



**Confederation of
Indian Industry**



**Institute of Defence
Studies and Analyses**

FORUM ON HIGH-TECH DEFENCE INNOVATION

Vision for an Integrated Science & Technology Advancement Strategy

VISTAS

India needs a National Vision and Roadmap to meet the scientific and technological challenges of the 21st century and create a high-tech manufacturing including defence manufacturing base. To achieve this objective it needs to create a viable *national* innovation eco-system encompassing the defence and civilian sectors. The Forum on High-Tech Defence Innovation proposes a Road Map and Vision – VISTAS - and provides an open platform to concerned citizens and stakeholders to work together to achieve these goals.

PROGRAMME

Friday, 16 December 2011

0915-0930 hrs: Registration

0930-1050 hrs: Inaugural Session

0930 hrs:	Opening Remarks	Lt. Gen Prakash Menon Chair, Military Advisor, NSCS
0950 hrs:	MOD's Role and Reforms	Shri Vivek Rae , Additional Secretary, MOD & DG Acquisitions
1010 hrs:	Chinese Experience & Q & A with Prof. Tai via video-conferencing from Univ. California	Prof Tai Ming Cheung Associate Research Scientist, University of California Institute on Global Conflict and Cooperation (IGCC). Directs US Govt. Minerva program on Chinese security and technology. (via video conferencing)
1030 hrs:	Making India a High-tech Defence Economy -Introduction	Ms Smita Purushottam Senior Fellow

SESSION I

1050-1230 hrs: Industry/Academia Perspectives on High-Tech Defence Production

1050 hrs:	Industry Role in High-Tech Production, and suggested projects and reforms	R S Bhatia CEO-Defence Bharat Forge Ltd
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1110 hrs:	Role of Offsets in Enhancing High-Tech Production and suggested reforms	Shri Shridhar Nadupally CEO Sankhya
1130 hrs:	State of Technology in India & needed Reforms	Shri Rahul Chaudhry CEO, Tata Power SED Ltd

1145 hrs: Tea / Coffee Break

1200 hrs:	Role of SMEs and suggested reforms	Anjan Mukherjee Hycator & Sanjay Aggarwal , CBS Technologies (via video-conferencing)
1220 hrs:	Role of education and suggested reforms	Dr Anil Wali and Dr Kaul CEO, Foundation for Innovation and Technology Transfer, Indian Institute of Technology Delhi

SESSION II

1240 -1330 hrs : Perspectives of Government and Armed Forces

1240 hrs:	Military perspectives on Defence Requirements and suggested reforms in defence production	Air Vice Marshal R.K.S. Bhadauria , VM ACS Project, Air Headquarters. 23063373, IDS (HQ); Air, Naval and Army Headquarters
1250 hrs:	Role of Dir. of Indigenisation and achievements	Dr. R.K. Rana , Commodore, Directorate of Naval Indigenisation, Integrated Headquarters of Ministry of Defence (Navy)

1310 hrs:	Pharmaceutical sector as model for R & D	Shri Devendra Chaudhry Joint Secretary, Deptt. Of Pharmaceuticals
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1330-1415 hrs: lunch break

SESSION III

1415-1550 hrs : Perspectives on Indigenous Defence Production and Innovation

1415 hrs:	Defence sector reforms and Indigenous Production	Shri N.S. Sisodia , former DG, IDSA and member of Task Force on Self Reliance in Defence Production
1435 hrs:	National Manufacturing Competitiveness Council	Shri Gaurav Dave Joint Secretary, NMCC
1455 hrs:	Role of FDI in TOT and Human Resource/Skill Development and suggested reforms	David Graham VP, Selex Galileo (via video-conferencing)
1515 hrs:	Role of IDS HQ in promoting indigenous defence production and innovation	Rear Admiral Vijai S. Chaudhari , NM Assistant Chief Integrated Staff (PP & FS)
1535 hrs:	The Task Force on Defence Self reliance- Targets and Objectives	Shri Ravindra Gupta Chairman, National Task Force on Self Reliance in Defence Production

1550-1630 hrs: Concluding session

1550 hrs:	Remarks by Chairman and Open House discussion	Chairman
1600 hrs:	Summing up by Chairman	THE IMPLEMENTATION STRATEGY/ROAD MAP AHEAD
1615 hrs:	Vote of Thanks	Shri Gurpal Singh Deputy Director General, Confederation of Indian Industry

**PROFILE OF
CHAIRS AND INTERNATIONAL SPEAKERS**

SANJAY K AGARWAL

Director CEO of Centre for Land Warfare Studies (CLAWS)

Mr. Sanjay K Agarwal heads the CbS Technologies Pvt. Ltd. group as promoter & Group Managing Director. CbS is a diversified group having interests in Engineering and Technology field, Bio Toilets and focusing on import substitution for defense, Railways. CbS is a production partner of DRDO under MOD. Mr. Agarwal is an Engineer with post graduation in Management having 23 years national and international experience.

RKS BHADAURIA

Air Vice Marshal RKS Bhadauria VM has been appointed as Assistant Chief of Air Staff (Projects) on 29 Apr 2011. He is an alumnus of National Defence Academy and was commissioned on 15 Jun 1980. He is an Experimental Test Pilot, a cat A qualified Flying Instructor and Pilot Attack Instructor with over 4200 hours of experience on fighters and transport aircraft. He was awarded Vayu Sena Medal in 2002 and was commended by the Chief of Air Staff in 1987. He has commanded an Operational Squadron and a premier Air force base in the South-Western Sector. His important assignments include Flight Commander of a Jaguar Squadron, Commanding officer of Flight Test Squadron, Chief Test Pilot and Project Director of National Flight Test Centre on LCA project. He was the Air Attaché at Moscow, Russia from 2008-2011 prior to assuming the present post.

RAJINDER SINGH BHATIA

Rajinder Singh Bhatia, a Gold Medallist from Punjab University, is an engineer with post graduation in Structures. He is a Fellow of Institute of Engineers and a member of All India Management Association. He has done his Master Diploma in Management from Symbiosis and Masters in Management Studies from Osmania University. He has been instructor and directing staff at College of Military Engineering, Indian Military Academy and College Of Defence Management. He has also served as Defence Adviser at Mauritius.

In his last appointment with the Largest Engineering Company in the country, he was instrumental in setting up and operating a Green field plant for manufacture of defence equipment in a record time equipped with world class facilities.

He is part of CII National Defence Council and FICCI National Committee on Defence.

He is currently employed with Kalyani Group as Executive Vice President and CEO of the Flagship Company Bharat Forge.

V S CHAUDHARI

Rear Admiral Vijai Singh Chaudhari was commissioned in the Indian Navy in 1974. A specialist in Anti Submarine Warfare and a Ship's Diver, he has held numerous operational command, staff and training appointments. He was Flag Officer Sea Training, Chief of Staff (Western Naval Command) and Senior Directing Staff (Navy) at the National Defence College before taking over as Assistant Chief of Integrated Defence Staff (Perspective Planning & Force Structuring).

Rear Admiral Chaudhari is an alumnus of the Defence Services Staff College, College of Naval Warfare and the National Defence College. In 2003 he was awarded the Nao Sena Medal.

DEVENDRA CHAUDHARY

Shri Devendra Chaudhry, IAS is a senior Joint Secretary in the Department of Pharmaceuticals in the Ministry of Chemicals and Fertilisers, Government of India. Prior to this he has served in a number of key capacities for the last 30 years in the Indian Administrative Service in the policy and administrative posts both at the Centre and the State Governments. The key positions held are:

18 out of a total 30 years of service in the IAS has been in the Industry sector comprising

- * Commissioner and Director of Industries in the State Government of Uttar Pradesh – dealing with revival and Upgradation Programme, in particular to SMEs.
- * Advisor to the Prime Minister of Mauritius in Information Technology and Communications for 3 years where he formulated the IT Policy for the country and set up a \$100 Bn. Cyber City.
- * Director in the Ministry of Information Technology of the Government of India where he enabled MoU for IT Cooperation with 22 countries.
- * Managing Director of State Sugar Corporation – dealing with revival of a Rs. 3000 crore company.
- * Various capacities in the Industries Department of the State Government of Uttar Pradesh.

In the social sector too, the experience is:

- * Principal Secretary in the Department of Social Welfare of the State Government– dealing with Rs. 5000 crore budget.
- * Commissioner of Meerut Division in Uttar Pradesh.
- * Principal Secretary of Rural Development in the State Government – dealing with a Budge of Rs. 3000 crore.

- * Secretary of Irrigation Department of the State Government of Uttar Pradesh – dealing with India’s largest canal water network and related Rs. 1000 crore World Bank projects.
- * Secretary to the State Government of Uttar Pradesh in Education Department
- * District Magistrate in a number of districts in the State Government of Uttar Pradesh

Shri Chaudhry, 53, is a post graduate from the Indian Institute of Technology, Kanpur. He has specialized in the field of Quantum Chemistry.

RAHUL CHAUDHRY

Rahul Chaudhry is presently the CEO of Tata Power SED (Strategic Electronics Division). He has over two decades of experience in high technology arena such as Digital Switching, Network Management systems, Wireless infrastructure and services, security, and m-commerce for 2.5 G and 3G applications. Before moving into the TATA group as the CEO of TATA Power Broadband in 2001 from UK, he worked with AT&T, Motorola and British Telecom. He brings in an extensive multinational experience in Technology, Project management, Business Development, Mergers & Acquisitions, Operations, Corporate Governance and Developing Strategic Partnership. His key strength is to evaluate complex technology issues for their efficacy in meeting customer requirements, developing partnerships and uncovering win-win situations.

Mr. Chaudhry was nominated as a member of Vijay Kelkar Committee constituted by Hon. Raksha Mantri to recommend measures for strengthening self-reliance in Defence Preparedness with increased participation of Indian industry. He is also a member of National Committee on Defence, IT at CII and Co-Chairman of the FICCI Defence Committee. He is also a fellow of IETE.

TAI MING CHEUNG

Dr. Tai Ming Cheung is an associate research scientist at the University of California's Institute on Global Conflict and Cooperation. He is in charge of the institute's Minerva project "The Evolving Relationship Between Technology and National Security in China: Innovation, Defense Transformation, and China's Place in the Global Technology Order." This five-year research and training program—funded by the U.S. Department of Defense—examines China's efforts to become a world-class science and technology power.

Dr. Cheung is a long-time analyst of Chinese and East Asian defense and national security affairs. He was based in Asia from the mid-1980s to 2002 covering political, economic and strategic developments in greater China. He was also a journalist and political and business risk consultant in northeast Asia. He received his Ph.D. from the War Studies Department at King's College, London University in 2006. His latest book, *Fortifying China: The Struggle to Build a Modern Defense Economy*, was published by Cornell University Press in 2009 and is one of the best analyses of China's technology model available. The book examines the economic, commercial and technological foundations of China's long-term defence modernization that examines the development of the defence industrial complex, the role and prospects for civilian-military integration, and the military dimensions of science and technology policies.

He is an associate adjunct professor at the School of International Relations and Pacific Studies (IR/PS) at UC San Diego, where he teaches courses on Asian security, Chinese security and technology, and Chinese politics.

GAURAV DAVE

Mr. Gaurav Dave is Joint Secretary at the National Manufacturing Competitiveness Council, Department of Industrial Policy & Promotion, Ministry of Commerce & Industry, Government of India

Educational background: Graduate in Electrical Engineering with PG Diploma in Public Administration, PG Diploma in Transportation, Economics and Management, PG Diploma in Multimodal Transport & Logistic Management and PG Diploma in Port Development & Management.

Joined the **Indian Railway Service of Electrical Engineers (IRSEE)** in 1982. Have worked extensively in Rail Transportation Sector & Ministry of Labour and Employment. Handled prestigious assignments like heading important Indian Railways Technical establishments, Transport Planning. He is a trained locomotive expert. Have had extensive exposure to handling high level technical issues, Re-training of manpower, Technology Upgradation, Management of change, Training of trainers, Appraisal of training schemes, Development of Instructional Media and International systems of training and infrastructure financing, during working in various capacities in senior level management in field units as well as Ministries of the Government of India.

Was In-charge of the Operation of the biggest Division of the Indian Railways. Handled successfully, the management of highly skilled multi disciplinary manpower, committed to achieve highest degree of service with reliability and safety in train operations. Presently assigned position as Joint Secretary in the National Manufacturing Competitiveness Council (NMCC) and handling important issues in manufacturing sector like Technology Development, Skill Development strategic issues, Research, Solar Energy Manufacturing, Aerospace, Capital Goods, Defence equipment, Offsets, Dual use

technology, Atomic Energy and the Visionary Leaders for Manufacturing Programme.

NMCC has been set up by the Government of India to energize and sustain the growth of the manufacturing sector. This is an interdisciplinary and autonomous body at the highest level to serve as a policy forum for credible and coherent policy initiatives. The NMCC suggests various ways and means for enhancing the competitiveness of manufacturing sector including identification of manufacturing sub-sectors which have the potential for global competitiveness. Some of the most important contribution of the NMCC are the “National Strategy for Manufacturing” (NSM) which has been accepted by the Government of India for implementation in addition to National/sector/ industry level specific policy initiatives, the National Manufacturing Competitiveness Programme (NMCP) aimed at improving firm level competitiveness as required for augmenting the growth of the manufacturing sector, in addition to facilitate the implementation of the report of the Prime Minister’s Group on Measures for Ensuring Sustained Growth of Indian Manufacturing Sector submitted to Hon’ble Prime Minister in September, 2008. This report dealt with the entire gamut of manufacturing sector. It has 105 recommendations. NMCC have been assigned the responsibility of getting these implementation recommended by the various Ministries. Mr. Dave is closely involved in implementation of Prime Minister’s Group Report (PMGR).

DAVID A GRAHAM

David has a track record within Selex Galileo and its predecessor companies of managing complex, high technology product developments within the key business metrics. He also has considerable experience and expertise in participating in, and managing, international consortia engaged in avionic product development.

Currently, he leads the development of the capabilities required to drive our Support & Service Solutions to greater market penetration both in the UK and internationally.

David joined the company in 1985, working in Signal Processing for the Blue Vixen radar for the Sea Harrier. In 1989 he joined the bid team which in 1990 won the contract for the 4 nation Eurofighter radar, designated Captor, and was appointed Chief Engineer in 1991. In early 1999, he was appointed Programme Director and led the team to deliver the first production Captor radar in early 2001.

With Captor series production well underway and with considerable engineering and business experience gained on major radar programmes, David moved to head the company's AESA radar development in late 2001.

In July 2003, David was appointed to the Sensor Systems Division's Board to direct the Advanced Projects Group with the remit of fast-tracking the development and de-risking of new technologies for application to products in the Radar, Electro-Optics and Infra-Red sectors. In June 2004, this remit was expanded to include Battlespace, Lasers, Electronic Warfare and Generic/Emerging Technologies.

In September 2006, David was asked to form and lead the AESA Radar Sector with the remit of developing a product based business using the maturing AESA radar technology developed in the company. This

business is now expanding in both the surveillance and fire control domains with significant contract wins already achieved.

In April 2008, David assumed responsibility for the re-formed Advanced and Strategic Projects group and in 2009 was seconded to Selex Galileo Inc, based in New York, with the remit of pulling technology and products from the European parent company into the US market. On completion of that secondment, David returned to the UK in the spring 2011 to take up the role of VP Capability & Chief Technology Officer for the Support & Service Solutions business in the UK.

Qualifications

- ◆ HNC Electrical Engineering (Engineering Council National Prize)
- ◆ MSc Digital Systems (Distinction)
- ◆ Chartered Engineer (CEng)
- ◆ Fellow of the Institution of Engineering & Technology (FIET)

RAVINDRA GUPTA

Chairman, National Task Force on Self-reliance in Defence Production.

Extensive experience & expertise in the field of Industry, Information Technology & Civil Aviation both in the Indian and International arena.

Joined the prestigious Indian Administrative Service, the higher management cadre of the Government of India (GOI), in 1966. Was in their permanent employ of GOI till retirement in April, 2002. He has been Chairman, Board of Industrial and Financial Reconstruction (Mar 2005 – April 2007); Secretary, Ministry of Heavy Industries and Public Enterprises, GOI (Dec 2000-Apr 2002); Secretary, Department of Defence Production, GOI (June 2000-Nov 2000); Secretary, Ministry of Civil Aviation, GOI (Oct 1999-May 2000); Secretary, Ministry of Information Technology, GOI (Apr 1998-Oct 1999); Principal Secretary, Industrial Development, UP (Oct 1997-April 7 1998); Principal Secretary, Hill Development, UP (Oct 1996-Sept 1997); Representative of India on the Council of ICAO (July 1992- Sept 96); Divisional Commissioner, Province of Uttar Pradesh (June 1986 - July 1989).

LANGUAGES

- ◆ Fluent in English & Hindi (reading writing and speaking)
- ◆ Some measure of comfort with French, Urdu, Bengali and Sanskrit
- ◆ Some familiarity with Arabic & Spanish

EDUCATIONAL QUALIFICATIONS:

1994-95 Diploma in Air & Space Law, McGill University, Montreal

1961-63 Master of Science (Maths), University of Allahabad, India

1961-63 Certificate Course French, University of Allahabad, India

1959-61 Bachelor of Science, Physics, Chem. & Maths, University of Allahabad, India

EXTRACURRICULAR Very fond of sports. Played Cricket, Tennis, Badminton and Golf with distinction. Playing only Golf now. Was also elected as President of the Delhi Gymkhana Club for two terms 2001-2003, second time unopposed.

SHIBAN KISHEN KOUL

Shiban K Koul is a Professor at the Centre for Applied Research in Electronics, Indian Institute of Technology Delhi. His research interests include: RF MEMS, Device modeling, Millimeter wave IC design and Reconfigurable microwave circuits including antennas. He is the Chairman of M/S Astra Microwave Pvt. Ltd, a major private company involved in the Development of RF and Microwave systems in India. He is author/co-author of 195 Research Papers and 7 state-of-the art books . He has successfully completed 25 major sponsored projects, 50 consultancy projects and 33 Technology Development Projects. He holds 7 patents and 4 copyrights.

Dr Koul is a Fellow of the IEEE, USA, Fellow of the Indian National Academy of Engineering (INAE) India and Fellow of the Institution of Electronics and Telecommunication Engineers (IETE) India, He has received Gold Medal by the Institution of Electrical and Electronics Engineers Calcutta (1977); S.K. Mitra Research Award (1986) from the IETE for the best research paper; Indian National Science Academy (INSA) Young Scientist Award (1986); International Union of Radio Science (URSI) Young Scientist Award (1987); the top Invention Award (1991) of the National Research Development Council for his contributions to the indigenous development of ferrite phase shifter technology; VASVIK Award (1994) for the development of Ka- band components and phase shifters; Ram Lal Wadhwa Gold Medal (1995) from the Institution of Electronics and Communication Engineers (IETE); Academic Excellence award (1998) from Indian Government for his pioneering contributions to phase control modules for Rajendra Radar; and Shri Om Prakash Bhasin Award (2009) in the field of Electronics and Information Technology.

Dr. Koul has recently been appointed as a Distinguished Microwave Lecturer by the IEEE Microwave Theory and Techniques (MTT) Society, USA for the period 2012-2014. He is also a serving AdCom member of the MTT-society

PRAKASH MENON

Lt. General (Retd) Prakash Menon is presently Military Adviser in India's National Security Council Secretariat. From 2009 to 2010, he was the Commandant of the prestigious National Defence College, New Delhi. He has had varied operational experience that includes the Siachen Glacier and counter insurgency at the level of company, battalion, brigade and division commander.

Lt. General (Retd) Prakash Menon's civil qualification includes two post graduate degrees in Defence Studies and Management. He has also been awarded a PhD in Defence Studies by the University of Madras, one of the oldest Universities in India.

He has been nominated as a member of expert group for establishment of the Indian National Defence University by the Union Cabinet.

He was conferred the highest distinguished services award for military officers by the President of India on 26 January, 2011.

ANJAN MUKHERJEE

An entrepreneur with more than two & half decades of combined experience in engineering, sales, consultancy and general management. Previously he was the India representative of a Norwegian multinational, has sailed on merchant ships as chief engineer, co-authored a seminal technical book and has a pending patent. He was a member of the planning and academic board of the Indian Maritime University and presently a member of the ports and shipping sectoral innovation council of the Govt. of India.

Presently he is co-founder and managing director of HyCa Technologies Pvt. Ltd (www.hycator.com), a pure science R & D centric technology company. Amongst many honours for the company, he was awarded the ET:NOW/Bajaj Hindustan “leap of faith” green entrepreneur of the year for 2010/11.

Anjan is a post graduate from the Indian Institute of Management, Bangalore and has a basic qualification in marine engineering from DMET, Kolkata.

SMITA PURUSHOTTAM

Ms. Smita Purushottam joined the Institute of Defence Studies & Analyses (IDSA), New Delhi, on May 31, 2010 as Senior Fellow. She had previously served as Joint Secretary at the Foreign Service Institute of the Ministry of External Affairs (MEA), Joint Secretary in the Integrated Defence Staff Headquarters in the Ministry of Defence; Director/Under Secretary (East Europe/Soviet Union) and SAARC, and Under Secretary (Bhutan) in MEA. She served in India's missions abroad as Deputy Chief of Mission in the Embassy of India in Berlin, Minister (Political) at the High Commission of India, London, Counselor for economic and commercial affairs at the Indian Embassy in Beijing and at the Embassy in Brussels, and language-trainee cum information secretary at the Embassy of India, Moscow.

She spent a year as Fellow at Harvard where she prepared a paper "Can India Overtake China?" (2001), in which she compared the two economies and their respective reform experiences; analyzed the ongoing reforms in the Indian economy focusing on the telecom sector, aviation, privatization attempts and IT, and recommended building a strong manufacturing sector like China had. She has been appointed Ambassador to Venezuela.

Ms. Purushottam earned a Master's degree (1st class) in History from Delhi University in 1979. She taught History briefly at Jesus & Mary College, Delhi University. She won a Fellowship for a PhD in European History at Cornell University in the same year that she qualified for the Indian Foreign Service (1980), which she joined. She speaks Russian and limited French. At IDSA she is focusing on the Chinese innovation eco-system and on Eurasia.

VIVEK RAE

Current Assignment

As Director General (Acquisition) in the Ministry of Defence, Government of India, Mr. Vivek Rae coordinates and manages the entire capital acquisition programmes for the Indian Army, Navy, Air Force and the Coast Guard. This assignment involves addressing a wide range of policy, commercial and operational issues relating to capital acquisition, including a host of bilateral defence cooperation issues.

Previous Experience

Mr. Vivek Rae entered the Indian Administrative Service in 1978, after a brief stint as management trainee with Hindustan Level Limited (subsidiary of Unilever Limited). As a civil servant, Mr. Rae has acquired a wide ranging experience cutting across social and economic sectors, including health, education, planning and finance. Mr. Rae served as Deputy Commissioner in the state of Arunachal Pradesh from 1985 to 1988 which is the cutting edge of government administration for delivery of development programmes at the field level, combined with magisterial responsibilities for law and order. Mr. Rae briefly served at the Prime Minister's Office during 1989-90 and thereafter worked as Assistant Resident Representative with the United Nations Development Programme, New Delhi from 1991-95, with responsibility for Industry, Trade and Technology Programmes. Mr. Rae worked as Finance Secretary and Planning Secretary in the state of Goa during 1996-1999, Planning Secretary in the National Capital Territory of Delhi during 1999-2001 and Joint Secretary (Plan Finance) in the Ministry of Finance, Government of India during 2002-2006. The assignment in the Ministry of Finance entailed responsibilities for appraisal and review of all major development programmes and investment divisions of the Government of India.

As Chief Secretary of the Andaman and Nicobar Islands (2008-2010), the highest ranking civil servant leading an administration of more than 2000 employees, Mr. Rae was charged with responsibilities for overall coordination, policy formulation and implementation of programmes across the entire spectrum of development activities including health, education, industries, labour, agriculture and animal husbandry, fisheries, forests, tribal welfare, social welfare, tourism, shipping, ports, public works and other activities. The responsibilities also included direct oversight for matters relating to internal security, coastal security and police administration.

Education

Mr. Rae has a Bachelor of Arts (Hons) Degree in Economics from St. Stephen's College, University of Delhi and a Masters Degree in Economics and Politics from New College, University of Oxford.

R K RANA

Commodore (Dr) Rakesh Kumar Rana is presently serving as Principal Director at Integrated Headquarter, Ministry of Defence (Navy), New Delhi and has been recently entrusted responsibility of Indian Navy's indigenous development programme after having long stint in the premier warship design organization of Navy, where he contributed immensely in the marine engineering systems design of the first indigenous aircraft carrier and other warships.

Commodore Rana was commissioned in Indian Navy on 01 Aug 1979. He completed his post graduation from Royal Naval Engineering College, UK. He was awarded with PhD degree by IIT, Madras in Jul 1996. Officer has served in a variety of organizations in the Navy encompassing training, research, dockyard, staff, design and onboard ships. He was awarded Commendations by Director and Dean twice at IAT Pune in 1986/87 and by CNS in 1992 for his pioneering contribution in the field of marine engineering training & research and marinization of Kaveri gas turbine at GTRE respectively. Commodore Rana has more than 38 technical publications on various marine engineering and other associated subjects to his credit and has been invited as a Patron and Session Chairman during International Naval Engineering Conferences since 2004. He is a member of The American Society of Naval Engineers, USA; Fellow of The Institute of Marine Engineering, Science and Technology, UK and has been granted a status of Chartered Engineer by The Engineering Council, UK.

GURPAL SINGH

Mr. Gurpal Singh is Science graduate from University of Calcutta and holds Diploma in International Marketing. Mr. Singh is Deputy Director General with wide experience of 34 years at Confederation of Indian Industry (CII), In charge of External Relations, Defence & Aerospace, MSMEs of CII.

Spearheading the CII's initiatives in the Far East Asia, Mr. Singh led the CII's Japan Office at Osaka, Japan during 1995-97. Mr Singh involved with CII initiatives in Korea, China, Taiwan and Hong Kong. The CII International Engineering and Technology Fair (IETF), a flagship event has drawn immense interest and participation from Korea, Japan and China.

Through his career, Mr Singh has been focusing on the development of the Indian Small & Medium Industry, with a special attention on the promotion of Enterprise to- Enterprise level co-operation, between the SMEs in India and the SMEs in Korea, China, Japan and Taiwan. In 1989. He has co-authored "Small Businesses and Industry" -A Handbook for Entrepreneurs. Mr Singh has assumed several portfolios including Regional Director of CII-Northern Region, Director of Trade Fairs division, besides handling Far East Division, Membership, Sectoral Industry Divisions, Administration and Publication Departments within CII.

Amongst several initiatives for the SMEs, Mr Singh has institutionalized the Enterprise India series of Exhibitions overseas. His other key areas of focus for the SMEs have been the replication of Best Practices, the MSMED Act, promotion of IPRs, development of Clusters, across the country, with a view to enhance the technology of the small & medium industry. Towards this end he has actively promoted the use of various models of enhancing competitiveness such as Lean Manufacturing, Keiretsu Management, Six sigma, Total Cost and Quality Management.

Company Profile:

In line with the CII National theme – "Business for Livelihood – Education, Employability, Innovation and Entrepreneurship", the CII activities for MSMEs have been constantly focussing on creating

competitive advantages for the Indian MSMEs. Continuous engagement with the 3 key stakeholders - Ministry of MSME, the National Small Industry Corporation (NSIC) and the Small Industries Development Bank of India (SIDBI) has enabled the CII National MSME Council to proactively highlight the areas of concern as well as ensure timely interventions, to facilitate the growth and development of Indian MSMEs. A Nine Point Agenda for the MSMEs and a series of activities that included the India SME Summit, Missions to USA & UK, International Roundtable on Small Businesses, Interactions with the Minister & Secretary, Ministry of MSME, the bimonthly CII MSME journal i.e.the MSME Business, Quarterly Business Confidence Index for MSMEs and the study on Creating Competitive SMEs , helped the CII National MSME Council, to reinforce CII commitment to the development of the Indian MSMEs.

The Confederation of Indian Industry has also been actively partnering with the Ministry of Defence, Armed Forces and DRDO in promoting Industry participation in Defence Production. CII Defence Division has been committed to working in the areas of steering policy formulation, defence market development / trade promotion and formulation of international joint ventures / technology transfers. CII had form the Defence Division in 1993 to catalyse change in the Defence sector by pursuing the Government to liberalise Defence Production and by initiating the process of partnership with the Defence establishments in organising interactive meetings with end users, i.e. the Armed Forces. Realising the importance of harnessing the technologies developed within the country, CII has also been a pioneer in organising interactive sessions with the Defence Research and Development Organisation to enlarge the role of Private sector in Defence R&D. A major partnership with Ministry of Defence has been the organisation of the Defexpo India (Asia's largest Land and Naval Systems exhibition) in 1999, 2002, 2004, 2006 & 2008 and AERO INDIA.

CII Defence Division strives to forge industry initiatives to strengthen the Indian Defence Sector. The objective of this division is to “Establish a strong partnership between Defence Services & Industry and enlarge the role and scope of Indian Industry in Defence Production for mutual benefit and enhance the National Security”.

NARENDRA SISODIA

Narendra Sisodia was the Director General of the Institute for Defence Studies and Analyses from September 2005 till November 2011. He was earlier Secretary in the Ministries of Finance and Defence, Government of India and Vice-Chancellor of University of Udaipur.

Mr. Sisodia graduated from St. Stephens' College Delhi and obtained a Master's Degree from Harvard University, USA, where he was a Mason Fellow. He joined the Indian Administrative Service in 1968 and served in several key economic and national security assignments at the State and Government of India level. He was Principal Secretary, Industries & Commerce; Chairman and Managing Director of the State Industrial Development & Infrastructure Corporation and Chairman, State Electricity Board, Rajasthan. In Government of India, he served as Joint Secretary, Ministry of Defence from 1988-94. As Additional Secretary in the National Security Council Secretariat, he was a member of the Task Force on Reforming the Management of Defence. He was also responsible for providing resource support to the Group of Ministers' on Reforming the National Security System. He was closely associated with the establishment and development of National Security Council's support structures like the Strategic Policy Group & the National Security Advisory Board. In August 2005, he was appointed as a member of the National Security Advisory Board. He is the Convener of Indian Pugwash Society, a member of the India-China Eminent Persons' Group and the National Security Advisory Board. He has also been a Consultant to the United Nations Development Programme.

NADUPALLI SRIDHAR

Mr. NADUPALLI Sridhar is the Chairman and Managing Director of Sankhya Infotech Limited. A Post Graduate in Computer Science, Mr. Sridhar has been the first generation entrepreneur. Sridhar has been involved in the design and development of several IT products and algorithms. Mr. Sridhar has published several research papers and articles in both Indian and International journals. He has a patent registered in his name for the Software product called “SIMS©”.

Mr. Sridhar has received several encomia notable amongst them are:

- ◆ State Bank of India’s young entrepreneur exporter award in 1992,
- ◆ Ernst & Young Entrepreneur of the year award in 2001
- ◆ Asia Pacific Deloitte’s Fastest growing enterprise award in 2007 and,
- ◆ DELL Computer’s best SME award in 2009.

He was the first person outside of US and Europe to be elected to the prestigious defence body called Global Offsets and Counter Trade Association in 2006 and since then he is the member of this prestigious world body. Mr. Sridhar has been advising governments and industries on offsets. He particularly worked with Governments of Malaysia Israel and Turkey on offsets. Mr. Sridhar was closely involved in the drafting of the recommendations of the Banking of Offsets clause for the Government of India, and participated in several Government of India review meetings on offsets.

ANIL WALI

Dr. Anil Wali is the Managing Director at Foundation for Innovation and Technology Transfer (FITT)—an autonomous industry interface organization of IIT Delhi. He has a Ph. D from IIT Delhi. He has worked in the chemical industry for 19 years before taking up the present position at FITT.

Besides several publications, patents and reports to his credit, Dr. Wali has a strategic customer and quality orientation, and brings a practical perspective to solving technical problems. Currently, he is managing technologies and driving innovations and enterprise at the academia besides looking at issues of concern to SMEs. He is also called upon to deliberate and participate in the area of clean technology and sustainability. His multifaceted experience towards technology innovation and management, industry partnership, project issues, entrepreneurship, IPR, education, training, etc is sought for advice / association with several committees and programmes.

CONTACTS DETAILS

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