

# Curriculum Vitae

**K. S. REDDY**

(Date of birth: 13 July, 1963)

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## ACADEMIC BACKGROUND

- \* **Ph.D** Water Technology Centre, Div. of Agricultural Engineering, PG School, Indian Agricultural Research Institute (IARI), Pusa, New Delhi, 1993 ; OGPA : 3.38/4.0 ( Ist Division)  
Thesis: **Studies on hydrologic modeling of water yield from micro watersheds**
- \* **M.Sc** Water Technology Centre, Div. Of Agricultural Engineering, PG School, Indian Agricultural Research Institute (IARI), Pusa, New Delhi, 1990 ; OGPA: 3.91/4.0 ( Ist Division)  
Thesis: **Studies on uniformity of water application in trickle irrigation system**
- \* **B.E (Ag.)** College of Agricultural Engineering, Tamilnadu Agricultural University, Coimbatore, India, 1984;  
OGPA : 3.77/4.0 ( Ist Division)  
Project: **Design and Development of Solar Roof Water Heating System**

## PROFESSIONAL EXPERIENCE

- ☞ **Principal Scientist(SWCE)** May 2007 to Current, Division of Resource Management, ICAR-CRIDA, Hyderabad-59  
Scale of Pay:37400-67000 GP: Rs 10,000, PB-IV ( Revised 6th CPC)
- ☞ **Principal Scientist ( SWCE)** Sept 10, 2006 - April, 2007 , Division of Resource Management, ICAR-CRIDA, Hyderabad-500059  
Scale of Pay:37400-67000 GP: Rs 10,000, PB-IV (Revised 6th CPC)

- **Research areas:**

- \* Hydrology of microwatersheds, SWAT modelling
- \* RainWater harvesting and water management system
- \* Integrated Farming Systems for small and marginal farmers with On farm reservoirs
- \* Solar powered micro irrigation systems for small holdings
- \* Climate change impacts on adaptation strategies for enhancing productivity in Semi Arid tropics

- \* AQUACROP growth modelling for maize
- \* Bio industrial watersheds
- \* Guided 1 M Tech(SWE) and 2 Ph D(SWE) as CO- Chairman for the students from UAS, Raichur and BITS, Ranchi

### **Infrastructure developed:**

- Developed SCADA based artificial rainfall simulator facility and Precision lysimeter for studying the climate change impacts on resource losses particularly extreme vents of rainfall and e CO<sub>2</sub> and e Temp on soil water balance for determining crop co efficiencies and water requirements at ICAR-CRIDA (Hyathnagar Research Farm)
- Developed a model rainwater harvesting farm for research on enhancing water productivity in different cropping systems and dryland horticulture by promoting efficient water management systems at ICAR-CRIDA (Gunegal Research Farm)).
- Developed a solar powered micro irrigation system under farm pond for small farmers for use in IFS modules
- Developed village resource center under NAIP at Kadapa cluster under NAIP for capacity building of farmers, soil health cards, seed production and processing, fruit processing and value addition, SHG (Women) managed nursery, Compost making and custom hiring centre for sprinkler irrigation system and farm mechanization
- Developed a miniwatershed of 12 ha land with farmers participation with SWC structures and farm pond for critical irrigation

☞ **Senior Scientist(SWCE)      Sept 10 ,1998- Sept 09, 2006, Irrigation and Drainage Engineering Division, ICAR- CIAE, Bhopal-462038**  
**Scale of Pay: 12000-420-18300**

- **Research areas:**

- \* Automation of micro irrigation and fertigation systems
- \* Automation of surge irrigation systems for efficient water management
- \* Testing and evaluation of irrigation equipment (Centrifugal pumps, drippers, filters, sprinklers etc.)

- ◆ **Teaching**

Guided 3 M. Tech students as a Co- chairman from Indira Gandhi Krishi Viswa Vidyalaya, Raipur, Chhattisgarh state, India. One of the students received Reddy award of ISAE for best M.Tech thesis in Soil and water engineering

Delivered several lectures related to water harvesting, rainfall analysis, water measuring devices and their installation, micro irrigation systems and their management in Water and Land Management Institute (WALMI), Bhopal and to the trainees of CIAE, Bhopal, lectures on Rainwater Management, groundwater recharge, water harvesting, irrigation water management, small watershed hydrology have been delivered as resource person for both national and international trainees.

- **Infrastructure Development**

- Responsible for establishing an automated pump and dripper testing facilities in the division as a team leader. A PLC (Programmable Logic Controller) based automation systems are designed for testing and evaluation of drippers (2-10 l/hr) and centrifugal pumps (2-10 hp). The system configuration include the features of on line data recording, on line calculations through PLC programming, parameter trends, animated screens with control buttons, GUI configuration for accessing from one screen to other in SCADA (Supervisory Control and Data Acquisition), online reports, on line graphics of performance curves of the product under testing and Ethernet card facility for keeping the system in MIS. The systems are operated by using SCADA, an MMI-package, RS view-32. PLC is linked to SCADA through RSLynx communication software.
- Designed and developed the field water distribution system to 50 ha research farm with individual hydrants for the sprinkler irrigation system. Pump stand design with sump and filter system to draw water from check dams/ Water harvesting structures at CIAE, Bhopal
- Designed and developed an automatic drip fertigation system for mango and guava plantation in the black soils of 2 ha land.

☞ **Assistant Professor** Aug. 1993-Aug.1998, Div. of Argil. Engineering, Acharya N. G. Ranga Agricultural University, Hyderabad, Andhra Pradesh, India

**Scale of pay: 8000-13500; 10000-15000 (Senior scale)**

- **Teaching**

Acted as course in charge and responsible for teaching soil and water conservation engineering subject to U.G. students of Agriculture faculty.

Responsible for teaching the courses, Irrigation and Drainage Engineering and Principles of soil and water conservation engineering to P.G. students of Agriculture faculty

Responsible for guiding P.G student in the discipline of Agronomy as a member of advisory committee

- **Infrastructure Development**

Responsible for developing hydraulics lab for demonstration and conducting practical on water measuring devices to the students of agriculture faculty

☞ **Senior Research Fellow** Sept. 1990- Aug. 1993, Water Technology Centre, Indian Agricultural Research Institute (IARI), New Delhi, India

- **Research**

A computer based surface water yield model (SWYMOD) in Fortran77 was developed to predict water yield from micro watersheds in the catchment of Upper Damodar Valley, South Bihar, India.

An interactive iterative procedure was developed to fix the curve numbers for various land use practices in micro watersheds. This procedure was validated over micro watersheds and statistical procedure namely, The Wilcoxon matched pairs signed

ranks test was applied to test the significance of the differences between observed and predicted runoff values.

SWYMOD was integrated with reservoir water balance for assessing the water availability in small water harvesting reservoirs in the micro watersheds.

Matching water availability and demand of the crops, the optimal crop plan was identified by using linear programming for assessing the economic benefits of water harvesting structures in micro watersheds

☞ **Junior Research Fellow** Sept.1988- Aug.1990, Water Technology Centre, Div. of Argil. Engineering, IARI, New Delhi

- **Research**

Field evaluation of trickle irrigation system was under taken to develop head – discharge relationship of drippers

Design parameters like dripper flow exponent, discharge coefficient; coefficient of manufacturing variation and coefficient of hydraulic variation were estimated for calculating the uniformity co- efficient from different methods

Selected methods for estimating the uniformity of water application in trickle system, have been evaluated for their use and suitability in different slopes

☞ **Assistant Research Engineer** April 1987-Sept.1988, Plasticulture Development Centre, ANGRAU, Hyderabad, India  
**Scale of pay: 8000-13500**

- **Research**

Responsible for conducting experiments on drip technology and its economic utility in water saving in Pomegranate and vegetables and pond lining

☞ **Scientist (SWE-II i/c)** Aug.1986- March 1987, All India Co- ordinated research project on agriculture drainage, Machilipatnam, ANGRAU, Andhra Pradesh, India  
**Scale of pay:8000-13500**

- **Research**

Responsible for analyzing 50-year rainfall to estimate the discharge co efficient in the study area for designing both surface and sub surface drainage systems

Responsible for the design and execution of sub surface drainage system in the paddy fields of study area

Responsible for writing annual report on the drainage investigations.

☞ **Management Trainee** Feb.1985- July 1986, Non – Conventional Energy Development Corporation of Andhra Pradesh Ltd, Hyderabad, A.P.

- **Extension**

Responsible for execution and demonstration of various renewable energy systems(Solar water heating, Bio gas, smokeless chullah and windmills for pumping water) for their adoption in the Rayalaseema region of Andhra Pradesh.

## HONORS and AWARDS

- \* Merit scholarship from 1978-1980 by state government of Andhra Pradesh

- \* Merit scholarship by ICAR, New Delhi during 1980-1984

- \* IARI junior research fellowship during 1988-1990
- \* IARI senior research fellowship during 1990-1993
- \* Honorary member of Board of directors of research, ABI, California, USA
- \* ISAE TEAM AWARD for R&D for the year 2001-2002
- \* Commendation medal for best research in Soil and Water Engg by ISAE , New Delhi during 2011
- \* Fellow, Institution of Engineers, Kolkata, 2008
- \* Fellow, ISAE, New Delhi, 2013
- \* Fellow, IWRS, IIT, Roorkee, 2018
- \* Best Agricultural Scientist award by Rythubandhu, 2013
- \* ISAE team award for Rainwater harvesting through Farm Ponds for the year 2018-19

#### **PROFESSIONAL ACTIVITIES**

- \* Life member, Indian Society of Agricultural Engineers, New Delhi
- \* Life member , Soil Conservation Society of India, New Delhi
- \* Life member, Indian Society of Water Management, New Delhi
- \* Life member, Indian Association of Soil and Water Conservationists, Dehradun, Uttaranchal
- \* Life Member, Indian Dryland Research and Development Society, Hyd
- \* Life Member, Indian Agrometeriologists Society
- \* Vice President(Activity Council) of ISAE New Delhi for the period 2006-2008
- \* President, ISAE, AP chapter from 2008- 2015
- \* Secretary ,ARSSF,Bhopal unit for the period 2006-2007

#### **RESEARCH PUBLICATIONS:**

Papers published in peer reviewed journals of international and national: 60

Papers presented in National and International seminars: 100

No. Books edited in english and hindi : 6

Book chapters published : 30

Technical bulletins: 12; Technical articles: 15; TV and Radio : 15

## **Research Projects handled:**

Institute as PI and Co PI: 10

External funded projects as PI & Co -PI): 10

Consultancy projects on water resource development and watershed impact evaluation : 6

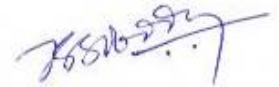
## **Technologies developed:**

- Sub surface drainage technology for reducing the coastal salinity in the rice fields in Krishna district, AP and it was upscaled in Sugarcane, beetwines etc.
- Micro irrigation technology assessment for improved water use efficiency in different horticulture crops
- Developed SCADA based rainfall simulator and precision lysimeters for climate change studies in soil and water conservation research
- Developed a solar powered micro irrigation system for small farmers under farm pond
- Technology package for rainwater harvesting in on farm through Farm ponds with efficient irrigation system of portable raingun system and upscaled the technology in both Andhra and Telangana
- Technology package for enhancing water productivity and doubling farmers income through IFS models for small holdings under farm pond/on farm reservoir in the tribal region of TELANGANA under ACRP- Water
- Contributed a design manual for farm pond technology and lining which is widely used by PIA in states of T Nadu, Telangana and AP
- Climate change impacts on maize yield and water productivity through Aquacrop model and potential of critical irrigations as adaptation strategy
- Assessed the dynamics of ground water pumping and irrigation system with respect to energy and CO<sub>2</sub> emissions
- Climate change analysis for state of Telangana
- Developed two atlases for climate change impacts on crop water balance in maize and cotton in Telangana, groundnut and pigeon pea in AP
- Designed and developed a semi automatic surge irrigation system for irrigating furrows for improving the application efficiency in gravity flow systems
- Developed a low friction foot valve for improving efficiency in the pumping system and for reducing energy consumption in agriculture

- Coating technology for reducing the roughness and friction losses in the pump casing of agricultural pumpsets
- Testing reports on drippers from industries using SCADA based dripper testing facility
- Recirculating infiltrometer for infiltration studies in furrows

I declare that all the information /statements given above are true to the best of my knowledge.

Date: 26/12/2018



(K.S.REDDY)

Principal Scientist(SWCE) and CCPI(ACRP-Water)