



SOIL AND WATER CONSERVATION

Today

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FROM THE PRESIDENT'S DESK

Major challenges faced by Indian Agriculture are irrigation, climate change and agriculture, poor socio-economic conditions of the farmers, in adequate uses of farm equipment, Small-land holdings and lack of marketing channels. The artificial intelligence have the potential to overcome these challenges in future. The Artificial Intelligence offers vast opportunities for application in agriculture, there still exists a lack of familiarity with high-tech machine learning solutions in farms across most parts of the world. Exposure of farming to external factors like weather conditions, soil conditions and presence of pests is quite a lot. So what might look like a good solution while planning during the start of harvesting, may not be an optimal one because of changes in external parameters Artificial Intelligence (AI) systems also need a lot of data to train machines and to make precise predictions. In case of vast agricultural land, though spatial data can be gathered easily, temporal data is hard to get. For example, most of the crop-specific data can be obtained only once in a year when the crops are growing. Since the data infrastructure takes time to mature, it requires a significant amount of time to build a robust machine learning model. This is one reason why AI sees a lot of use in agronomic products such as seeds, fertilizer and pesticides.

Indian agriculture has been traditionally rain dependent and climate change has made farmers extremely vulnerable to crop loss. Insights from AI through the agriculture lifecycle will help reduce uncertainty and risk in agriculture operations. Use of AI in agriculture can potentially transform the lives of millions of farmers in India and world over. Shifting weather patterns such as increase in temperature, changes in precipitation levels, and ground water density, can affect farmers, especially those who are dependent on timely rains for their crops. Leveraging the cloud and AI to predict advisories for sowing, pest control and commodity pricing, is a major initiative towards creating increased income and providing stability for the agricultural community.



With the help of artificial intelligence, farmers are now able to grow better crops and look after their animals while saving time and energy. The combination of artificial intelligence and big data will move this industry towards digitalization. But our farmers' awareness towards artificial intelligence was almost negligible, only few farmers were aware about artificial intelligence aspects like drones and robotics etc.

Through digital transformation in agriculture, the information like environment, soil fertility, moisture content in the soil, crop growth and their health status and occurrences of weeds will be gathered. Drones monitor the condition of the soil and determine whether it needs watering or seeding,

while sensors in and around the cattle check their health and nutrition. Cameras monitor vegetables and fruits are being taught to recognize irregularities or problems such as dehydration and unwelcome insects.

Secondly, we get the prediction for future action for farming and its management. It forecasts future conditions/problems by taking into account previous year's data and current weather conditions which are already stored in the cloud database. The database would take these fluctuations into account and predict the total demand in the economy for a certain crop.

— Dr. Suraj Bhan
President, Soil Conservation Society of India

MANAGING FRAGILE HILL ECOSYSTEMS OF THE NORTH EASTERN REGION

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Mountains are an important source of water, energy and biological diversity. As a major ecosystem representing the complex and interrelated ecology of our planet, mountain environments are essential to the survival of the global ecosystem. Mountain ecosystems are, however, rapidly changing. They are susceptible to accelerated soil erosion, landslides and rapid loss of habitat and genetic diversity. On the human side, there is widespread poverty among mountain inhabitants and loss of indigenous knowledge.

The Indian Himalayan Region (IHR) is spreading on 10 states (administrative regions) namely, Jammu & Kashmir, Himachal Pradesh, Uttaranchal, Sikkim, Arunachal Pradesh, Meghalaya, Nagaland, Manipur, Mizoram, Tripura, and hill regions of 2 states *viz.* Assam and West Bengal. Starting from foot-hills in the south (Siwaliks) the region extends to Tibetan plateau in the north (trans-Himalaya) comprising about 109 districts of the country. The region occupies the strategic position of entire northern boundary (North-West to North-East) of the nation and touches almost all the international borders (7 countries) with India. It contributes about 16.2% of India's total geographical area, and most of the area is covered by snow-clad peaks, glaciers of higher Himalaya, dense forest cover of mid-Himalaya.

The North Eastern Region (NER) represents three provinces (East Himalayas, Brahmaputra Valley, and North East Hills) and covers about 7.7% of the total geographic area of India. Despite rich endowment of agro-climatic and geographical diversity, the NER has lagged behind in economic development. Around 56% of the cultivated area of the NER is under low altitude (valley or lowland), 33% under mid-altitude (flat upland), and the rest under high altitude (upland terrace). Traditionally, farmers in both upland terrace and valleys practice mono-cropping under rain-fed agriculture, where rice (*Oryza sativa*) is the major crop occupying more

than 80% of the cultivated area followed by maize (*Zea mays*). The cropping intensity of the NER is 130%.

The "slash and burn" agriculture (shifting cultivation or *Jhum*) is practiced on about 0.88 M ha area. Annual soil erosion on steep slopes (44-53%) under shifting cultivation can be as much as 40.9 Mg/ha along with attendant losses (in kg/ha) of 702.9 of soil organic carbon (SOC), 63.5 of phosphorus (P) and 5.9 of potassium (K). Soil erosion, during the 1st and 2nd years on the abandoned land has been estimated at 147, 170, and 30 Mg/ha, respectively.

Bun cultivation is a modification of shifting cultivation and is mostly followed in the Meghalaya plateau since last four decades. In this system, the crops are grown on a series of raised beds of 0.15-0.30 m height and 0.75-1.0 m width with almost equal width under sunken area made along the slopes, locally referred to as "Bun." It provides an improved production system, helps conserve soil moisture, and prevents land degradation and soil erosion. In this system, bench terraces are built on the hill slopes running across the slopes. The vertical break between each terrace is one meter. Such measures help in preventing erosion and retaining maximum rainwater within the slopes.

Maintaining and enhancing soil quality are crucial to sustaining agricultural productivity and environment quality. Indiscriminate use of intensive agriculture has adversely impacted soil and environment over the past decades. Soil health management in the fragile hill ecosystems of the NER should be based on recycling of available plant residues, agro-forestry, conservation agriculture, integrated nutrient management (INM), micro-watershed-based integrated farming system (IFS) and permanent pasture grasses on sloping lands, and intensive IFS in valleys.

28TH NATIONAL CONFERENCE OF SCSI ON FARMERS' FRIENDLY SOIL AND WATER CONSERVATION TECHNOLOGIES FOR MITIGATING CLIMATE CHANGE IMPACT

31st January to 2nd February 2019, Udthagamandalam, Tamil Nadu

Twenty eighth National Conference of Soil Conservation Society of India on Farmers' Friendly Soil and Water Conservation Technologies for Mitigating Climate Change Impact has been jointly organized by SCSI, ICAR – IISWC, Research Centre, Udthagamandalam and Tamil Nadu State Chapter of SCSI for three days from 31st January to 02nd February 2019 at Udthagamandalam, Tamil Nadu.

Inaugural Session

The conference was inaugurated on 31st January 2019 by the Thiru Banwarilal Purohit, Hon'ble Governor of Tamil Nadu at Resource Centre for Tribal Culture, HADP Building Udthagamandalam, Tamil Nadu. In his address he highlighted



the relevance of conference with present climate change scenario. While emphasizing the soil degradation status in India, soil degradation estimated to be 147 million hectares (Mha) of land, including 94 Mha from water erosion, 16 Mha from acidification, 14 Mha from flooding, 9 Mha from wind erosion, 6 Mha from salinity, and 7 M ha from a combination of factors. This is extremely serious because India supports 18% of the world's human population and 15% of the world's livestock population, but has only 2.4% of the world's land area. Causes of soil degradation are both natural and human-induced. Human-induced soil degradation results from land clearing and deforestation, inappropriate agricultural practices, improper management of industrial effluents and wastes, over-grazing, careless management of forests, surface mining, urban sprawl, and commercial / industrial development. Water scarcity already affects every continent. Water use has been growing globally at more than twice the rate of population increase in the last century, and an increasing number of regions are reaching the limit at which water services can be sustainably delivered, especially in arid region. He further stated that deliberations of the conference will be useful to prepare the road map for developing farmer's friendly soil and water conservation technologies for mitigating climate change

impact on soil and water resources for enhancing income of Indian farmers. He also advised the organizers to circulate the recommendations of the conference to all organizations for their Research and Development action plan. Dr. M. R. Srinivasan, Former Chairman Atomic Energy Commission was the guest of honour and delivered the special address. He stated that the climate change impacts on agriculture are being witnessed all over the world, but countries like India is more vulnerable in view of the high population depending on agriculture and excessive pressure on natural resources. The trend of increasing temperature in the country over the past 100 years was observed to be 0.51°C with accelerated warming of 0.21°C per every 10 years since 1970. The impacts will have the effect on yield fluctuations of many crops which will have direct impact on food security and the prices. Dr. R.C. Agrawal, Registrar General, Protection of Plant Varieties and Former's Rights Authority, New Delhi has delivered the Key note address during the occasion. Dr Suraj Bhan, President, Soil Conservation Society of India, New Delhi welcomed the dignitaries and the delegates and congratulated the Tamil Nadu State Chapter for organizing 28th National Conference of Soil Conservation Society of India at Udthagamandalam. Dr. S. Manivannan, Convener and President of Tamil Nadu State Chapter of SCSI briefed about the back ground and themes of conferences. The inaugural function was ended with vote of thanks proposed by Dr. O.P.S. Khola, Head, ICAR-IISWC, Regional Centre, Udthagamandalam. During the occasion, Thiru Banwarilal Purohit, Hon'ble Governor of Tamil Nadu has given award to 27 scientists, farmers and students those contributed outstandingly in the field of soil and water conservation. Hon'ble Governor of Tamil Nadu also released three conference publications Viz., Book of Abstract, Souvenir and Conference proceedings. More than 750 persons including scientists, students, farmers and state government officials attended the inaugural function.

Technical sessions

The Technical sessions were commenced with J.S. Bali Memorial Lecture on Timely initiative and Government Policies Brought India at the Top in Area Coverage Under Micro Irrigation delivered by Dr .T.B.S. Rajput.

The three days conference had following 10 technical sessions

- Climate change impact on soil and water resources
- Farmers' centric technologies towards controlling soil erosion / degradation / mass erosion and policy implications
- Water harvesting and its multiple use in climate change



scenario

- Impact assessment of soil and water conservation technologies and application of advanced tools
- Bio diversity conservation and climate change
- Soil biodiversity and biological diversity Act 2002 focusing declining population of earth worm
- Resource conservation measures for Horticulture, plantation crops & forestry
- Integrated watershed management and Crop production systems
- Mechanized soil & water management, precision farming & utilization of renewable energy
- Disaster management, Landslide mitigation measures and Rehabilitation of heavy metal contaminated soil

Technical sessions of the different themes were conducted concurrently in the same day, in each Technical session key note address and lead papers were presented by the experts of the theme area followed by the oral presentations. The posters of the same themes also presented simultaneously. Totally 333 delegates from various parts of the country including scientists, students and the extension functionaries were participated and presented their research outcomes in the conference. From each theme recommendations also derived for developing Farmers' Friendly Soil and Water Conservation Technologies for Mitigating Climate Change Impact in the present scenario.

RECOMMENDATIONS

Theme 1: Climate Change impact on Soil and Water Resources

- Climate response farming through policy intervention is required and the Government should bring policy changes for these measures.
- There is the need of assessment of climate change impact in all minor basin for deriving macro scale basin management for mitigating climate change impact.

Theme 2: Farmers' centric technologies towards controlling soil erosion/ degradation / mass erosion and policy implications

- Chiseling soil at a depth of 45 cm once in three year, creation of farm pond in each farm, inter cropping, alley

cropping, multi layer cropping and cover cropping are few of the technologies recommended and suitable for mitigating frequent dry spells.

- In situ moisture conservation measures along with supplemental irrigation are the necessity for improving agriculture productivity of the Country.
- The use of casurina as border crop in banana field not only helped in preventing wind damage but also gave extra remuneration.
- Under waterlogged condition, modification of field into raised and sunken bed system and cultivation of vegetables grown in raised bed and rice / grown in sunken bed can enhance total farm productivity.
- The combination of fly ash with silica solubilising bacteria helped to increase available soil silica. However, the discussions recommended analyzing the heavy metal contamination in fly ash and possibilities of using fly ash as seedling root dip may be exploited rather than field application.
- Promoting modified rice cultivation such as Saguna rice technology raised and sunken bed system which not only mitigate methane emission but also helps in diversified farming.
- In ravine affected areas, policy should be brought out to prevent conversion of shallow ravines to revenue lands
- Role of vegetation in gully management should be emphasized by all State Government line departments.
- Decentralization of available data on meteorological, soil and crop data at Block or District level will be an immense helpful to various stake holders to derive the strategies for mitigating climate change impacts.

Theme 3: Water harvesting and its multiple use in climate change scenario

- Road side rain water harvesting should be the one of the component to be added in all Government schemes and suitable design of system for road side recharge structures should be developed.
- Multiple water use system (Integrated Farming System) models need to be developed for the all the agro-climatic Zone.





- Roof top water harvesting systems and waste water treatment system in all apartments or residential colonies should be mandatory for enhancing ground water recharge.
- Inter – departmental technical co-ordination among implementing and research agencies is to be strengthened at State level for efficient water harvesting.
- Macro level water resources management strategies are to be linked with farm level water resources development.
- The flagship programme like Mission Kakatiya of Government of Telangana for restoration of community water harvesting tanks needs to be implemented in other States.

Theme 4: Impact assessment of soil and water conservation technologies and application of advanced tools

- ICAR flexi check dams created very good impact in watershed in terms of increasing in yield and crop diversification and small rubber check dams are more relevant and it should be site specific.
- Cluster approach for transfer of technologies.
- Advanced tools like RS, GIS & SWAT models for planning, monitoring and impact assessment of natural resources on watershed basis should be tested in all states and usage of such models by line departments should be promoted.
- Combining of Hybridization two or more models gives better output with respect to rainfall prediction.

Theme 5: Bio diversity conservation and climate change

- Climate change studies needs to be initiated to identify affected plant varieties.
- Plant varieties likely to extinct due to climate change needs to be conserved.
- Short duration cum drought tolerance plant varieties needs to be developed for all crops for mitigating frequent dry spells and enhancing farm productivity.

Theme 6: Soil biodiversity and biological diversity Act 2002 focusing declining population of earth worm

- Biological diversity act 2002 should be popularized among the line departments and extension functionaries through training / workshop etc. to create awareness about the act.
- Impact of integrated farming systems and other farming systems on earth worm population status in needs to be assessed.
- Organic integrated farming systems needs to be promoted through suitable policy intervention for increasing earth worm population.
- Earth worm and microbes may helps in sustaining the soil health and sequester carbon and hence promoting and commercializing is necessary, certain microbes can be used for restoration of salt affected soil also.
- Diversified faming and residue management helps in increasing the population of soil flora and fauna and hence it should be encouraged.
- State wise soil biodiversity map on GIS environment needs to be developed for future research and development plan.

Theme 7: Resource conservation measures for Horticulture, plantation crops & forestry

- Suitable land use policy for land sustainability at State and National Level needs to be derived.
- All invasive alien species which are detrimental to the habitat & ecosystem must be eradicated on a time bound manner.
- In situ conservation measures and water harvesting structures for forestry lands have to be undertaken on watershed basis for soil and water conservation in forest lands.
- Micro scale water harvesting structures for supplemental irrigation for horticultural and plantation crops needs to be promoted through suitable policy intervention / subsidies.

Theme 8: Integrated watershed management and crop production systems

- The impact of watershed programs has to studied and evaluated after 20 to 25 years for assessing the impact on soil and water resources
- Emphasis on value addition of agricultural and horticultural produce should be given in watershed





development programme in addition to storage facilities for enhancement of livelihood security of farmers.

- Livestock development should be given due importance in all watershed development schemes.
- Dehydration of fruits and vegetables by simple mechanical drying will add the value of the products and needs to be promoted in watersheds.
- Wherever possible, Direct Sowing Rice (DSR) should be encouraged.
- Watershed programme should be essentially implemented on participatory mode through farmers association rather than *panchayat* and necessary guide lines for training farmers on post project management should be incorporated in common guidelines.

Theme 9: Mechanized soil & water management, precision farming & utilization of renewable energy

- There is the need of clear policy for providing subsidy on micro irrigation system in addition to development of site and crop sequence based design for adopting micro irrigation systems.
- LASER leveler can be popularized in large scale for controlling soil erosion, increasing fertilizer use efficiency, water saving and for increasing cultivable area.
- Buried biogas plant can be implemented in hill stations which have minimum reduction in biogas production even at chilling temperatures. Biogas technology can be extended to waste management.
- Bio diesel blend up to 40% can be utilized in agricultural operations without affecting the engine power output.
- Protected cultivation for increasing vegetable yield were discussed and some technologies like fogger application which regulate temperature, coco peat+ vermicompost media and growing vegetables under 50% shade net increased vegetable yields.
- Emphasis should be given to solar pump sets

Theme 10

- There should be collective adaption and mitigation polices based on spatial and technological applications to face the environmental hazards and natural calamities for pre and post disasters.

- Application of geo-textiles should be promoted in stabilizing the slopes / soil at road sides, land slide zones, railway lines, mine dumps etc.
- Integrated early warning system for predicting landslides by incorporating various state and central government agencies at each land slide vulnerable district should be created.
- Plantation of Mangroves should be done along the coastal region in sate wise for reduced damages of Tsunami.
- A policy intervention required on maximum slope to be followed by various departments in making roads / high ways / railway line etc. to minimize the road side slides.

VALEDICTORY SESSION

The three days Conference was concluded on 2nd February 2019, Dr. N. Kumar, Vice Chancellor, Tamil Nadu Agricultural University, Coimbatore was the chief guest and delivered the valedictory address. In his valedictory address he highlighted the importance of themes deliberated in the conference and congratulated the organizers for organizing this conference timely. He stated that the TNAU is developing many short duration varieties which can be grown within reduced monsoon season. He also emphasized the importance of developing farmers' friendly soil and water conservation technologies which cost effective and environment friendly. During the occasion, the awards have been presented for best oral and poster presentations. Dr. V. Praveen Rao, Vice Chancellor, Professor Jayashankar Telangana State Agricultural University, Hyderabad was honoured with Life Time Achievement Award of SCSI for his significant contribution in the field of soil and water conservation. In his address, he emphasized the importance of adopting water saving technologies in the climate change scenario. Dr. K. Alagusundaram, Deputy Director General (Agrl. Eng & NRM), ICAR- New Delhi was the guest of honour during the occasion and he congratulated all the awardees those received the best presentations award. Sh. C. Paulrasu, IAS, Executive Director, Tea Board of India, Coonoor, Dr. A. Arunachalam, ADG (International Relations), ICAR, New Delhi, Dr. P.R. Ojasvi, Director, ICAR-IISWC, Dehradun and Dr. E.B. Chakurkar, Director, ICAR- CCARI, Goa were the delivered the felicitation address during the occasion. Dr. Suraj Bhan, President SCSI, New Delhi has welcomed the chief guest, guests of honour and delegates. Dr. S. Manivannan, Convener and President of Tamil Nadu State Chapter of SCSI briefed about the conference proceedings and the recommendations from each theme. Dr. O.P.S. Kholra, Head, ICAR-IISWC, Regional Centre, Udthagamandalam has felicitated the Chief guests and guest of honours. The valedictory function was ended with vote of thanks proposed by Dr. V. Kasthuri Thilagam, Scientist & Organising Secretary, ICAR-IISWC, RC, Udthagamandalam.

FORMATION OF SOIL CONSERVATION SOCIETY OF INDIA, HYDERABAD CHAPTER (HC)

An inaugural ceremony of Soil Conservation Society of India- Hyderabad Chapter (SCSI-HC) was organized by the life members of the society at WTC Auditorium, PJTSAU, Rajendranagar. Dr V Praveen Rao garu , Honble Vice Chancellor was chief guest for the function and Dr G Ravindra Chary, Acting Director, ICAR-CRIDA was guest of honor. All University officers, staff and students, life members of the chapter from ICAR institutes, PJTSAU, WALAMTARI etc attended the function. Dr K Sadasiva Rao, Dean, FAET, PJTSAU welcomed the dignitaries of the function and all other faculty and university officers and life members and students.

The executive body of SCSI-HC as given below, was constituted with the consent of all the life members of the chapter present in the meeting after thorough discussion. The executive body was formed with involving of life members from different organizations like ICAR, WALAMTARI, Dept. of Agriculture in Hyderabad and neighboring Southern states of AP and Karnataka. The life members are from different disciplines of Agriculture with major subjects of Soil and water conservation engineering, Soil science, Agronomy, livestock, Ph d students etc.

S. No.	Designation	Name
1	Chief patron and advisor	Dr. V. Praveen Rao, PJTSAU
2	Chairman	Dr. K Sreenivas Reddy, ICAR-CRIDA
3	Vice-Chairman	Dr. K Sada Siva Rao, PJTASU
4	Secretary	Dr. G Manoj Kumar, PJTASU
5	Joint Secretary	Sri. B. Raghunath Rao, PJTSAU
6	Joint Secretary	Dr P K Pankaj, ICAR-CRIDA
7	Treasurer	Dr. T. Anjaiah, PJTSAU
8	Member	Dr. G. Padmaja, PJTSAU
9	Member	Dr. K. Avil Kumar, PJTSAU
10	Member	Dr. K.B. Sunitha Devi, PJTSAU
11	Member	Dr. Nemichandrappa, UAS, Raichur
12	Member	Dr. M.V. Ramana, ANGRAU
13	Member	Er. S. Vijay Kumar, ICAR-CRIDA
14	Member	Sri. D. Vidyath, DOA
15	Member	Dr. B.K. Rao, WALAMTARI
16	Member	Er. P. Shankar Prasad, WALAMTARI
17	Member	Dr. R. Sai Kumar, PhD scholot
18	Member	Er. G. Kishore Kumar, Ph D scholar

After the formation of executive body, the Soil Conservation Society of India, Hyderabad chapter was digitally inaugurated



at WTC Auditorium, PJTSAU, Rajendranagar, Hyderabad on 25.03.2019 @ 10.30 AM by Dr. V. Praveen Rao, Hon'ble Vice-chancellor, PJTSAU and Chief patron & Advisor, SCSI-HC in the presence of Dr. G. Ravindra Chary, Acting Director, ICAR-CRIDA and guest of honor, Dr K S Reddy, Chairman, SCSI-HC and Principal Scientist(SWCE), ICAR-CRIDA, Dr K Sadasiva Rao, Vice Chairman, SCSI-HC and Dean, FAET, PJTSAU and Dr G Manoj Kumar, Secretary, SCSI-HC and Principal and Professor, Dept. of Agril.Engg, CA,PJTSAU, Rajendranagar. The agenda item of organizing the Brain storming session by the chapter in the month of May,2019 was discussed and different themes were discussed.

The Chairman, Dr K S Reddy had briefed the importance of the SCSI-HC at PJTSAU, Hyderabad and also talked about the future activities of the chapter and sought the co operation of the life members to bring the society into forefront in the field of soil and water conservation. Dr G Ravindra Chary, Acting Director, ICAR-CRIDA emphasized the need and requirement of such professional society in Hyderabad for helping the farming community and for convergence with different SWCE activities with implementing agencies and also professional activities convergence with other societies in the university.

Hon'ble Vice Chancellor, Dr. V. Praveen Rao addressed the chapter life members and students and recalled his association with the stalwarts of Soil and water Conservation Engineers of Prof. J S Bali and Prof Subramanyam of SCSI, New Delhi who started the professional society. He stressed the need for developing network of academicians, researchers, department agencies of state govt. for implementing the SWC technologies in the field for effective resource conservation and better livelihoods of the farming community. He also emphasized the need for bringing all the professionals of Agril. Engg into the society for active participation in the professional activities of the society.

On the occasion, Dr. Rao advised the society's executive committee to organize workshops and seminars by inviting the SWC experts in the country from different organizations



for sharing practical knowledge and their experiences with the academicians and researchers of the university. He elicited the opinion that the professional societies should help the student community by involving them actively in the society activities and help them in developing their careers.

He also mentioned and asked the executive body to take up the life membership drive from different institutes and make it self sufficient by organizing various professional activities continuously in the field of soil and water conservation. Dr. Rao has appreciated the activities of SCSI-New Delhi and encouraged all the life members to take the State Chapter to a greater heights.

The newly formed SCSI- HC felicitated the Hon'ble VC, Dr V Praveen Rao garu for being the first VC of PJTSAU, Life Time Achievement Award from SCSI- New Delhi in 2019 and Best VC in the country among Agril. Universities.

The vote of thanks was provided by the Dr. M. Shankar, Associate Professor, SS&AC.

Secretary

SCSI-HC, PJTSAU, Dept. of Agril.Engg, Rajendranagar

NATIONAL WATER AWARD - 2018

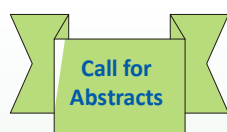


Dr. Jitendra Sinha, Member of Soil Conservation Society of India and Associate Professor, Soil and Water Engineering, Indira Gandhi Krishi Vishwavidyalaya, Raipur and Councillor of Soil Conservation Society of India, New Delhi conferred with National Water Awards-2018, by Ministry of Water Resources, River Development & Ganga Rejuvenation, Govt of India. He was felicitated by Hon'ble Minister

Shri Nitin Gadkari with a trophy, citation and a cheque of Rs. 1,50,000/-for being adjudged as the second prize winner under the theme research/innovation category.

The Prize Distribution Ceremony of National Water Awards 2018 was held in the Mavalankar Auditorium, Constitution Club of India, Rafi Marg, New Delhi on 25.02.2019.

The Soil Conservation Society of India feels proud on this achievements by Dr. Jitendra Sinha.



4th WASWAC World Conference
20th ISCO International Conference
4th SCSI International Conference

Joint International Conference on

**Soil and Water Resources Management for Climate Smart Agriculture
and Global Food and Livelihood Security**

At New Delhi, India, November 5th-9th, 2019

Conference updates

Detailed information and updates about the Conference will be available at the website of <http://soilconservation.org>, SCSI (www.scsi.org.in), ISCO (<https://www.tucson.ars.ag.gov/isco/>) and WASWAC

Organizing Committee

Chairman: Dr. Suraj Bhan, President, SCSI

Co-Chair: Prof. Samir A. El Swaify (ISCO), USA; Prof. Li Rui (WASWAC), China; Dr. Miodrag Zlatic (WASWAC), Serbia

Convener & Organizing Secretary: Dr. Sanjay Arora (India)

Journal of Soil and Water Conservation, quarterly Editorial Board published by Soil Conservation Society of India is now available on-line at www.indianjournals.com and on official website of society www.scsi.org.in

Editorial Board

Suraj Bhan, Sanjay Arora, Jagat Vir Singh

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