

## **A Summary of Achievements of Dr SK Ambast, Director, ICAR-IIWM, Bhubaneswar**

With background of Agril.Engg (SW Engg), earned doctoral degree in Water Resources Engineering from IIT-Delhi. I have 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.

My research exposure began with improving irrigation efficiencies in Bhakra 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 OFR, surface drainage improvement, supplemental irrigation requirement and optimal land-water use for maximising net farm profit. Beside research publications and a software (RAINSIM), a developmental project for Govt of WB was prepared for funding by Govt. of Japan. ICAR, New Delhi recognised this work and bestowed **Vasant Rao Naik Award-1998** for research application in agriculture.

After receiving formal education in RS & GIS at NRSA, Hyderabad, initiated a research project on Monitoring of system performance in saline irrigated WYC system under Indo-Dutch Project. It led to six-month collaborative research in the Netherlands where I worked on spectral response of waterlogged/salt-affected crop that was subsequently referred as pioneer work in Int. JI. The knowledge gained, the shortcomings in the existing methodology, the likely scope of improvement and the challenge to utilize such advance techniques for management of salt-affected land and water has motivated me to continue as Ph.D. work (received **Jawaharlal Nehru Fellowship-2000**), which had resulted in an improved procedure to estimate distributed ET and a software (RESEP). A GIS based irrigation scheduling method was developed and applied on SLLC system for optimal land & water allocation to improve system water productivity. A remote sensing based software (WASAC-SRS) was developed for estimation of waterlogged saline cropped lands.

Subsequently, I worked in Trans Indo-Gangetic Plain, suffering both due to declining and rising water table. Under AP Cess Fund project, 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. Under CSSRI-IWMI project, analysed productivity constraints and decision-making process in irrigated farmers fields of BCS. Received offer for **Project Scientist - Water Resources and Modelling by IWMI**. An ORP on laser land leveller as conservation agriculture to improve land and water productivity in saline area was conducted. An initiative on development of spatial decision support system in irrigated environment was a step forward towards operational use of scientific decision-making for conjunctive use of canal and groundwater and irrigation scheduling. Besides research publications, user-friendly software (SDSS-WMCCA) was also developed. Also, technological options for restoration of agriculture in tsunami affected lands of A&N Islands & Maldives was suggested.

Further, I worked as Head, NRM Division at CARI, Port Blair for rainfed tropical island condition. A methodology for water resource planning, development and utilisation using spatial technique was developed. Water Policy for A&N Islands was brought out. SDSS for macro-management of agriculture (soil fertility, landuse, drainage network, topography and productivity maps) has been

developed. Optimised supplemental irrigation schedule for post-monsoon crops. Four technologies in 48 farmer's fields have been demonstrated under FPARP project. As CCPI, NAIP project implemented land shaping technologies in farmers fields for enhancing productivity of degraded land and water in A&N Island. Also one of the contributors for book entitled Climate Change and India: A 4X4 Assessment published by INCCA, MoEF. Later, worked as PC, AICRP-SAS&USW. Presently, working as Director, ICAR-IIWM, Bhubaneswar and PC, AICRP (IWM). Received **Dr Rajendra Prasad Puruskar-2016** for Hindi book.

Reviewed IWMI's scientific report, evaluated Ph.D. thesis of Wageningen University, reviewed paper of Elsevier/ASCE journals. Developed IWD project (402 lakhs) for Haryana Govt under Hariyali scheme and worked as technical expert. As scientist, brought 2 research projects (Rs 28 lakhs) and 2 consultancies (Int: UKP 23000 and Nat: Rs. 12 lakhs). As Head, NRM Division, instrumental in bringing 8 externally funded research projects (Rs. 513 lakhs) and 4 consultancy projects (Rs.16 lakhs). Instrumental in initiating CRP-Water Project (Rs 18.0 Crores). In 2010, recognised as **Fellow, ISCAR** and in 2013 as **Editor (SW Engg) of JAE (ISAE)**.

(SK Ambast)