A Summary of Research Achievements of Dr SK Ambast

With background of Agricultural Engineering (Land & Water Management Engineering), earned doctoral degree in Water Resources Engineering from IIT-Delhi, New Delhi. Worked throughout on water management issues under sub-humid and humid rainfed, sub-humid and semi-arid irrigated, coastal and tropical island conditions. These involved water resource planning, development and management issues at field, system and basin scales.

Began research exposure with improving irrigation efficiencies in Bhakra Canal system and research career with land and water management in rainfed Chhattisgarh plains and Chota Nagpur plateau. Later, in rainfed Sundarbans delta worked on diagnosing the nature of surface waterlogging, soil salinity, optimal rice planting schedule, crop calendar, modelling soil water balance, design of on-farm reservoir, surface drainage improvement, supplemental irrigation requirement and optimal land-water use for maximising net farm profit and developed computer software (RAINSIM). After receiving formal education in remote sensing & geographical information system, worked on monitoring of system performance in saline irrigated Western Yamuna Canal system and subsequently worked for a collaborative research in the Netherlands on spectral response of waterlogged/salt-affected crop. Further, developed an improved procedure and a computer software (RESEP) to estimate distributed regional evapotranspiration and tested it for entire Sone Low Level Canal system. Further, a computer software (WASAC-SRS) was developed for estimation of waterlogged saline cropped lands using remote sensing. Subsequently, worked in Trans Indo-Gangetic Plain, suffering both due to declining and rising water table and designed/developed artificial groundwater recharge structure and evaluated its economic feasibility. Management options of land and water allocation to reverse the declining water table were recommended. Later on, analysed productivity constraints and developed decision-making process for conjunctive use of canal and groundwater and developed a computer software (SDSS-WMCCA) for irrigation scheduling in Bhakra Canal system. Suggested technological options for restoration of agriculture in tsunami affected lands of A&N Islands, Sri Lanka & Maldives.

As Head, Division of Natural Resource Management, CARI, Port Blair lead a group of NRM scientists during 2007-11 and as Director (Acting) during 2011-12. Further, water policy for A&N Islands was brought out. SDSS for macro-management of agriculture has been developed. NRM technologies have been demonstrated under FPARP project and later on land shaping technologies in farmers' fields were implemented for enhancing productivity of degraded land and water in A&N Island under NAIP project. Contributed a chapter in Climate Change and India: A 4X4 Assessment published by INCCA, MoEF. Later on, as Project Coordinator All India Coordinated Research Project on Salt Affected Soils & Use of Saline Water in Agriculture, lead a group NRM scientists of 8 locations during 2012-15 (Budget Rs 36.75 Crore for 2012-17). Four new centres were opened and initiated research projects on temporal change in groundwater quality, mole drainage, controlled drainage and use of sewage water. Subsequently as Director Indian Institute of Water Management lead a group of agricultural water management scientists during 2015-20 (Budget about Rs 54 Crore for 2015-20), and initiated a Consortia Research Platform on Water with 29 national institutes (Budget about Rs 13 Crore for 2015-20). Simultaneously as Project Coordinator of All India Coordinated Research Project on Irrigation Water Management, lead a group of NRM scientists of 34 locations in the country (Budget about Rs 105 Crore for 2015-20). Presently working as Principal Scientist and Joint Director Education (Acting) at ICAR-NIBSM, Raipur.

During research career, received **Jawaharlal Nehru Fellowship-2000** for Ph.D. Also received ICAR's **Vasant Rao Naik Award-1998**, **Dr Rajendra Prasad Puruskar-2016** and MoHA's **Rajbhasha Gaurav Award-2018**, MoWR,RD&GR's **BKJ-INCSW Suksma Sinchai Award-2019**. As Director, received ICAR's **Sardar Patel Outstanding Institution Award (Small Institute Category)-2017**, **Ganesh Shankar Vidyarthi Puruskar-2018** and **Best Annual Report Award (Small Institute Category)-2018**. Reviewed several research articles, reports and M.Sc./Ph.D. Thesis of national/ international institutions and provided national/international consultancies. Also served as Editor (Soil Water Engineering), JAE(ISAE) and recognised as Fellow of ISCAR. Widely travelled nationally and internationally (Netherlands, Spain, Sri Lanka, Maldives, Bangladesh, Bhutan, Israel, Indonesia, China, Germany, Belgium, Switzerland. Recently attended **9th G20 Nations Meeting of Agricultural Chief Scientists** to represent India at Al Khobar, Saudi Arabia during 16-19 Feb, 2020.