Shankar Prasad** of the Mineral Exploration Corporation Limited, Nagpur, along with his teammates has successfully planned the exploration programme in the sand covered Riri block of Bikaner to establish 224 million tonnes of lignite resources at shallow depths of 93 to 168 m with the thickness of lignite horizons varying between 2 to 54 meters.

**Shri K.K.S.R.K.S. Sai** of the Mineral Exploration Corporation Limited, Nagpur, along with his teammates has successfully planned the exploration programme in the sand covered Riri block of Bikaner to establish 224 million tonnes of lignite resources at shallow depths of 93 to 168 m with the thickness of lignite horizons varying between 2 to 54 meters.

**Oil & Natural Gas Discover & Exploration**

**Shri V.S.V. Prasad** of the Oil and Natural Gas Corporation Limited, Chennai has made valuable contribution in the field of oil exploration. He has developed an expertise in the integrated interpretation of 2D/3D seismic data of different basins in India, which has been successfully utilized for risk reduction in many projects. He had been instrumental in identification of a number of future prospects in various basins of India including G-4 (KG Basin), Endamuru, B-28 and Changmaigaon that have led to the augmentation of reserves.
Shri Ashim Kumar Saha of the Geological Survey of India, Nagpur along with his teammate, has made significant contribution in discovery of Platinum Group of Elements (PGE) in Sakoli Fold Belt, Maharashtra. The work carried out by the team has helped in understanding the complex geological aspects of PGE - Gold - Copper - Uranium - Thorium mineralization in this Belt.

Shri Kanhu Charan Mahapatra of the Geological Survey of India, along with his teammate, has made significant contribution in discovery of Platinum Group of Elements (PGE) in Sakoli Fold Belt, Maharashtra. The work carried out by the team has helped in understanding the complex geological aspects of PGE - Gold - Copper - Uranium - Thorium mineralization in this Belt.

Shri Ashish Kumar Ghosh Roy of the Geological Survey of India, along with his teammates, has successfully carrying out exploration for pollucite, the principal ore of rare metal cesium and associated rare metals in the Purulia district of West Bengal. Exploration work has estimated a reserve of total cesium metal content of 840,000 kg at 0.3% cut off

Shri Pradip Sarkar of the Geological Survey of India, of the Geological Survey of India, along with his teammates, has successfully carrying out exploration for pollucite, the principal ore of rare metal cesium and associated rare metals in the Purulia district of West Bengal. Exploration work has estimated a reserve of total cesium metal content of 840,000 kg at 0.3% cut off
Shri Krishna Chandra Bandyopadhyay of the Geological Survey of India, along with his teammates, has successfully carrying out exploration for pollucite, the principal ore of rare metal cesium and associated rare metals in the Purulia district of West Bengal. Exploration work has estimated a reserve of total cesium metal content of 840,000 kg at 0.3% cut off.

Shri Ravindra Kishore Prasad of the Geological Survey of India, along with his teammates, has successfully carrying out exploration for pollucite, the principal ore of rare metal cesium and associated rare metals in the Purulia district of West Bengal. Exploration work has estimated a reserve of total cesium metal content of 840,000 kg at 0.3% cut off.

Shri Subrata Sarkar of the Geological Survey of India, along with his teammates, has successfully carrying out exploration for pollucite, the principal ore of rare metal cesium and associated rare metals in the Purulia district of West Bengal. Exploration work has estimated a reserve of total cesium metal content of 840,000 kg at 0.3% cut off.

Dr. Sandip Kumar Som of the Geological Survey of India, along with his teammates, has successfully carrying out exploration for pollucite, the principal ore of rare metal cesium and associated rare metals in the Purulia district of West Bengal. Exploration work has estimated a reserve of total cesium metal content of 840,000 kg at 0.3% cut off.
**Shri Bhupendra Singh** of the Geological Survey of India, along with his teammates, has successfully carrying out exploration for pollucite, the principal ore of rare metal cesium and associated rare metals in the Purulia district of West Bengal. Exploration work has estimated a reserve of total cesium metal content of 840,000 kg at 0.3% cut off.

**Mineral Beneficiation, Project Development and Planning**

**Leading to Exploitation of Mineral Resources**

**Shri Shyamal Bhattacharya** of the Oil and Natural Gas Corporation Limited has made significant contributions in exploitation of hydrocarbons through adaptation of state-of-the-art technology and emerging concepts of reservoir engineering.

**Mining Technology**

**Dr. Shri Nath Wahy** the R.K. Marble Pvt. Ltd., Udaipur has made significant contributions in the field of mining technology by developing innovative techniques for the dimensional stone industry leading to substantial increase in production and reduction in waste generation.

**Shri Satish Chand Agarwal** of the Associated Stone Industries Ltd., Ramganjmandi, Rajasthan, has made valuable contributions in the field of mining technology by developing innovative technologies for insitu cutting and sizing of Kotah stone at the quarry floor with the help of indigenously developed machines resulting in considerable increase in production.
Development, Structuring and Implementation of Information System (Team Award)

Dr. Ashesh Siawal of the Oil and Natural Gas Corporation Ltd., along with his co-workers has compiled a new “Tectonic Map of India” that would be helpful in generating new exploration concepts and priorities for exploration of hydrocarbons. This map would provide a better understanding on the evolution of Indian landmass including various sedimentary basins.

Shri Sanjay Baveja of the Oil and Natural Gas Corporation Ltd., along with his co-workers has compiled a new “Tectonic Map of India” that would be helpful in generating new exploration concepts and priorities for exploration of hydrocarbons. This map would provide a better understanding on the evolution of Indian landmass including various sedimentary basins.

Shri Anil Kumar Kaul of the Oil and Natural Gas Corporation Ltd., along with his co-workers has compiled a new “Tectonic Map of India” that would be helpful in generating new exploration concepts and priorities for exploration of hydrocarbons. This map would provide a better understanding on the evolution of Indian landmass including various sedimentary basins.

Dr. Ashok Kumar Singhvi of the Physical Research Laboratory, Ahmedabad has made significant contributions in the field of Quaternary stratigraphy and climatology by establishing luminescence dating technique in India. He has applied innovatively applied this technique for obtaining chronometric data for the Thar Desert, Indo-Gangetic plains and several other areas.

Geology: Stratigraphy, Structural Geology, Tectonics, Petrology, Paleontology, Mineralogy, Seismotectonics, Remote Sensing
Dr. G. Parthasarathy of the National Geophysical Research Institute, Hyderabad has made valuable contributions in the field of mineralogy by using modern spectroscopic techniques for identification of various minerals that have advanced the understanding of the fundamental geological processes in the earth’s crust and mantle.

(Team Award)

Dr. Partha Pratim Chakraborty of the Indian School of Mines, Dhanbad along with his teammates, has carried out extensive field and laboratory studies that have helped in the understanding of the deep crustal and surface depositional processes, in particular the geodynamic models of Ophiolites – Tertiary sediments in Andaman Group of islands and Burma – Java subduction complex.

Dr. Chanam Debojit Singh of the Geological Survey of India, Kolkata along with his teammates, has carried out extensive field and laboratory studies that have helped in the understanding of the deep crustal and surface depositional processes, in particular the geodynamic models of Ophiolites – Tertiary sediments in Andaman Group of islands and Burma – Java subduction complex.

Dr. Tapan Pal of the Geological Survey of India, Kolkata along with his teammates, has carried out extensive field and laboratory studies that have helped in the understanding of the deep crustal and surface depositional processes, in particular the geodynamic models of Ophiolites – Tertiary sediments in Andaman Group of island and Burma – Java subduction complex.
**Shri Tanay Dutta Gupta** of the Geological Survey of India, Kolkata along with his teammates, has carried out extensive field and laboratory studies that have helped in the understanding of the deep crustal and surface depositional processes, in particular the geodynamic models of Ophiolites – Tertiary sediments in Andaman Group of islands and Burma – Java subduction complex.

**Applied Geology**

**Dr. M. Shyam Prasad** of the National Institute of Oceanography, Goa has made significant contributions in marine geology by establishing impact microcraters on Australasian microtektites, which is the first such occurrence on any impact ejecta on earth or of any other planetary material, hitherto found only on the lunar soil. He has demonstrated a similarity between the craters found on these microtektites and those found on the Moon.

**Geophysics / Applied Geophysics**

**Dr. Rajender Kumar Chadha** of the National Geophysical Research Institute, Hyderabad has carried out extensive earthquake forecasting studies in the country leading to quantifying the phenomenon of ‘Reservoir Triggered Seismicity’. His research on seismicity has brought out seismically active pockets, which would provide vital inputs in studying the seismic hazards in the Stable Continental Region of India. He shares this award with Shri Prem Ballabh Pandey.

**Shri Prem Ballabh Pandey** of the Oil & Natural Gas Corporation Ltd., Dehradun has applied seismic techniques in reservoir characterization and delineation of oil & gas fields. His work in Assam – Arakan, Cambay and Jaisalmer basins has led to the identification of various prospects and hydrocarbon reserves. He shares this award with Dr. Rajender Kumar Chadha.
Geochemistry as Applied to Earth Science

Dr. Jaya Prakash Shrivastava of the University of Delhi, has done extensive studies on the Deccan Volcanic Province leading to global impact in terms of chemical stratigraphy, age, duration of Deccan volcanism and its palaeoenvironmental implications at Cretaceous – Tertiary boundary. His pioneering research on biogeochemistry and geomicrobiology of copper rich areas from Malanjkhand granitoid, Madhya Pradesh has gained international recognition.

Oil and Natural Gas Exploration & Development

Dr. Ravi Bastia of the Oil and Natural Gas Division, Reliance Industries Limited, Mumbai has made significant contribution by discovering a vast gas field in deep waters of Krishna-Godavari basin with the help of a focused three dimensional seismic survey and their attribute analysis. He is credited with estimating a reserve of 14 trillion cubic feet of gas in this basin.

Shri Jonnalagadda Lakshmi Narasimham of the Oil and Natural Gas Corporation Limited has made significant achievement in the field of reservoir engineering leading to optimization of oil and gas production from several vital oil and gas fields. He is also credited with establishing a world-class well test interpretation center at Mumbai.
NATIONAL MINERAL AWARD – 2002

Mineral Discovery of Economic Andor Strategic Importance

(Team Award)

*Shri Sanjay Kumar Dutta* of the Geological Survey of India, Patna along with his teammate, has made significant contribution by discovering gold in Quartz Pebble Conglomerate in East Singhbhum district, Jharkhand, where no surface indication of mineralization was ever reported. About 3.3 km strike length of this rock has been found to be gold bearing with average grade between 0.43 g/t and 0.77 g/t, in addition to silver, uranium and rare earth minerals.

*Shri Md. Wasiul Haque* of the Geological Survey of India, Patna along with his teammate, has made significant contribution by discovering gold in Quartz Pebble Conglomerate in East Singhbhum district, Jharkhand, where no surface indication of mineralization was ever reported. About 3.3 km strike length of this rock has been found to be gold bearing with average grade between 0.43 g/t and 0.77 g/t, in addition to silver, uranium and rare earth minerals.

**Mineral Exploration**

*Dr. Reddy Dhana Raju* of the Atomic Minerals Directorate for Exploration & Research, Hyderabad has contributed significantly on the Uranium-Thorium-Rare Metal-Rare Earth mineralisation in diverse geological settings in the country. His work has been crucial in understanding the genesis of several uranium deposits including Gogi deposit in Karnataka, Domiasiat deposit in Meghalaya and Tummalapalli – Lakkireddipalle occurrence in Andhra Pradesh.

*(Team Award)*

*Dr. Shyam Sunder Ameta* of the Geological Survey of India, Jaipur along with his teammate, has located a lead-zinc deposit concealed under 150-200 m thick barren rock cover and having no geophysical indications, in Rajsamand district, Rajasthan. He along with his co-worker has estimated 18.63 million tonnes of ore reserves averaging 5.20% Pb+Zn for this ore body
**Shri Brij Bhushan Sharma** of the Geological Survey of India, Jaipur along with his teammate, has located a lead-zinc deposit concealed under 150-200 m thick barren rock cover and having no geophysical indications, in Rajsamand district, Rajasthan. He along with his co-worker has estimated 18.63 million tonnes of ore reserves averaging 5.20% Pb+Zn for this ore body.

**Mineral Beneficiation**

**Dr. Sumantra Bhattacharya** of the Indian School of Mines, Dhanbad has developed a new “Graphic User Interface” based simulator for heavy media magnetite that has led to 10-20% reduction in magnetite consumption per tonne of coal washed. He has also been credited with Computer Simulation of beneficiation plants for hematitic iron ores and modernization of crushing circuits to maximize the yield of clean coal.

**Mining Technology**

**Dr. Rajendra Singh** of the Central Mining Research Institute, Dhanbad has developed suitable indigenous solutions for mining of thick and contiguous coal seams that have been widely recognized. He has carried out extensive investigations to calibrate physical and numerical models for prediction of the behaviour of underground structures under varying geo-mining conditions that have helped in establishing the design norms for underground coal mining in India.

**Geology:** Stratigraphy, Structural Geology, Tectonics, Petrology, Paleontology, Mineralogy, Seismotectonics, Remote Sensing

**Dr. Rajiv Sinha** of the Indian Institute of Technology, Kanpur, has done outstanding research on the Indo-Gangetic plains and the Thar Desert (Fluvial Geomorphology & Sedimentology). He is internationally recognized for his work on the Himalayan river systems and the paleoclimatic reconstruction of the Thar desert.
Applied Geology

Dr. M.V.S. Guptha of the National Institute of Oceanography, Goa has made significant contribution in Marine Micropaleontology leading to a better understanding of the oceanography of the northern Indian Ocean. His studies on particle flux from both the Arabian Sea and the Bay of Bengal have been of immense help in characterization of various biogeochemical processes operating in the monsoon dominated ocean.

Geophysics

Dr. Baldev Raj Arora of the Wadia Institute of Himalayan Geology, Dehradun has made valuable contribution in tracing the tectonic evolution of the Indian shield by inducting Geomagnetic Deep Sounding (GDS) and Long Period Magnetotelluric (LMT) techniques. His extensive studies, covering almost half of the Indian sub-continent have also paved way for preparing the “Electrical Lithospheric Conduclance Map of India”. He shares the award with Dr. Anil Kumar Chaubey.

Dr. Anil Kumar Chaubey of the National Institute of Oceanography, Goa has carried out extensive studies on the structure and tectonics of the Bay of Bengal, Central Indian Ocean and off Antarctica. His studies have significantly contributed to the better understanding of the tectonic setting of the Indian Ocean and in preparation of the ‘Gas Hydrate Resource Map of India’. He shares the award with Dr. Baldev Raj Arora.

Geochemistry as Applied to Earth Science

Dr. Appasaheb Dhondiram Nejkar of the Geological Survey of India, along with his co-workers, has made significant contribution in the field of geochemistry of rare earth elements through neutron activation analysis of various rock samples from India, Indian Ocean and Antarctica.

Shri Rattan Singh Bains of the Geological Survey of India, Pune along with his co-workers, has made significant contribution in the field of geochemistry of rare earth elements through neutron activation analysis of various rock samples from India, Indian Ocean and Antarctica.
Shri Raosaheb Shrirang Alte of the Geological Survey of India, along with his co-workers, has made significant contribution in the field of geochemistry of rare earth elements through neutron activation analysis of various rock samples from India, Indian Ocean and Antarctica.

Shri Arun Digambar Peshave of the Geological Survey of India, along with his co-workers, has made significant contribution in the field of geochemistry of rare earth elements through neutron activation analysis of various rock samples from India, Indian Ocean and Antarctica.

Miss Kalpana Kashinath Deshmukh of the Geological Survey of India, along with her co-workers, has made significant contribution in the field of geochemistry of rare earth elements through neutron activation analysis of various rock samples from India, Indian Ocean and Antarctica.

**Geochemistry**

Dr. (Mrs.) C. Manikyamba of the National Geophysical Research Institute, Hyderabad has made significant contribution to the understanding of the greenstone belts, Archaean crustal growth and related mineralisation through geochemical studies. Dr. Manikyamba has carried out Nitrogen and Carbon isotopic studies on the kerogen from Archean and Proterozoic sedimentary rocks which led her to identify the unequivocal evidence of presence of alkaline basalts in greenstone belts and the role of plumes in the evolution of greenstone belts during Archean.

**Applied Geology**

Professor Vishwas Shripad Kale of the University of Pune, has investigated palaeofloods records of some of the large Indian rivers and has provided clear evidence of palaeohydrological and palaeoclimatic changes in the western and central India during the last 2000 years. His studies have significant implications on flood hydrology and flood hazard assessment in India.
NATIONAL MINERAL AWARD – 2001

Mineral Exploration

Dr. J.V.S.S Narayana Murty of the Oil and Natural Gas Corporation Limited along with his coworker has made significant contribution in the field of exploration through applications of innovative geophysical techniques in seismic data processing and interpretation. Work of the team has provided a cost effective exploration solution and has also made significant impact by increasing the success ratio in oil exploration.

Shri Parth Partim Mitra of the Oil and Natural Gas Corporation Limited along with his coworker has made significant contribution in the field of exploration developing indigenous technology in seismic data acquisition, processing, software development and geodata interpretation. Work of the team on seismic interpretation has proved to be immensely helpful in effective reservoir management leading to better recovery of hydrocarbons.

Mineral Beneficiation

Shri Suresh Chandra of the National Mineral Development Corporation Limited, along with his teammate has developed technologies for commercial utilization of large quantity of mine wastes generated during mining and mineral beneficiation operations. Work of his team on utilization of waste generated during extraction of diamonds from host Kimberlite rock and conversion of Blue Dust to Ultra Pure Ferric Oxide have found wide application.

Mineral Beneficiation (Team Award)

Dr. Maharaj Kishan Dhar of the National Mineral Development Corporation Limited, along with his teammate has developed technologies for commercial utilization of large quantity of mine wastes generated during mining and mineral beneficiation operations. Work of his team on utilization of waste generated during extraction of diamonds from host Kimberlite rock and conversion of Blue Dust to Ultra Pure Ferric Oxide have found wide application.
Mining Technology

**Professor Sushil Bhandari** of the Jai Narain Vyas University, Jodhpur has made significant contributions in rock blasting that has helped mining operators in improving productivity. He is an accomplished academician with vast experience of teaching, research and educational administration.

Geology: Stratigraphy, Structural Geology, Tectonics
Petrology, Paleontology, Mineralogy, Seismotectonics, Remote Sensing

**Dr. Tallavajhala Radhakrishana** of the Centre for Earth Science Studies, Trivandrum, has made significant contribution in meticulous formulation and execution of the multidisciplinary studies on mafic dykes in South India. He has effectively used the results to enhance understanding of the geotectonic evolution of the South Indian shield with implications on the assembly of the supercontinent.

**Dr. Anil Bhandari** of the Oil and Natural Gas Corporation Limited, Dehradun has made valuable contribution in Micropaleontology and Stratigraphy by carrying out reconstruction of sea level fluctuations and paleodepositional models through high resolution Ostracode biozonation. His work has helped in understanding the geological history, petroleum habitat of Cambay, Bombay Offshore, Assam- Arakan and those of Krishna- Godavari and Cauvery Basins besides providing leads to future exploration activities.

Applied Geology

**Dr. Pramod Chand Nawani** of the Geological Survey of India, Dehradun has has evolved various innovative geotechnical concepts and techniques for engineering geological modeling that have helped in construction of major hydroelectric projects in Garhwal Himalayas. His efforts have led to saving of enormous excavation and filling thereby reducing the cost of the projects. Dr. Nawani has played a key role in carrying out engineering geological investigations during construction of dam, spillway structures and underground power house complex at Tehri Dam project. The geotechnical data input generated by him were utilized by the International and Indian experts and high level committees set up by the government of India while finalizing the issues related to design and safety aspects of Tehri Dam.
Geophysics

*Dr. S. N. Prasad* of the National Geophysical Research Institute, Hyderabad has made significant contributions in inversion of magnetotelluric and geomagnetic deep sounding data. He is credited with setting up of India’s first digital magnetic observatory at NGRI. His researches have been extensively quoted in several research and review papers of international scientists and have also been cited in several books by international publishers.

*Dr. Vandrapu Subrahmanyam* of the National Institute of Oceanography, Goa, has made valuable contributions marine geophysics leading to understanding of the crustal structure and tectonic setting of the western continental margin and Bay of Bengal. He has been instrumental in preparation of the Gas Hydrate Resource Map of Indian continental margins besides carrying out comparative studies on deformation of the Central Indian Ocean Basin crust with the tectonic events in the Himalayan region.

Geochemistry as Applied to Earth Science

*Dr. Rajesh K. Srivastava* of the Banaras Hindu University has done outstanding geochemical studies on alkaline and cormonatite igneous complexes, Precambrian mafic igneous rocks and the Andaman Ophiolite Suite leading to a better understanding of the chemical evolution of the sub-continental lithosphere and mantle.

*Professor B. Mahabaleshwar* of the Bangalore University has done extensive work on the geochemical of charnockite suite of rocks, Archaean metasediments and Closepet granite that have increased knowledge base on the thermal structure of Archaean crust as well as the crust-mantle interaction. His work on the granulite facies metamorphic rocks in South India is well recognized.
Environmental Geosciences and Management Studies  
(Team Award)

Shri Manohar Sinha of the Geological Survey of India, Nagpur along with his teammates has carried out comprehensive studies and suggested suitable remedial and mitigatory measures for fast degrading world heritage monuments of ancient Ajanta and Ellora caves. His team is credited with making a detailed environmental impact assessment to identify various environmental and anthropogenic factors responsible for degradation of caves and creating a comprehensive environmental management plan.

Shri Kotapalli Venkata Rao of the Geological Survey of India, Nagpur along with his teammates has carried out comprehensive studies and suggested suitable remedial and mitigatory measures for fast degrading world heritage monuments of ancient Ajanta and Ellora caves. His team is credited with making a detailed environmental impact assessment to identify various environmental and anthropogenic factors responsible for degradation of caves and creating a comprehensive environmental management plan.

Shri Ghanshyam Gonnade of the Geological Survey of India, Nagpur along with his teammates has carried out comprehensive studies and suggested suitable remedial and mitigatory measures for fast degrading world heritage monuments of ancient Ajanta and Ellora caves. His team is credited with making a detailed environmental impact assessment to identify various environmental and anthropogenic factors responsible for degradation of caves and creating a comprehensive environmental management plan.

Shri Hamza Yusuf Bhai of the Geological Survey of India, Nagpur along with his teammates has carried out comprehensive studies and suggested suitable remedial and mitigatory measures for fast degrading world heritage monuments of ancient Ajanta and Ellora caves. His team is credited with making a detailed environmental impact assessment to identify various environmental and anthropogenic factors responsible for degradation of caves and creating a comprehensive environmental management plan.
Shri S. Sekar of the Geological Survey of India, Nagpur along with his teammates has carried out comprehensive studies and suggested suitable remedial and mitigatory measures for fast degrading world heritage monuments of ancient Ajanta and Ellora caves. His team is credited with making a detailed environmental impact assessment to identify various environmental and anthropogenic factors responsible for degradation of caves and creating a comprehensive environmental management plan.

Shri Chandrashekhar Joshi of the Geological Survey of India, Nagpur along with his teammates has carried out comprehensive studies and suggested suitable remedial and mitigatory measures for fast degrading world heritage monuments of ancient Ajanta and Ellora caves. His team is credited with making a detailed environmental impact assessment to identify various environmental and anthropogenic factors responsible for degradation of caves and creating a comprehensive environmental management plan.

Shri Prem Babu of the Geological Survey of India, Nagpur along with his teammates has carried out comprehensive studies and suggested suitable remedial and mitigatory measures for fast degrading world heritage monuments of ancient Ajanta and Ellora caves. His team is credited with making a detailed environmental impact assessment to identify various environmental and anthropogenic factors responsible for degradation of caves and creating a comprehensive environmental management plan.

Professor Gurdeep Singh of the Indian School of Mines, Dhanbad has made valuable contributions in the area of water, air and solid waste pollution abatement and mitigation measures. He is recognized for his work in teaching, research and industrial application of the environmental management particularly with respect to the mining and allied areas. His research work on low cost treatment of effluents and pumped out mine water besides utilization of coal combustion residues have been widely appreciated.
Coal and Lignite Exploration & Discovery (Team Award)

Shri M. Radhakrishnan of the Nayveli Lignite Corporation Limited, along with his teammates has carried out extensive exploration work leading to huge lignite finds in Mannargudi in Tamilnadu and Sidhari in Rajasthan. The sustained efforts of the team has resulted in increasing the resource potential of lignite in Tamilnadu and Rajasthan from 3300 and 100 million tones to 30000 and 2300 million tonnes respectively.

Dr. R. Hariharan of the Nayveli Lignite Corporation Limited, along with his teammates has carried out extensive exploration work leading to huge lignite finds in Mannargudi in Tamilnadu and Sidhari in Rajasthan. The sustained efforts of the team has resulted in increasing the resource potential of lignite in Tamilnadu and Rajasthan from 3300 and 100 million tones to 30000 and 2300 million tonnes respectively.

Shri M. Krishnan of the Nayveli Lignite Corporation Limited, along with his teammates has carried out extensive exploration work leading to huge lignite finds in Mannargudi in Tamilnadu and Sidhari in Rajasthan. The sustained efforts of the team has resulted in increasing the resource potential of lignite in Tamilnadu and Rajasthan from 3300 and 100 million tones to 30000 and 2300 million tonnes respectively.

Shri S. Kamaraj of the Nayveli Lignite Corporation Limited, along with his teammates has carried out extensive exploration work leading to huge lignite finds in Mannargudi in Tamilnadu and Sidhari in Rajasthan. The sustained efforts of the team has resulted in increasing the resource potential of lignite in Tamilnadu and Rajasthan from 3300 and 100 million tones to 30000 and 2300 million tonnes respectively.

Oil and Natural Gas Exploration and Development

Shri Narendra Kumar Verma of the Oil and Natural Gas Corporation Limited has carried out excellent studies in Bombay High that provided new insights into its hydrocarbon potential besides proposing structural models in Northwest Himalaya, Bhutan Foothills and Satpura basins depicting their hydrocarbon potential. He has also undertaken studies in the Caspian region, Myanmar offshore and North Sumatra basin for techno-economic evaluation of new petroleum exploration ventures.
NATIONAL MINERAL AWARD – 2000
Mineral Discovery
(Team Award)

_Shri Sreeramachandra Rao Koyalamudy_ of the Geological Survey of India, Hyderabad along with his team members has made significant contribution in discovery of gold mineralisation in Jonnagiri Schist Belt, Andhra Pradesh. The team efforts have led to locating gold prospects with probable reserves of 7.77 million tonnes of ores with an average grade of 1.7 g/t Au in Dona East block and 0.70 million tonnes of 4.659 g/t Au in Dona Temple block of this belt.

_Shri M.S. Jairam_ of the Geological Survey of India, Hyderabad along with his team members has made significant contribution in discovery of gold mineralisation in Jonnagiri Schist Belt, Andhra Pradesh. The team efforts have led to locating gold prospects with probable reserves of 7.77 million tonnes of ores with an average grade of 1.7 g/t Au in Dona East block and 0.70 million tonnes of 4.659 g/t Au in Dona Temple block of this belt.

_Shri S. Ananda Murthy_ of the Geological Survey of India, Hyderabad along with his team members has made significant contribution in discovery of gold mineralisation in Jonnagiri Schist Belt, Andhra Pradesh. The team efforts have led to locating gold prospects with probable reserves of 7.77 million tonnes of ore with an average grade of 1.7 g/t Au in Dona East block and 0.70 million tonnes of 4.659 g/t Au in Dona Temple block of this belt.

_Dr. D. Roop Kumar_ of the Geological Survey of India, Hyderabad along with his team members has made significant contribution in discovery of gold mineralisation in Jonnagiri Schist Belt, Andhra Pradesh. The team efforts have led to locating gold prospects with probable reserves of 7.77 million tonnes of ore with an average grade of 1.7 g/t Au in Dona East block and 0.70 million tonnes of 4.659 g/t Au in Dona Temple block of this belt.
Mineral Exploration Including Application of Innovative Geophysical / Geochemical Techniques.

Dr. V. Balaram of the National Geophysical Research Institute, Hyderabad has made significant contribution in the field geochemistry and its application to mineral exploration. He is credited with the development of a highly sophisticated geochemical laboratory at NGRI for generating precise geochemical on various elements.

Mineral Beneficiation

Shri K. Udaya Bhaskar of the Regional Research Laboratory, Bhopal has made significant contribution in the field of mineral beneficiation by establishing ‘Water Injection Cyclone’ as a development over conventional Hydrocyclone for achieving superior classification with lesser consumption of energy.

Dr. Nikkam Suresh of the Indian School of Mines, Dhanbad has made significant improvement in performance of several types of mineral beneficiation plants. He has been instrumental in developing predictive mathematical models to describe the behaviour of fines and water in Mineral / Coal Floatation System.

Mining Technology

Dr. Singam Jayanthu of the National Institute of Rock Mechanics, Kolar Gold Fields, Karnataka has made significant contribution in the field of mining technology to ensure optimal exploitation of multiple and thick coal reserves in a number of coal fields. He has successfully designed support system in multiple coal seam workings resulting in faster extraction with about 80% recovery.
Development, Structuring and Implementation of Information Systems

Dr. J. Simhachalam of the Geological Survey of India, Hyderabad has made significant contribution in the field of geoinformation with creation of a database for exploration data of green stone belts of South India and designing different components of the National Geoscientific Database Project at GSI, Hyderabad.

Geology: Stratigraphy, Structural Geology (Team Award)

Dr. Shailendra Mehra of the Geological Survey of India, Lucknow along with his team members has made significant contribution through paleontological studies in Himachal Pradesh for facilitating regional geological correlation.

Dr. Vijay Prakash Mishra of the Geological Survey of India, Lucknow along with his team members has made significant contribution through paleontological studies in Himachal Pradesh for facilitating regional geological correlation.

Dr. Anil Kumar Mathur of the Geological Survey of India, Lucknow along with his team members has made significant contribution through paleontological studies in Himachal Pradesh for facilitating regional geological correlation.
**Dr. Ajoy Kumar Moitra** of the Geological Survey of India, Lucknow along with his team members has made significant contribution through paleontological studies in Himachal Pradesh for facilitating regional geological correlation.

**Dr. P. Yadagiri** of the Geological Survey of India, Lucknow along with his team members has made significant contribution through paleontological studies in Himachal Pradesh for facilitating regional geological correlation.

**Geology : Stratigraphy, Structural Geology**

**Professor Deepak Chandra Srivastava**, of the Indian Institute of Technology, Roorkee has made valuable contribution in the field of structural geology. His research work in central Rajasthan and Singhbhum shear zone in Bihar as well in the Himalayas is widely appreciated. His recent work proposing thin-skinned tectonics in the Precambrian terrain of Rajasthan has been widely appreciated.

**Dr. Anil Kumar Gupta** of the Indian Institute of Technology, Kharagpur has made valuable contribution in the field of marine micropalaeontological studies of the Indian Ocean. His innovative research has led to a better understanding of changes in the Indian monsoon system on various time scales.
Geophysics – Application of Geophysical Methods

Shri Gautam Sen of the Oil and Natural Gas Corporation Limited, Mumbai has made significant contribution in processing of 3-D seismic data by developing various innovative techniques. He has conducted integrated studies leading to better understanding of the reservoir facies of Mukta and Neelam oil fields.

Professor Sukhendu Dey of the Indian School of Mines, Dhanbad has made valuable contribution in the field of theoretical seismology. His studies may help in more accurate prediction and determination of magnitude of earthquakes besides devising a new controlling method of the destruction.

Geochemistry as Applied to Earth Science

Dr. M. Jayananda Department of Geology of the Bangalore University has done pioneering studies on the evaluation of the Archaean continental crust by combining petrological and structural studies with geochemical and geochronological work. His research has also helped in understanding the structural evolution the Karnataka craton and granulite metamorphism.

Professor Dhiraj Mohan Banerjee of the University of Delhi has carried out outstanding work on geochemical aspects of various Indian phosphorites and other sediments that have led towards meaningful interpretation of paleo-environmental changes across the era-boundaries. The geochemical studies undertaken by Dr. Banerjee led to the development of a global model helping the discovery of new phosphorite deposits in Angola and Argentina.
Environmental Geosciences (Team Award)

Shri Ram Kumar Chaturvedi of the Geological Survey of India, Jabalpur along with his colleagues has made significant contribution in carrying out seismotectonic investigations of the Jabalpur earthquake. The team has also helped in the establishment of Broad Band Seismic observatory at Jabalpur which facilitates collection of valuable data on seismic activity in this sensitive Son-Narmada-Tapti seismic zone.

Shri S.D. Pimprikar of the Geological Survey of India, Jabalpur along with his colleagues has made significant contribution in carrying out seismotectonic investigations of the Jabalpur earthquake. The team has also helped in the establishment of Broad Band Seismic observatory at Jabalpur which facilitates collection of valuable data on seismic activity in this sensitive Son-Narmada-Tapti seismic zone.

Shri Pabolu Ramachandra Rao of the Geological Survey of India, Jabalpur along with his colleagues has made significant contribution in carrying out seismotectonic investigations of the Jabalpur earthquake. The team has also helped in the establishment of Broad Band Seismic observatory at Jabalpur which facilitates collection of valuable data on seismic activity in this sensitive Son-Narmada-Tapti seismic zone.

Coal and Lignite Exploration (Team Award)

Shri James Peters of the Oil and Natural Gas Corporation Limited, Dehradun along with his team has carried out pioneering work in the study of Mumbai offshore basin. He has also contributed towards analysis of Satpura basin and application of Coal Bed Methane technology in the India.
Shri P.N. Hajra of the Oil and Natural Gas Corporation Limited, Dehradun along with his team has made significant contribution in exploring the Coal Bed Methane potential with the application of laboratory R&D practices to the actual area of operation for exploration. He is credited with designing suitable equipments for use, specifically in coal-core evaluation at reservoir condition.

Dr. Sushanta Kumar Das of the Oil and Natural Gas Corporation Limited, Dehradun along with his team has carried out pioneering work in the study of Mumbai offshore basin. He has also contributed towards analysis of Satpura basin and application of Coal Bed Methane technology in the India.

Shri Debashis Das of the Oil and Natural Gas Corporation Limited, Dehradun along with his team has carried out pioneering work in the study of Mumbai offshore basin. He has also contributed towards analysis of Satpura basin and application of Coal Bed Methane technology in the India.

Oil & Natural Gas Exploration & Development

Dr. Joydev Kundu of the Oil and Natural Gas Corporation Limited, Dehradun has made outstanding contribution in the field of exploration and exploitation of hydrocarbon resources including estimation of hydrocarbon reserves in Mumbai Offshore basin and mapping six new medium sized hydrocarbon prospects in upper Assam.
NATIONAL MINERAL AWARD – 1999
Mineral Discovery (Team Award)

Shri Sundar Achuta Pandit of the Atomic Mineral Division, Hyderabad along with his coworker has carried out systematic radiometric survey including gamma ray logging of bore wells that has led to the discovery of Gogi uranium deposit in Gulbarga district of Karnataka. Studies done by the team has established uranium mineralization over a strike length of 1800m.

Dr. Kiran Kumar Achar of the Atomic Mineral Division, Hyderabad along with his coworker has carried out systematic radiometric survey including gamma ray logging of bore wells that has led to the discovery of Gogi uranium deposit in Gulbarga district of Karnataka. Studies done by the team has established uranium mineralization over a strike length of 1800m.

Shri Venkatachalam Natarajan of the Atomic Mineral Division, Hyderabad along with his coworker has carried out systematic radiometric survey including gamma ray logging of bore wells that has led to the discovery of Gogi uranium deposit in Gulbarga district of Karnataka. Studies done by the team has established uranium mineralization over a strike length of 1800m.

Dr. M. S. Rao of the Geological Survey of India, Bangalore has added 25000 high precision whole rock analyses to the geochemical data base of the country that has immensely helped in refining rock nomenclature. He is credited with establishing stable isotope and fluid inclusion laboratories in the Geological Survey of India for carrying out ore deposit modelling.
Mineral Beneficiation

**Dr. R. Bhima Rao** of the Regional Research Laboratory, Bhubaneswar has made significant contributions in laboratory and plant trials for selection of additives in mineral grinding for optimizing the unit operations of various industries. His work has led towards reduction in power consumption, improved output of the mill and better recovery of the products in sillimanite, graphite and magnesite industries.

Mineral Technology

**Dr. Rama Nand Gupta** of the National Institute of Rock Mechanics, Karnataka has made significant contributions towards improvement of roof conditions and support systems resulting in increased production in the underground mines. He is one of the pioneers in use of controlled blasting techniques in mines located in inhabited area.

Development, Structuring and Implementation of Information Systems

(Team Award)

**Shri Bimal Kumar Bandyopadhyay** of the Geological Survey of India, Nagpur alongwith his colleagues has prepared a multidisciplinary geo-scientific database of Central India and converted it to a digital multilayered database in GIS domain. It would be of immense help in mineral targeting and exploration.

**Dr. Ravi Shanker Shukla** of the Geological Survey of India, Nagpur alongwith his colleagues has prepared a multidisciplinary geo-scientific database of Central India and converted it to a digital multilayered database in GIS domain. It would be of immense help in mineral targeting and exploration.
Dr. Subrata Chakraborti of the Geological Survey of India, Nagpur along with his colleagues has prepared a multidisciplinary geo-scientific database of Central India and converted it to a digital multilayered database in GIS domain. It would be of immense help in mineral targeting and exploration.

Shri Praveen Kumar Sinha of the Geological Survey of India, Nagpur along with his colleagues has prepared a multidisciplinary geo-scientific database of Central India and converted it to a digital multilayered database in GIS domain. It would be of immense help in mineral targeting and exploration.

Shri Amiya Kumar Huin of the Geological Survey of India, Nagpur along with his colleagues has prepared a multidisciplinary geo-scientific database of Central India and converted it to a digital multilayered database in GIS domain. It would be of immense help in mineral targeting and exploration.

Geology: Stratigraphy, Structural Geology, Tectonics, Petrology, Palaeontology, Mineralogy, Seismotectonics, Remote Sensing etc.

Professor Surendra Kumar of the Lucknow University has carried out outstanding paleontological studies on Vindhyan Supergroup, Krol Formation and Deoban Limestone that have led to better understanding of biostratigraphy and evolution of Precambrian life.
(Team Award)

Dr. H. M. Ramachandra of the Geological Survey of India, Nagpur has carried out extensive studies in different parts of Central India and has evolved a tectono-magmatic model for unraveling the complex evolutionary history of the Central India.

Dr. Anupam Chattopadhyay of the Geological Survey of India, Nagpur has carried out extensive studies in different parts of Central India and has evolved a tectono-magmatic model for unraveling the complex evolutionary history of the Central India.

Dr. Santanu Kumar Bhowmik of the Geological Survey of India, Nagpur has carried out extensive studies in different parts of Central India and has evolved a tectono-magmatic model for unraveling the complex evolutionary history of the Central India.

Shri Abdul Sattar Khan of the Geological Survey of India, Nagpur has carried out extensive studies in different parts of Central India and has evolved a tectono-magmatic model for unraveling the complex evolutionary history of the Central India.
Dr. Taraknath Pal of the Geological Survey of India, Nagpur has carried out extensive studies in different parts of Central India and has evolved a tectono-magmatic model for unraveling the complex evolutionary history of the Central India.

Geophysics

Dr. Sankar Kumar Nath of the Indian Institute of Technology, Kharagpur has applied geophysical concepts in seismic prospecting, earthquake seismology, geophysical tomography and groundwater geophysics. His studies have resulted in efficient exploration of petroleum and ground water reservoirs besides assisting in hazard mitigation in mines and earthquake prone areas.

Dr. Harish Chandra Tewari of the National Geophysical Research Institute, Hyderabad has done identification of low velocity sediments underlying high velocity rocks by direct approach seismic survey resulting in delineation of Mesozoic rocks under Deccan Trap in Saurashtra, Kutch and Narmada regions.

Geochemistry

Dr. Anindya Sarkar of the Indian School of Mines, Dhanbad has done various types of geochemical that have made significant impact on paleo-climate, paleo-stratigraphy and post monsoonal changes. His work on anoxicity of deep ocean water during last ice age explains mechanism of uranium fixation in sedimentary/aqueous environment.
**Mrs. Nuzhath Joeman Thomas** of the Oil and Natural Gas Corporation Limited, Dehradun has done extensive studies in different petroleum bearing basins of India that have helped in devising exploration strategies and prioritizing prospects. She is also credited with developing software and geochemical database for application in petroleum exploration.

**Coal & Lignite Exploration and Development**

**Dr. Atul Kumar Varma** of the Indian School of Mines, Dhanbad has done research on characterization of coal. He has also worked on the impact of geological and petrographic conditions on the coal liquefaction and coking behavior of coal besides its solvent extraction and spontaneous combustion.

**Team Award**

**Shri Prabir Kumar Parui** of the Geological Survey of India, Kolkata along with his team members has delineated significant and potential coal deposits in Godavari Valley coal fields. A total of 328.60 million tonnes of power grade coal of which 224.18 million tonnes occur within 300 m depth have been estimated.

**Shri K. Premchand** of the Geological Survey of India, Kolkata along with his team members has delineated significant and potential coal deposits in Godavari Valley coal fields. A total of 328.60 million tonnes of power grade coal of which 224.18 million tonnes occur within 300 m depth have been estimated.
**Shri M. Chandra Das** of the Geological Survey of India, Kolkata along with his team members has delineated significant and potential coal deposits in Godavari Valley coal fields. A total of 328.60 million tonnes of power grade coal of which 224.18 million tonnes occur within 300m depth have been estimated.

**Shri Biswajit Gangopadhyay** of the Geological Survey of India, Kolkata along with his team members has delineated significant and potential coal deposits in Godavari Valley coal fields. A total of 328.60 million tonnes of power grade coal of which 224.18 million tonnes occur within 300m depth have been estimated.

**Shri Chitta Ranjan Barman** of the Geological Survey of India, Kolkata along with his team members has delineated significant and potential coal deposits in Godavari Valley coal fields. A total of 328.60 million tonnes of power grade coal of which 224.18 million tonnes occur within 300m depth have been estimated.

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**Studies on Oil and Natural Gas**

**Shri Jokhan Ram** of the Oil and Natural Gas Corporation Limited, Dehradun had evolved a new exploration strategy for hydrocarbons in Himalayan foothills, Ganga, Vindhyan and South Rewa basins on the basis of his extensive studies in these regions.

**Shri Narendra Kumar Lal** of the Oil and Natural Gas Corporation Limited, Dehradun has applied innovative concepts for hydrocarbon exploration in Kutch, Bombay offshore, Cambay, Krishna-Godavari and Assam basins leading to identification of several new prospects.
NATIONAL MINERAL AWARD – 1998

Mineral Discovery

*Shri Rabindra Nath Patra* of the Geological Survey of India, Bhubaneshwar has done systematic exploration of Platinum Group of Elements (PGE) in ultramafic complex of Baula-Nausahi in Orissa and established it to be a first of its kind potential prospect in the country. A reserve of 6 million tonnes of PGE ore with an average grade of 2 gram per tonne has been estimated. His studies have led to a better understanding of the geology and control of mineralization in this complex.

Mineral Exploration (Team Award)

*Shri C.P. Sisodia* of the Geological Survey of India, Jaipur in association with his coworker has made valuable contribution in identifying the second largest zinc-lead deposit in Kayar block of Ajmer district, Rajasthan through multidisciplinary studies. The team had been successful in estimating ore resources of 9.18 million tonnes from this deposit.

*Shri A. K. Chattopadhyay* of the Geological Survey of India, Jaipur in association with his coworker has made valuable contribution in identifying the second largest zinc-lead deposit in Kayar block of Ajmer district, Rajasthan through multidisciplinary studies. The team had been successful in estimating ore resources of 9.18 million tonnes from this deposit.

Mining Technology

*Professor D. C. Panigrahi* of the Indian School of Mines, Dhanbad has contributed significantly in improving underground mine ventilation and design of work place environment in underground mines including heat and humidity problems. His work has been useful in enhancement of production and safety in the mines of India. His work on controlling the coal mines fires has helped in planning the trenching activity in and monitoring mine fires.
Geology

Professor C. Srikantappa of the University of Mysore has studied the process of incipient charnockitisation in the Ponmudi area of Kerala besides the identification of high pressure Nilgiri granulites. He is credited with establishing a fluid inclusion study laboratory in Mysore University and has achieved expertise in this field.

Applied Geology

Mohammad J. Ahmed of the Geological Survey of India, Nagpur has made valuable contribution in the field of engineering geology during the construction of Narmada Sagar Mega project. He is credited with introducing innovative and cost effective applications like optimum slope treatment, characterization of rock masses and optimum support systems leading to enormous saving of construction time and cost of the project.

Geophysics

Shri R. Sreehari of the Atomic Mineral Division, Hyderabad along with his coworker has designed a PC based airborne gamma ray spectrometric (AGRS) survey system for detection of radioactive elements. The new AGRS has been successfully used in obtaining gamma-ray spectra and tracings of radioactive elemental concentrations on the PC in the aircraft as well as at the air base with excellent results.

Shri C.V.R. Sarma of the Atomic Mineral Division, Hyderabad along with his coworker has designed a PC based airborne gamma ray spectrometric (AGRS) survey system for detection of radioactive elements. The new AGRS has been successfully used in obtaining gamma-ray spectra and tracings of radioactive elemental concentrations on the PC in the aircraft as well as at the air base with excellent results.

Coal & Lignite

Shri Amit Bhusan Dutt of the Geological Survey of India, Kolkata has developed exploration models for coal and lignite deposits and has successfully tested them in the southern part of Godavari Valley coal basins and Thanjavur lignite basin in Tamil Nadu. His work has resulted in estimation of sizeable resources of coal in Rampuram area.
**NATIONAL MINERAL AWARD – 1997**

**Mineral Discovery (Team Award)**

*Shri S. S. Nayak* of the Geological Survey of India, Hyderabad along with his coworkers has developed a multidisciplinary exploration model which has led to the discovery of four new diamond bearing kimberlite pipes in Wajrakarur area, twenty new kimberlite pipes in Narayanpet kimberlite field and a new diamond bearing cluster near Kalyandurg in Andhra Pradesh. The work carried out by the team has placed Karnataka State on the diamond map of the India.

*Shri K. Ragh Prasada Rao* of the Geological Survey of India, Hyderabad along with his coworkers has developed a multidisciplinary exploration model which has led to the discovery of four new diamond bearing kimberlite pipes in Wajrakarur area, twenty new kimberlite pipes in Narayanpet kimberlite field and a new diamond bearing cluster near Kalyandurg in Andhra Pradesh. The work carried out by the team has placed Karnataka State on the diamond map of the India.

*Shri K.V. Suryanarayana Rao* of the Geological Survey of India, Hyderabad along with his coworkers has developed a multidisciplinary exploration model which has led to the discovery of four new diamond bearing kimberlite pipes in Wajrakarur area, twenty new kimberlite pipes in Narayanpet kimberlite field and a new diamond bearing cluster near Kalyandurg in Andhra Pradesh. The work carried out by the team has placed Karnataka State on the diamond map of the India.

*Shri K.S. Bhaskara Rao* of the Geological Survey of India, Hyderabad along with his coworkers has developed a multidisciplinary exploration model which has led to the discovery of four new diamond bearing kimberlite pipes in Wajrakarur area, twenty new kimberlite pipes in Narayanpet kimberlite field and a new diamond bearing cluster near Kalyandurg in Andhra Pradesh. The work carried out by the team has placed Karnataka State on the diamond map of the India.
Mineral Discovery of Economic or Strategic Importance  
(Team Award)

**Shri Jayant Kumar Pashine** of the Directorate of Geology and Mining, Madhya Pradesh along with his teammates have made significant contribution by confirming presence of path finder minerals and diamond in gravels, that has led to locating diamondiferous kimberlite-lamproites at Payalikhand-Bahradih areas of Raipur district, Madhya Pradesh.

**Shri Dinesh Verma** of the Directorate of Geology and Mining, Madhya Pradesh along with his teammates have made significant contribution by confirming presence of path finder minerals and diamond in gravels, that has led to locating diamondiferous kimberlite-lamproites at Payalikhand-Bahradih areas of Raipur district, Madhya Pradesh.

**Shri Vijay Kumar Saxena** of the Directorate of Geology and Mining, Madhya Pradesh along with his teammates have made significant contribution by confirming presence of path finder minerals and diamond in gravels, that has led to locating diamondiferous kimberlite-lamproites at Payalikhand-Bahradih areas of Raipur district, Madhya Pradesh.

**Dr. Sanjay Khare** of the Directorate of Geology and Mining, Madhya Pradesh along with his teammates have made significant contribution by confirming presence of path finder minerals and diamond in gravels, that has led to locating diamondiferous kimberlite-lamproites at Payalikhand-Bahradih areas of Raipur district, Madhya Pradesh.
Shri R. R. Bisen, of the Directorate of Geology and Mining, Madhya Pradesh along with his teammates have made significant contribution by confirming presence of path finder minerals and diamond in gravels, that has led to locating diamondiferous kimberlite-lamproites at Payalikhand-Bahradih areas of Raipur district, Madhya Pradesh.

Shri P.K. Padlamwar of the Directorate of Geology and Mining, Madhya Pradesh along with his teammates have made significant contribution by confirming presence of path finder minerals and diamond in gravels, that has led to locating diamondiferous kimberlite-lamproites at Payalikhand-Bahradih areas of Raipur district, Madhya Pradesh.

Shri Harinder Pal Singh of the Directorate of Geology and Mining, Madhya Pradesh along with his teammates have made significant contribution by confirming presence of path finder minerals and diamond in gravels, that has led to locating diamondiferous kimberlite-lamproites at Payalikhand-Bahradih areas of Raipur district, Madhya Pradesh.

Shri Datta Mainkar of the Directorate of Geology and Mining, Madhya Pradesh along with his teammates have made significant contribution by confirming presence of path finder minerals and diamond in gravels, that has led to locating diamondiferous kimberlite-lamproites at Payalikhand-Bahradih areas of Raipur district, Madhya Pradesh.
**Mineral Beneficiation**

**Dr. Swades Kumar Basu** of the Geological Survey of India has done outstanding work in establishing 7.76 million tonnes of additional phosphorite reserves from Purulia district of West Bengal with average grade of 7 to 10 percent $P_2O_5$. He has also evolved a genetic model for apatite-rare earth mineralization and its association with alkaline carbonatite magmatism that will serve as a guide for further exploration of rare earth bearing apatite deposits.

**Mineral Beneficiation**

**Dr. M.R. Sekhar** of the Rajasthan State Mines and Mineral Limited has developed a variety of flotation processes for beneficiation of copper, lead, zinc, fluorspar, graphite and rock phosphate. He has successfully improved grade and recovery of zinc in zinc concentrates that has less iron and more silver.

**Dr. N.R. Mandre** of the Indian School of Mines, Dhanbad has used hydrometallurgical techniques and developed leaching – flotation process by which 90 percent metals like copper, lead and zinc can be recovered. He has also contributed in heap leaching of low grade gold ore of Hutti Gold mines and thereby, making it possible to recover gold from low grade ores in India.

**Mineral Technology**

**Shri B.K.P. Sinha** of the Hindustan Zinc Limited, Udaipur has been successfully developed mining concepts and practices for carrying out excavation in high – stress areas of Mochia Mine in Zawar area and thus utilizing a large tonnage of lead – zinc ore that would have been otherwise left out unmined. His other notable achievement is in enhancing the capacity of Rampura-Agucha open pit mine.
Basic Geosciences

Professor Pradip Kumar Bose of the Jadavpur University, Kolkata has done outstanding research in establishing the stratigraphy of the Vindhyan Supergroup. He is also known for his paleobiological studies on the Bagh beds and sequence stratigraphy of the Chaibasa Formation.

Professor Sudipta Sengupta of the Jadavpur University, Kolkata has done kinematic and geometric analysis of structures in Singhbhum shear zone leading to more information on their generation and evolutionary history. Her studies on various structural and metamorphic aspects of the East Antarctica are well known.

Dr. Anand Mohan of the Banaras Hindu University has contributed significantly in the understanding of the metamorphic evolution of Indian granulites. His work on establishing inverted metamorphism in the Precambrian terrain of Darjeeling-Sikkim Himalayas is well recognized.

Applied Geology

Shri Rabindra Nath Ghosh of the Geological Survey of India has carried out innovative work in the engineering geology towards construction support in civil structures like dam, tunnel and power house. His noteworthy achievement has been in the construction of Sapua Earth Dam in Orissa that became cost effective due to the technological support provided by him besides stopping major seepages in Jambhira nala and Kalimati dams of Orissa.
Dr. Pothuri Divakar Naidu of the National Institute of Oceanography, Goa has carried out in-depth study of South-West monsoon variability from Arabian Sea and established its strength in the past 20,000 years leading to the discovery of 2,200 years periodicity in the Asian Monsoon Climate System. He has proposed that deep water circulations have a profound influence and utility in long range forecasting of the South-West monsoon strength over the Indian sub-continent.

Geophysics

Dr. M.V. Ramana of the National Institute of Oceanography, Goa has made significant contributions in the field of marine geophysics by producing tectonic map of the Bay of Bengal which has improved our understanding of crustal structure and evolutionary history of this area.

Dr. Dipankar Sarkar of the National Institute of Oceanography, Goa has carried out studies on Indian, European and American earthquakes that has resulted in compilation of an Atlas on Isoseismal Map of India.

Dr. A. Apparao formerly of the National Geophysical Research Institute, Hyderabad has done innovative work that has helped in prospecting of conducting minerals from the ground surface. His experiments on resistively and designing induced polarization over synthetic samples has helped in defining the boundary between disseminated and massive ores.

Geochemistry

Dr. Y.J. Bhakar Rao of the National Geophysical Research Institute, Hyderabad has established the state of the art geochronology laboratory in NGRI which has produced high quality ages of the Precambrian rock formations of Southern India. His work on the high resolution chrono-stratigraphy of Dharwar Supergroup has been of immense value.
Coal Lignite (Team Award)

Shri Saroj Kumar Barua of the Geological Survey of India along with his team mates have unraveled the stratigraphic and structural setup of the virgin Tatapani - Ramkola coalfields in Madhya Pradesh through which it had been possible to delineate a potential block with about 147 millions tonnes of super grade coal over a stretch of 10 kilometer.

Shri D. N. Bandyopadhyay of the Geological Survey of India along with his team mates have unraveled the stratigraphic and structural setup of the virgin Tatapani - Ramkola coalfields in Madhya Pradesh through which it had been possible to delineate a potential block with about 147 millions tonnes of super grade coal over a stretch of 10 kilometer.

Shri Dilip Kumar Das of the Geological Survey of India along with his team mates have unraveled the stratigraphic and structural setup of the virgin Tatapani - Ramkola coalfields in Madhya Pradesh through which it had been possible to delineate a potential block with about 147 millions tonnes of super grade coal over a stretch of 10 kilometer.

Shri Sabyasachi Shome of the Geological Survey of India along with his team mates have unraveled the stratigraphic and structural setup of the virgin Tatapani - Ramkola coalfields in Madhya Pradesh through which it had been possible to delineate a potential block with about 147 millions tonnes of super grade coal over a stretch of 10 kilometer.

Environmental Geosciences Studies and Management

Professor B. C. Raymahashay of the Indian Institute of Technology, Kanpur has made significant contribution on the impact of chemical and mining industries on soils, sediments and natural water bodies. His work on the correlation of the ion exchange property of the secondary minerals generated during rock weathering with attenuation of pollutants in surface and subsurface water environment is of immense value.
NATIONAL MINERAL AWARD – 1996

Mineral Discovery (Team Award)

Shri V.K. Shrivastava of the Atomic Mineral Division along with his coworkers has made outstanding contribution by discovering uranium deposits in Nalgonda district of Andhra Pradesh. The sustained and concerted exploration efforts of the team resulted in proving 1.75 million tonnes of uranium ore with an average grade of 0.093 $U_3O_8$ at Lambapur and 3.75 million tonnes with an average grade of 0.071 $U_3O_8$ at Peddagattu with in a shallow depth of 40 m.

Shri R. M. Singha of the Atomic Mineral Division along with his coworkers has made outstanding contribution by discovering uranium deposits in Nalgonda district of Andhra Pradesh. The sustained and concerted exploration efforts of the team resulted in proving 1.75 million tonnes of uranium ore with an average grade of 0.093 $U_3O_8$ at Lambapur and 3.75 million tonnes with an average grade of 0.071 $U_3O_8$ at Peddagattu with in a shallow depth of 40 m.

Shri T. N. Parthasarathy of the Atomic Mineral Division along with his coworkers has made outstanding contribution by discovering uranium deposits in Nalgonda district of Andhra Pradesh. The sustained and concerted exploration efforts of the team resulted in proving 1.75 million tonnes of uranium ore with an average grade of 0.093 $U_3O_8$ at Lambapur and 3.75 million tonnes with an average grade of 0.071 $U_3O_8$ at Peddagattu with in a shallow depth of 40 m.

Mineral Discovery
(Team Award)

Shri Biplob Chatterjee of the Geological Survey of India, Kolkata along with his teammates has made significant contribution by discovering diamondiferous kimberlite pipes in Payalikhand, Bahradih and Kodomali areas of Raipur district, Madhya Pradesh by following a systematic approach. The remarkable work carried out by the team has opened up new vistas for exploration of diamond in several other areas of Chattisgarh, Orissa and Bihar.
**Smt. Neeharika Jha** of the Geological Survey of India, Kolkata along with his teammates has made significant contribution by discovering diamondiferous kimberlite pipes in Payalikhand, Bahradih and Kodomali areas of Raipur district, Madhya Pradesh by following a systematic approach. The remarkable work carried out by the team has opened up new vistas for exploration of diamond in several other areas of Chattisgarh, Orissa and Bihar.

**Shri B.K. Mishra** of the Geological Survey of India, Kolkata along with his teammates has made significant contribution by discovering diamondiferous kimberlite pipes in Payalikhand, Bahradih and Kodomali areas of Raipur district, Madhya Pradesh by following a systematic approach. The remarkable work carried out by the team has opened up new vistas for exploration of diamond in several other areas of Chattisgarh, Orissa and Bihar.

**Dr. S.K. Deb** of the Geological Survey of India, Kolkata along with his teammates has made significant contribution by discovering diamondiferous kimberlite pipes in Payalikhand, Bahradih and Kodomali areas of Raipur district, Madhya Pradesh by following a systematic approach. The remarkable work carried out by the team has opened up new vistas for exploration of diamond in several other areas of Chattisgarh, Orissa and Bihar.

**Shri S. Ravi** of the Geological Survey of India, Kolkata along with his teammates has made significant contribution by discovering diamondiferous kimberlite pipes in Payalikhand, Bahradih and Kodomali areas of Raipur district, Madhya Pradesh by following a systematic approach. The remarkable work carried out by the team has opened up new vistas for exploration of diamond in several other areas of Chattisgarh, Orissa and Bihar.
Mineral Beneficiation (Team Award)

**Shri S.R. Shivananda** of the Atomic Mineral Division, Hyderabad along with his coworkers has developed a beneficiation process of “Pug Cure Leaching” and demonstrated its technical and economic feasibility for extraction of uranium from the ore of Domiasiat in West Khasi Hills district, Meghalaya. This innovative technique of uranium extraction is better suited for these ores than the conventional method.

**Dr K.K. Dwivedy** of the Atomic Mineral Division, Hyderabad along with his coworkers has developed a beneficiation process of “Pug Cure Leaching” and demonstrated its technical and economic feasibility for extraction of uranium from the ore of Domiasiat in West Khasi Hills district, Meghalaya. This innovative technique of uranium extraction is better suited for these ores than the conventional method.

**Shri K.B. Mohanty** of the Atomic Mineral Division, Hyderabad along with his coworkers has developed a beneficiation process of “Pug Cure Leaching” and demonstrated its technical and economic feasibility for extraction of uranium from the ore of Domiasiat in West Khasi Hills district, Meghalaya. This innovative technique of uranium extraction is better suited for these ores than the conventional method.

**Shri K. Viswamohan** of the Atomic Mineral Division, Hyderabad along with his coworkers has developed a beneficiation process of “Pug Cure Leaching” and demonstrated its technical and economic feasibility for extraction of uranium from the ore of Domiasiat in West Khasi Hills district, Meghalaya. This innovative technique of uranium extraction is better suited for these ores than the conventional method.
Mining Technology

**Professor D.P. Singh** of the Banaras Hindu University has made significant contributions through his laboratory and field-oriented investigations in the field of rock drilling, slope stability, blasting and ground control ensuring safe mining practice. He has also established Equivalent Material Modelling techniques for simulating various geo-mining problems. He is credited with carrying out R&D work for increasing the anchorage of grouted rock bolt leading to improvements of safety and productivity in mines.

Basic Geoscience

**Professor Somnath Dasgupta** of the Jadavpur University, Kolkata has made outstanding contributions in the field of metamorphic petrology, ore geology and geochemistry. His research work on metamorphosed manganese deposits, Eastern Ghat granulites besides characterization and genetic interpretation of deep sea ferromanganese nodules is well recognized.

Professor I.B. Singh of the Lucknow University has made seminal contributions in the study of shallow marine sediments and developing new approaches in the stratigraphic studies. The comprehensive stratigraphic evolutionary model for the Late Quaternary history of the Ganga Plains proposed by him has immense scientific value.

Applied Geology

**Shri S.C. Ghosh** of the Geological Survey of India has made significant contributions to coal exploration and bio-stratigraphy of the Gondwana Formations through innovative application of Scanning Electron Microscope (SEM). His studies on geological materials by deciphering their ultrafine morphological structures and semi-quantitative chemical composition have led to their identification and classification.
Dr. M. Veerayya of the National Institute of Oceanography, Goa has made significant contribution to the field of marine geology by recognizing various geomorphic features and shallow seismic characteristics of the western continental margin of India. He has indentified submarine terraces, sand ridges and correlated their position with palaeo-sea levels and palaeo-climate conditions during the late Quaternary.

Geophysics

Dr. D. C. Mishra of the National Geophysical Research Institute, Hyderabad has made significant contribution in planning, execution and monitoring of gravity and magnetic surveys, processing and modelling of data sets and their integration with other available geophysical data in Peninsular India. He has also modelled the gravity-magnetic data from the west and east coasts of India, Arabian Sea, Bay of Bengal, Antarctica and Himalayas to understand the break-up and drift history of Indian plate.

Geochemistry

Professor Mihir Deb of the University of Delhi has made detailed petrological – geochemical characterization of ores and the host rocks leading to quantitative estimates of the physico-chemical parameters of their emplacement. His contributions on isotopic geochemistry of sulphide ore deposits and their implications on the ore forming environments have provided a modern perspective to metallogenesis in Rajasthan.

Professor J.A.K. Tareen of the Mysore University has carried out research leading to a better understanding of some fundamental processes operating in the earth’s interior and during the formation of certain mineral assemblages. His study has provided new insights into the granulite mineral paragenesis and on granitic systems.
Coal and Lignite

*Shri P.N. Chaudhuri* of the Geological Survey of India has applied a tectono-sedimentary model for basin analysis and exploration of coal in Talcher coal field in Orissa. The exploration work of this team has resulted in augmenting the coal reserves to the tune of 2.63 billion tonnes of which 108.47 million tonnes are of superior quality thereby raising its status to the top among the power grade coal deposits of India.

*Shri J.K. Ghosh* of the Geological Survey of India has applied a tectono-sedimentary model for basin analysis and exploration of coal in Talcher coal field in Orissa. The exploration work of this team has resulted in augmenting the coal reserves to the tune of 2.63 billion tonnes of which 108.47 million tonnes are of superior quality thereby raising its status to the top among the power grade coal deposits of India.

*Shri D. Bhattacharya* of the Geological Survey of India has applied a tectono-sedimentary model for basin analysis and exploration of coal in Talcher coal field in Orissa. The exploration work of this team has resulted in augmenting the coal reserves to the tune of 2.63 billion tonnes of which 108.47 million tonnes are of superior quality thereby raising its status to the top among the power grade coal deposits of India.

*Shri S. Chakraborty* of the Geological Survey of India has applied a tectono-sedimentary model for basin analysis and exploration of coal in Talcher coal field in Orissa. The exploration work of this team has resulted in augmenting the coal reserves to the tune of 2.63 billion tonnes of which 108.47 million tonnes are of superior quality thereby raising its status to the top among the power grade coal deposits of India.

*Dr. G. Chattopadhyay* of the Geological Survey of India has applied a tectono-sedimentary model for basin analysis and exploration of coal in Talcher coal field in Orissa. The exploration work of this team has resulted in augmenting the coal reserves to the tune of 2.63 billion tonnes of which 108.47 million tonnes are of superior quality thereby raising its status to the top among the power grade coal deposits of India.
Shri P. K. Mohanty of the Geological Survey of India has applied a tectono-sedimentary model for basin analysis and exploration of coal in Talcher coal field in Orissa. The exploration work of this team has resulted in augmenting the coal reserves to the tune of 2.63 billion tonnes of which 108.47 million tonnes are of superior quality thereby raising its status to the top among the power grade coal deposits of India.

Oil and Gas

Shri A. G. Pramanik of the Oil and Natural Gas Corporation Limited has made significant contribution in the discovery and delineation of hydrocarbon-producing fields in various basins of Western Region, Bombay Offshore and Southern Region. He organized and conducted 3-D survey and first long offset Transient Electromagnetic (TEM) Survey which provided a new dimension to exploration and interpretation work.

Scientific Expedition (Team Award)

Dr. Anil Joshi of the Geological Survey of India, Faridabad along with his coworkers participated in the Indian Antarctic Expeditions and made significant contributions to the crustal evolution in parts of Antarctica. The research work carried out by the team on the magmatic evolution of the central Dronning Maud Land particularly on the granite and anorthosite-charnockite genesis is well recognized.

Dr. N. C. Pant of the Geological Survey of India, Faridabad along with his coworkers participated in the Indian Antarctic Expeditions and made significant contributions to the crustal evolution in parts of Antarctica. The research work carried out by the team on the magmatic evolution of the central Dronning Maud Land particularly on the granite and anorthosite-charnockite genesis is well recognized.

Dr. B.R. Bejarniya of the Geological Survey of India, Faridabad along with his coworkers participated in the Indian Antarctic Expeditions and made significant contributions to the crustal evolution in parts of Antarctica. The research work carried out by the team on the magmatic evolution of the central Dronning Maud Land particularly on the granite and anorthosite-charnockite genesis is well recognized.
NATIONAL MINERAL AWARD – 1995

Mineral Discovery (Team Award)

Dr. R.V.G. Nair, of the Geological Survey of India, Thiruvananthapuram along with his colleague has discovered primary gold mineralization in the Attapadi Velley of Kerala. The sustained exploration efforts of the team resulted in delineating a 23 km long and 5-6 km wide gold bearing belt with an average grade of gold at 10 gram/tonne.

Dr. M. M Nair of the Geological Survey of India, Thiruvananthapuram along with his colleague has discovered primary gold mineralization in the Attapadi Velley of Kerala. The sustained exploration efforts of the team resulted in delineating a 23 km long and 5-6 km wide gold bearing belt with an average grade of gold at 10 gram/tonne.

Mineral Exploration (Team Award)

Shri P.S. Rao formerly of the Geological Survey of India, Chennai along with his coworkers has made significant contribution towards exploration of molybdenum in Dharmapuri district of Tamil Nadu. The exploration carried out by the team resulted in identification of a prominent zone of mineralization along a 28 km long shear zone with an estimated reserve of 2.9 million tonnes at a cut off grade of 0.05% molybdenum within a depth of 260 m.

Dr. T.A. Selvan of the Geological Survey of India, Chennai along with his coworkers has made significant contribution towards exploration of molybdenum in Dharmapuri district of Tamil Nadu. The exploration carried out by the team resulted in identification of a prominent zone of mineralization along a 28 km long shear zone with an estimated reserve of 2.9 million tonnes at a cut off grade of 0.05% molybdenum within a depth of 260 m.
Dr. T.M. Ganesan of the Geological Survey of India, Chennai along with his coworkers has made significant contribution towards exploration of molybdenum in Dharmapuri district of Tamil Nadu. The exploration carried out by the team resulted in identification of a prominent zone of mineralization along a 28 km long shear zone with an estimated reserve of 2.9 million tonnes at a cut off grade of 0.05% molybdenum within a depth of 260 m.

Shri V. Palanisamy of the Geological Survey of India, Chennai along with his coworkers has made significant contribution towards exploration of molybdenum in Dharmapuri district of Tamil Nadu. The exploration carried out by the team resulted in identification of a prominent zone of mineralization along a 28 km long shear zone with an estimated reserve of 2.9 million tonnes at a cut off grade of 0.05% molybdenum within a depth of 260 m.

Shri M. Shanmugam of the Geological Survey of India, Chennai along with his coworkers has made significant contribution towards exploration of molybdenum in Dharmapuri district of Tamil Nadu. The exploration carried out by the team resulted in identification of a prominent zone of mineralization along a 28 km long shear zone with an estimated reserve of 2.9 million tonnes at a cut off grade of 0.05% molybdenum within a depth of 260 m.

Shri S. Singanenjam of the Geological Survey of India, Chennai along with his coworkers has made significant contribution towards exploration of molybdenum in Dharmapuri district of Tamil Nadu. The exploration carried out by the team resulted in identification of a prominent zone of mineralization along a 28 km long shear zone with an estimated reserve of 2.9 million tonnes at a cut off grade of 0.05% molybdenum within a depth of 260 m.

**Mineral Beneficiation (Team Award)**

Dr. J.P. Barnwal of the Regional Research Laboratory along with his coworker has done critical data analysis and extensive mathematical modelling work on complex mineral ad coal processing unit operations resulting in substantial improvement in plant performance and enrichment of mineral ores.
Dr. B. Govindarajan of the Regional Research Laboratory along with his coworker has done critical data analysis and extensive mathematical modelling work on complex mineral ad coal processing unit operations resulting in substantial improvement in plant performance and enrichment of mineral ores.

Mineral Beneficiation

Professor R. Venugopal of the Indian School of Mines, Dhanbad has developed beneficiation strategies for dump manganese ore besides carrying out pelletization studies for beneficiated manganese, magnetite and limestone fines.

Mining Technology

Shri G.S Khuntia of the Steel Authority of India Limited has made significant contribution particularly in the area of production, quality improvement and future expansion of steel industry. He is credited with having achieved higher productivity with quality control Kiriburu/Meghataburu, Barusa, Kalta and Dalli iron ore mines.

Geology: Stratigraphy, Structural Geology, Tectonics
Petrology, Paleontology, Mineralogy, Seismotectonics, Remote Sensing

Professor D. Mukhopadhyay, of the Calcutta University has made original contribution on fundamental aspects of structural geology. His studies on Precambrian belts of Singhbhum, Karnataka and Rajasthan have thrown new light on thermo-tectonic and stratigraphic evolution of these terrains.

Dr. S. Sengupta of the Geological Survey of India, Kolkata has carried out valuable research in understanding the intricate crustal processes in geologically complex areas of Indian craton and Himalayan terrain. His studies on basaltic volcanism in northeastern Himalaya and the peri-Indian ophiolites are important in context of global geodynamics.
Professor R. K. Lal of the Banaras Hindu University has made outstanding contributions in the field of metamorphic petrology, mineralogy and mineralogical thermodynamics pertaining to Precambrian rocks of different terrains of India.

Applied Geology
(Team Award)

Dr. A. Bhattacharya of the National Remote Sensing Agency along with his coworkers has done extensive research on remote sensing techniques for geological application in coal mine fire mapping. The team has prepared 1:4,000 scale maps of new mine fire, fire prone areas and rate of fire movement which are highly useful for effective fire fighting operations and strategic planning of mining activities.

Shri C.S.S Reddy of the National Remote Sensing Agency along with his coworkers has done extensive research on remote sensing techniques for geological application in coal mine fire mapping. The team has prepared 1:4,000 scale maps of new mine fire, fire prone areas and rate of fire movement which are highly useful for effective fire fighting operations and strategic planning of mining activities.

Shri Manoj Dangwal of the National Remote Sensing Agency along with his coworkers has done extensive research on remote sensing techniques for geological application in coal mine fire mapping. The team has prepared 1:4,000 scale maps of new mine fire, fire prone areas and rate of fire movement which are highly useful for effective fire fighting operations and strategic planning of mining activities.

Dr. O.S Chauhan of the National Institute of Oceanography, Goa has done research on marine processes in Northern Indian Ocean, beach sediment dynamics and shoreline changes besides identification of areas susceptible to neotectonic activity. His studies have also thrown light into the variations in the intensity of palaeo-monsoon and past climate during Late Pleistocene in the Arabian Sea and Bay of Bengal.
Dr. S. M Gupta of the National Institute of Oceanography, Goa has discovered 35 new species of Ichthyoliths from the nuclei and substrates of manganese nodules and has modified the alphanumeric system in ichthyolith taxonomy. His research has shown that monsoon has strengthened since last 9 Ma besides explaining the influence of the Antarctic bottom water current for genesis of manganese module deposits in the Central Indian Ocean Basin.

Geophysics

Professor I.V. Radhakrishna Murthy of the Andhra University has made significant contribution in interpretation of gravity and magnetic data. He is credited with development of nomograms, interpretational aids and computer software that are widely used.

Professor B. B. Bhattacharya of the Indian School of Mines, Dhanbad has applied non-linear inversion to the resistivity problems with the help of Simulated Annealing Techniques for geophysical data interpretation. He has demonstrated the usefulness of well log data in making reliable evaluation of coal seams with regard to their thickness, ash, carbon and moisture content, and the formation strength parameters needed for mine planning and design.

Dr. P. R. Reddy of the National Geophysical Research Institute, Hyderabad has done seismological studies that have helped in delineating deep crustal velocity structure along different profiles located in Cuddapah, West Bengal basins, Koyna region Narmada-Son lineament and below Deccan Trap of Saurashtra region.

Geochemistry

Professor A. S. Janardhan of the Mysore University has done pioneering studies on the granulites of Southern India leading to the understanding of the role of fluids enriched in carbon dioxide in the origin of granulite facies charnockites. His work also contributed to the understanding of lower crustal processes during late Archaean-Mid Proterozoic.
Coal & Lignite

(Team Award)

Shri K.K. Sen of the Geological Survey of India, Kolkata along with his coworkers has done reconstruction of paleo-sedimentary environmental facies model and its utilization as a method for coal exploration. The team is credited with establishing coal reserves of 4460 million tonnes in Birbhum coalfield and identifying the locales of coal deposit at quarriable depths in less explored Mahnagarhi and Panchwara basins.

Shri R. Bandyopdhyay of the Geological Survey of India, Kolkata along with his coworkers has done reconstruction of paleo-sedimentary environmental facies model and its utilization as a method for coal exploration. The team is credited with establishing coal reserves of 4460 million tonnes in Birbhum coalfield and identifying the locales of coal deposit at quarriable depths in less explored Mahnagarhi and Panchwara basins.

Shri B.S. Jodha of the Geological Survey of India, Kolkata along with his coworkers has done reconstruction of paleo-sedimentary environmental facies model and its utilization as a method for coal exploration. The team is credited with establishing coal reserves of 4460 million tonnes in Birbhum coalfield and identifying the locales of coal deposit at quarriable depths in less explored Mahnagarhi and Panchwara basins.

Shri Atanu Ray of the Geological Survey of India, Kolkata along with his coworkers has done reconstruction of paleo-sedimentary environmental facies model and its utilization as a method for coal exploration. The team is credited with establishing coal reserves of 4460 million tonnes in Birbhum coalfield and identifying the locales of coal deposit at quarriable depths in less explored Mahnagarhi and Panchwara basins.

Oil and Gas

Dr. D.K. Trehan of the Oil and Natural Gas Corporation Limited has made contribution in the field of oil exploration by induction of new seismic and log interpretation technologies and optimizing recovery factor to sustain planned production profile. He pioneered the introduction of off-shore 3-D work as well as gravity data acquisition in the western and eastern offshore basin Of India.
Dissemination of Scientific Information (Team Award)

Shri E.V.R. Parthsaradhi of the Geological Survey of India, Hyderabad along with his coworker has devised a methodology of automated cartography in the pre-press map preparation stage leading to speedier geo-scientific map production.

Dr. P. Prakash of the Geological Survey of India, Hyderabad along with his coworker has devised a methodology of automated cartography in the pre-press map preparation stage leading to speedier geo-scientific map production.

Dissemination of Scientific Information

Professor A.K. Ghose of Bengal Engineering College has carried out pioneering research on roof bolting, application of rock mass classification which have found wide acceptance and application by the industry. He has substantially contributed towards dissemination of scientific data through his publications and editorship of several national and international journals and books.
### LIST OF THE INSTITUTIONS / ORGANISATIONS OF NATIONAL MINERAL Awardees

1. Andhra University, Visakhapatnam
2. Atomic Mineral Division, Hyderabad
3. Associated Stone Industry Limited, Kotah, Rajasthan
4. Banaras Hindu University, Varanasi
5. Bengal Engineering College, Kolkata
6. Bangalore University, Bangalore
7. Central Institute of Mining and Fuel Research, Nagpur
8. Central Mine Planning and Design Institute, Ranchi
9. Center for Mathematical Modelling & Computer Simulation, Bangalore
10. Central Institute of Mining and Fuel Research, Dhanbad
11. Central Mining Research Institute, Roorkee
12. Center for Earth Science Studies, Thiruvananthapuram
13. Directorate of Geology and Mining, Madhya Pradesh, Bhopal
14. Geological Survey of India
15. Hindustan Zinc Limited, Udaipur
16. Indian School Of Mines University, Dhanbad
17. Indian Institute of Technology, Kanpur
18. Indian Institute of Technology, Kharagpur
19. Indian Institute of Technology, Mumbai
20. Indian Institute of Technology, Roorkee
21. Indian Institute of Geomagnetism, Mumbai
22. Indian Space Research Organisation, Ahmedabad
23. Indian Bureau of Mines, Nagpur
24. Institute of Minerals and Material Technology, Bhubaneswar
25. Indian Statistical Institute, Kolkata
26. Jai Narain Vyas University, Jodhpur
27. Jadavpur University, Jadavpur
28. Keshav Dev Malaviya Institute for Petroleum Exploration, Dehradun
29. Lucknow University, Lucknow,
30. Maharana Pratap University of Agriculture and Technology, Udaipur
31. Mineral Exploration Corporation Limited, Nagpur
32. National Metallurgical Laboratory, Chennai
33. Neyveli Lignite Corporation Limited, Neyveli