

Curriculum Vitae of Sanjay Srivastava

Sanjay Srivastava (b. December, 1964) is chemical technologist, with a broad experience in environmental audit and risk assessments for various projects in India and abroad.

Current Occupation:

Consultant, South Asia Environment and Social Development Unit, World Bank, Washington, DC (2007-)

SUMMARY OF EXPERIENCE

- ❖ **South Asia Environment and Social development Unit, World Bank.** He is currently a Senior Environmental Specialist with SASSD unit with experience in safeguard cross-support and mainstreaming environmental agenda in various infrastructure projects (power; urban, road, industrial); planning and leading analytical work; and designing own managed investment projects. He has been particularly responsible for advising the task team in sectors and client on Safeguard management process including advising the task team on up-stream integration of environmental issues; assisting the client with the preparation of EA terms of reference, internal consultation, consultants requirement, EA scoping exercise and preliminary risk assessment; assisting in Bank review and clearances of ToRs; ensure adequacy of EA consultation process, review and clearance of proposed consultation strategy; review of draft EA report; support disclosure process and confirming the receipt of all relevant clearances by the clients. On implementation and supervision support to lending operations, his responsibility include assisting client with preparation of a customized annual environmental supervision plan using key performance indicators and supervision protocols; review and updating of EMPs; sharing of experiences across sectors and regions; ensuring compliance with the safeguard and loan agreement requirements. In addition to lending and supervision cross-support, he has played a key role in planning and undertaking important analytical work, by effectively aligning those cross-support activities where Bank has a well-developed dialogue at the sectoral level, particularly on initiatives on building capacity to manage environmental aspects of development. Major analytical work include - the policy work on a country environmental analyses, where efforts are focused on aligning with well established sector level dialogues on safeguards; a state level environmental assessment in Orissa, where he led the work in analyzing key environment-development pressure points and received strong client support; and policy work on municipal solid waste that received strong response from multiple clients;
- ❖ **International Resources Group South Asia:** As Managing Director of IRG South Asia, a branch office of IRG, USA, he led a strong team of energy and environment experts to develop and service private and public sector clients in south Asia. He was responsible for developing and implementation of variety of environmental projects, particularly implementation of USAID-India's multiyear multimillion dollar Clean Technology Initiative project in India for two years. He has project experience on development, execution and promotion of strategies for the adoption of pollution prevention and cleaner technology by Indian industry; he has managed pilot projects to promote benchmarking and environmental performance rating in cement and pulp and paper sector, greening the supply chain in textile sector etc; advised Indian firms on adoption of voluntary initiatives for promoting environmental and clean technology investments; developed and assisted in finance of Indo-U.S. ventures for the demonstration and commercialization of environmentally clean processes and manufacturing technologies;

- ❖ **Environmental Resources Management, Senior Consultant (1995-1997).** Reporting to the Vice Chairman, Mr. Srivastava was engaged directly in planning and execution of projects for various clients on Environmental Assessments, Energy studies, EHS Audits, EIA studies, Socio-economic Impact Assessment, Regulatory Reviews and Site Investigation. He has also been responsible for negotiations with various clients and the project affected parties, project planning and management including presentations during the project appraisal.
- ❖ **World Wide Fund for Nature-India (WWF), Program Co-ordinator (1994-95).** Reporting directly to the Secretary General worked as the head of the Pollution Monitoring and Technology Transfer Division. His responsibilities included co-ordinating activities related to technical, policy, institutional and regulatory aspects of the environment. Mr. Srivastava worked on projects related to technology transfer under UN Framework Convention on Climate Change and Montreal Protocol, organised programmes on environmental training, education, and environmental monitoring for different target groups. He was also involved in policy review, strengthening of institutional infrastructure, formulation of strategies and advocacy of environmental friendly concepts and techniques.
- ❖ **Bharat Heavy Electricals Limited, Hardwar (largest Power Equipment Manufacturing Facility in India), Senior Environmental Engineer (1989-1994):** Reporting to the Senior Manager, major experience include conducting EIA Studies for development projects especially for the thermal power sector, environmental audit and environmental feasibility study for industrial facilities such as pulp and paper, sugar and distilleries. He was also involved in designing of Waste Minimisation programmes, Energy audits and designing and evaluation of industrial and municipal waste treatment facilities.

EDUCATION

Masters Degree in Chemical Technology (with specialization in Environmental Biotechnology), Harcourt Butler Technological Institute (HBTI), Kanpur, India, 1989

B.S Chemical Engineering, HBTI, Kanpur University, Kanpur, India

B.Sc., major in Chemistry, Allahabad University, Allahabad, India

Summary of Project Experience

a) Environmental Impact Assessment Studies

Mr. Srivastava brings extensive project experience in advising on Environmental Assessment process, objectives and on up-stream integration of environmental issues. He has assisted clients in both and private sector with the preparation of EA terms of reference, including assistance with internal consultation, advising on consultants requirement, site visits; EA scoping exercise and preliminary risk assessment; Bank review, clearances of ToRs, supporting disclosure process. On implementation and supervision support to lending operations, his responsibility include assisting client with preparation of a customized environmental supervision plan and supervision protocols in consultation with stake holders; participation in supervision missions; review and updating of EMPs and other related documents; sharing of experiences across sectors and regions; ensuring compliance with the safeguard and loan agreement requirements. In the past, Mr. Srivastava has worked as Strategic and Regional EIA specialist for ADB funded project where he was responsible to develop procedures and policy recommendations for Government of India. These recommendations focused on use of market-based incentives to improve effectiveness of EIA

decision-making process. Mr. Srivastava in the past has been a senior member of the several project EA teams, particularly involved in site selection, planning and monitoring and analyses of environmental quality data; supervision of on-site activities including socio-economic survey. The project experience is as follows:

- Environmental assessment as per the World Bank Safeguard Policies in several project, including Energy Sector – Transmission System Strengthening Projects for POWERGRID (which received the World Bank Green Award in 2006); Power sector Reforms project in Uttar Pradesh; Rajasthan and Orissa.; Renewable Energy project for IREDA; Power sector and Road sector Project in Afganistan; Urban and Water sector Projects in Karnataka and Tamil Nadu; Private sector project on SME Financing; Industrial Pollution Management Project at National level; Road Sector Projects in U.P and Orissa etc.
- Recently completed “India-Country Environmental Analyses” focusing on three sectors, Industry (lead the group), Power and Transport, where he was responsible to analyses factors contributing to poor implementation of environmental management; and approaches to strengthen the compliance and enforcement.
- Developing procedures and guidelines to improve financing of cleaner production and cleaner technology and to integrate environmental decision with financing decision in the EIA appraisal process in India. (ADB India, 2002)
- Developing policy for integrating cleaner production in planning and development of Industrial estates in Sri Lanka. This project also involves conducting EA and developing a plan for implementation integrating Cleaner production concepts. (ADB Sri Lanka, 2002)
- Developing Course material for distant learning program on trans-boundary EIA (issues, threats and opportunities) for power sector in South Asia. (USAID India 2001)
- Policy review including EIA methodologies, identifying gaps and opportunities for intervention, identification of Market based incentives for strengthening the EIA process focused on infrastructure project under a project funded by ADB (May2001-2002)
- Environmental Impact Evaluation of a Large Area in Rajasthan, for M/s Cairns Energy, May2000
- Environmental Impact Assessment and Socio-economic Impact assessment of a Large Area Covering Two Districts in Rajasthan, for M/s Shell BV, August 1997
- Environmental Impact Assessment of off-shore and On Shore Field for a Major Consortium of Multinational Oil Exploration Companies in the Gulf of Khambhat, Gujarat, June 1997
- Participated in the Review of R&R plan for a Mining project for CESC, Calcutta
- EIA - Water Quality Studies for Two Thermal Power Stations of Uttar Pradesh State Electricity Board (*UPSEB*), August 1995- January 1996.
- Environmental Baseline Development of an area Proposed for Seismic Survey in Rajasthan by *M/s Shell BV*, September 1995.
- Comprehensive EIA study of a Proposed 1200 MW Gas Based Power Station in Bhandar, Gwalior, for Madhya Pradesh Electricity Board (*MPEB*), 1993.
- Comprehensive EIA Study of 550 MW Gandhinagar Thermal Power Station, Gandhinagar, for Gujarat Electricity Board (*GEB*), 1994.
- EIA Study of 500 MW Wanakbori Thermal Power Station, Wanakbori, for *GEB*, 1994.
- Rapid EIA Study of 110 MW Amarkantak Thermal Power Station at Amarkantak for *MPEB*, 1992.
- Regional EIA Study for the City of Durgapur and Study of Impact on Water Quality of River Damodar, under a project awarded by Ministry of Environment and Forest (*MOEF*), New Delhi, 1993.
- Regional EIA Study for the City of Dehradun and Development of Environmental Management Plan, project awarded by *MOEF*, New Delhi, 1993.

- Regional environmental survey to study the impact of coal mines on the water quality of river Damodar in Dhanbad, under a project awarded by *MOEF*, New Delhi, 1992.

b) *Environmental Audits and Pollution Prevention Studies*

Mr. Srivastava has extensive experience working in developing countries with private sector, particularly in planning, implementing and managing projects that provided assistance to a large number of industrial sectors in identifying and implementing cleaner production (CP) and energy efficiency initiatives in their existing operations and in their future investment plans. Also, as an EMS auditor and trainer, Mr. Srivastava has helped more than 15 companies providing assistance on designing and implementation of EMS based on ISO 14001 (3 units each in pulp and paper, iron and steel; textile; and automobile plus pharmaceutical). In particular, he has been involved with clean investment planning; financing; structuring; and implementation of technical assistance program which has resulted in demonstration of commercial viability and significant environmental benefits, specifically in small and medium scale enterprises. His key expertise is in identification of EHS risks; and providing recommendations to conserve material resources, minimise waste generation and to increase the energy efficiency. The relevant project experience is as follows:

- “*Capacity Building for Industrial Pollution Management*”, a World Bank project - under preparation, where Mr. Srivastava is leading the discussions to identify opportunity for addressing both stock (legacy pollution remediation) and flow (helping existing polluters with options for investment in cleaner technologies) pollution issues.
- “*Financing Cleaner Production in India*” a one-year TA Program, funded by the Asian Development Bank, where Mr. Srivastava as deputy team leader and Cleaner Production Specialist led the discussions with industries and industrial associations, regulators and financial institutions, particularly analyzed the status of financing and adoption of cleaner production options/technologies; analyzed barriers to investments and adoption by private sector, particularly SMEs; and provided recommendations to make a business case for promotion and financing of CP agenda (2002).
- “*Cleaner Industrial Development (CLIND) in Sri Lanka*”, 1.5 year long TA project in **Sri Lanka**, where as a CP Specialist on the team, Mr Srivastava was responsible for developing a policy paper on integrating CP into the industrial development program leading to drafting of a policy, strategy and action plan to achieve CP goals; strategy and incentive program to encourage locators, developers and managers of industrial estates to pursue CP based on the principles of industrial ecology; and assisted in developing guidelines to promote CP in planning and operation of eco-industrial estates (2001).
- “*Capacity Building of Indian Industry through Confederation of Indian Industry*”, a TA program funded by Canadian Aid (CIDA), Mr. Srivastava provided support for monitoring and implementation including tracking the development effectiveness of TA for promoting use of cleaner technologies and promoting environmental management systems (EMS). The project helped more than 50 small and medium companies in wide ranging sectors including chemical, textiles, pharmaceuticals, pulp and paper and automobile reduce water requirements, energy consumption and other raw material leading to huge material and financial savings, improved bottom-line and workers morale (2000-2001).
- “*Capacity Building of Industries in Egypt to Improve Productivity and Environmental performance*”, a program supported by the USAID, where as a Clean Technology specialist and trainer, Mr. Srivastava assisted Ceramic industries in industrial area of 10th of Ramadan in Cairo in identifying cleaner technology opportunities to minimize energy consumption and minimize generation of waste (2001)
- Under an ‘*Emergency Recovery and rehabilitation of Urban Household in Armenia*’ a project funded by the USAID, Mr. Srivastava provided training on developing and

implementing management plan for three earthquake affected towns, focusing on re-use of construction waste and debris and minimizing hazards associated with use of asbestos based material (2000)

- “*Clean Technology Initiatives (CTI) in India*” a 2 year project funded by the USAID, assisted more than 20 private companies in Pulp and paper (example Padumjee Papers, Century Papers), textiles (Winsome Textiles) and automotive (Maruti Udyog, largest car manufacturer in India) and steel sector (SAIL plants) in identifying EHS risks; and developing and implementing sustainable investment program and EHS management systems (1997-1999).
- “*Environmental Implications of Mineral Based Growth in Orissa*” a one year long technical study of the World Bank, where Mr. Srivastava as a Team Leader evaluated critical linkage between private sector investment and environmental management of growth leading to specific recommendations on a plan for actions for various stakeholders (October, 2006)
- “Financing SMEs in India” a World Bank lending project, where Mr. Srivastava as an environmental specialist is providing implementation support to a financial intermediary (Small Scale Industrial Development Bank of India) in mainstreaming environmental risks in its credit risk evaluation (2005).
- Waste Audit and developing a video film for *Coca Cola India* focusing on technology opportunities for recycling of plastic (PET) bottle waste that can lead to reuse-recycle into commercial viable products (such as helmets, raincoats, toys, synthetic fibers etc) through involvement of community and small scale industries (2001).
- Environmental Audit of Country's Largest Automobile Pistons and Rings Manufacturing Facility at Ghaziabad, *M/s Shriram Pistons and Rings Ltd*, 1994.
- Environmental Audit of Heavy Electrical Equipment Plant of Country's Largest Manufacturers of Power Plant Equipment at *Bharat Heavy Electricals Limited (BHEL)*, Hardwar, 1994.
- Environmental Audit of Central Forge and Foundry Plant at *BHEL, Hardwar*, 1994.
- Environmental Audit of *Rampur Distilleries and Chemicals at Rampur*, Uttar Pradesh (UP), 1993.
- Environmental Audit for *Co-operative Sugar Corporation Unit at Doiwala*, Dehradun, UP, 1993.
- Environmental Feasibility Study for waste minimisation and pollution prevention in an integrated paper mill at Neapanagar under a project awarded by *NEPA Paper mill*, 1990

d) Environmental Risk and Site Assessments

Mr. Srivastava has conducted several Environmental Site Assessments, Due Diligence and Compliance Assessment for various multinational clients. Most of these sites were being considered for joint venture (JV) manufacturing facilities between a major multinational and an Indian company. His responsibilities in these studies included general characterisation of the site, survey of adjoining areas and discussions with local people concerning the history of the site, review of existing documents to identify environmental conditions including the generation, storage, treatment and disposal of potentially hazardous substances and an assessment of potential environmental liabilities associated with the site. Under the Environmental Site Investigation, he has been involved in sampling and analysis of soil and groundwater, collection and interpretation of geological, hydrological and geohydrological information about the site, detailed evaluation of environmental liability and preparation of technical report including recommendation for remediation. He has led and executed the following projects:

- Environmental Site Investigation and Risk Assessment of a Gas Field Site in Sylhet, Bangladesh for M/s Occidental of Bangladesh, a Joint Venture Between Petrobangla, a Bangladeshi Oil and Gas Company and Oxy Limited, a major Oil Exploration Multinational Company.
- Due Diligence Assessment and Site Investigation at Three Green Field Locations at Bangalore, Vijaywada and Pune respectively, for *M/s Coca Cola Company*, a Beverage Manufacturing Multinational Company
- Environmental Compliance Assessment of M/s Park Davis Limited, a Pharmaceutical and Confectionery Products Manufacturing Unit at Hyderabad, for *M/s Warner Lambert*, a major Pharmaceutical Manufacturing US Multinational Company.
- Environmental, Health and Safety Audit of M/s Aegis Chemicals Limited, a Distillery and Speciality Chemical Manufacturing Unit at Vapi in Gujarat, for *M/s Perstorp*, a major speciality Chemical Manufacturing Swedish Multinational Company.
- Phase-II Environmental Assessment of M/s Whirlpool of India Limited, a Compressor Manufacturing and Assembly Unit at Ballabgarh, Haryana, for *M/s Tecumseh Products Company*, a major Compressor Manufacturing US Multinational Company.
- Due Diligence Assessment at Ballabgarh, Haryana, for *M/s Tecumseh Products Company*, a major compressor manufacturing multinational company.
- Due Diligence Assessment and Phase II Site Investigation at Bangalore, for *M/s General Instruments*, an Electronic Instruments Manufacturing US Multinational Company
- Environmental Assessment of M/s SIEL, an existing industrial facility at Hyderabad, for *M/s Tecumseh Products Company*, a Compressor Manufacturing US Multinational Company.
- Environmental Assessment of M/s Unilok Adhesives, an existing industrial facility at Nashik, for *M/s Lord Corporation*, a major Adhesives Manufacturing US Multinational Company.
- Environmental Assessment of a Green Field Site at Madras, for *M/s Ford Motors Company*, a Car Manufacturing Multinational Company.
- Environmental Assessment of a Green Field Site at Lalru, Punjab, proposed for *M/s Gates Corporation*, a major Industrial Hydraulic Hose Manufacturing US Multinational Company.
- Due-diligence Assessment of a Multi-storied Building at Bombay, for *M/s Abbott Laboratories*, a major Pharmaceutical Manufacturing Multinational Company.

e) Water Quality Management

Mr. Srivastava has extensive experience of water quality management related studies. His job responsibilities in these studies included designing of water quality monitoring program, sampling and analysis of waste water streams, identification of potential sources, evaluation of alternatives for water quality restoration schemes, suggestion on waste minimisation options and improvement in water management practices.

- *Water Quality Monitoring of River Ganga at Rishikesh, Hardwar and Garhmukteshwar Monitoring Stations, to Study the Seasonal and Diurnal Variations, under Ganga Action Plan (GAP) for MoEF, 1993-1994.* He was a principal member of the team which monitored water quality of this major international river at three stations as a part of the GAP.
- *Water Quality Monitoring of Western Yamuna Canal at Yamunanagar, Karnal, Panipat and Sonapat, under GAP for MoEF 1993-1994.* He was a principal member of the team which monitored water quality at four stations of this major river of India, as a part of the GAP.
- *Development and Promotion of Low Cost Water Quality Monitoring Kit under a Project Funded by WWF-International, Switzerland and Norwegian Aid and Development Agency (NORAD), 1995.* The project involved organising a network of people and NGOs, in the country through training and local projects on water quality issues.

- *Review of Water Quality Standards in India - A Case Study of Maharashtra, for UK Overseas Development Administration, October 1995.*
- *Regulatory Review of existing standards, for SmithKline Beecham, a major Pharmaceutical Manufacturing Multinational, January 1996.*
- *Design and Development of Pilot Plant for Treatment of Cyanide Bearing Effluent Using Ultra Violet Radiation Technique, 1992.*
- *Performance Evaluation Study of Effluent Treatment Plant (ETP) at M/s Indian Drugs and Pharmaceutical Limited (IDPL), Rishikesh, 1991.*
- *Performance Evaluation Study of ETP for M/s Tanneries and Footwear Corporation (TAFCO), Kanpur, UP, 1991.*
- *Performance Evaluation and Feasibility of Treating Tannery Effluent in a Two Stage Upflow Anaerobic Packed Bed Reactor, 1989.*
- *Performance Evaluation of a Rotating Biological Disc Contactor Reactor for Treating Tannery Effluent Under Various Operating Conditions, 1989.*
- *Design and Performance Study of Fluidised Bed Digester for Treating High Strength Distillery Effluent, 1989.*

f) Other related experience

Institutional Strengthening and Restructuring of Kerala State Pollution Control Board (KSPCB) for Effective implementation of environmental policies and programmes of the State Government (April 1996). He was a leading team member for this project funded by Ministry of Foreign Affairs of Netherlands under the Indo-Dutch Financial Assistance Programme.

Indira Gandhi Conservation Monitoring Centre (IGCMC) Project, India, October 1996. In this DFID funded project, he was a member of the team which assisted the IGCMC in strengthening its institutional capacity for providing effective information on India's biodiversity. He also led the team which carried out a market survey to assess the market potential of services and products of IGCMC.

Energy Conservation in Steel and Petrochemical Industry in India for Japan Research Institute, January-February 1996. The job involved collection of data on production, growth, energy consumption and energy conservation, and assessment of potential of energy savings in Steel and Petrochemical sectors in India.

Assisting Ministry of Non-conventional Energy Sources (MNES) in Preparation of a Renewable Energy Policy and Legislation for India, August 1995 - February 1996. He provided Research inputs for this study in which ERM provided technical assistance to MNES in the preparation of a renewable energy policy and legislation for India.

Strengthening Maharashtra State Electricity Board's (MSEB) Environmental Management Capabilities and Formation of Central Environmental Health and Safety Unit (CEHSU), June 1996. He was involved in a World Bank funded study to help implement the measures to improve the environmental performance at various operating power plants, through the transference of management and technical skills from the consultants to key MSEB staff. He was specifically involved in providing specialist inputs during environmental training.

Preparation of 'A State of the Environment Report for National Capital Territory of Delhi' under a project awarded by Department of Environment (DOE), Government of Delhi, 1995. He was the leader of the team which was involved in collection of environmental data from secondary sources and identification of role of citizens, regulatory agencies in controlling the environmental degradation in Delhi and preparation of report.

Feasibility Study to Assess the Efficacy of Introducing 'Prior Informed Consent' (PIC) Type of System in India, 1995. The project funded by WWF-International, Switzerland, involved assessment of efficacy of monitoring international trade in banned and bannable hazardous substances under United Nations (UN) scheme of International Register of Potentially Toxic Chemicals (IRPTC).

Feasibility and Efficacy of Establishing Toxic Release Inventory (TRI) in India to Improve Environmental Reporting and Establish a Data Base of Toxic Releases by Industries in India.

The project was a part of international project in 12 countries funded by WWF for Nature-International, Switzerland.

COUNTRIES OF WORK EXPERIENCE

India, Bangladesh, Nepal, Maldives, Sri Lanka, Bhutan, Armenia, Egypt, USA