ICAR-IIWM News

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IN THIS ISSUE

DIRECTOR'S COLUMN

Integrated Sensing Systems in Agricultural Water Management for Enhancing Water Productivity

Water is the elixir of life and the support system of all entities on earth. Demand of water by all sectors are increasing day by day due to burgeoning population growth and their multifold requirements. However, the sum total of water in the universe is constant, which can neither be created nor be destroyed, but can be converted from one form to the other. In this context, management of this precious resource is vital and efforts in attaining its sustainability in agriculture is the need of the day. Agricultural water management assumes prime importance due to its highest share of about 80% amongst all other water consuming sectors. In such scenarios, the ICAR-Indian Institute of Water Management is mandated to develop technologies for enahncing agricultural water productivity for subsequent dissemination to stakeholders. Under changing climate scenarios and requirement of stakeholders, it is the right time to reorient research priorities pertaining to implementation and evaluation of technologies and get feedback report for fine tuning of the technologies. Moreover, to enhance the agricultural water productivity and save water, it is imperative to target the right time for supplying irrigation water and its quantitiy under different irrigation methods using good quality water. This is basically known as judicious irrigation scheduling and depends on the soil texture, crop, land slope, method of irrigation, climate of the study region, water table depth and water quality parameters.

Sensors are being used in agriculture for measurement of soil moisture, water quantity and quality parameters, soil quality parameters, plant growth parameters, etc. besides different weather parameters. There are different principles of operation of these sensors and the cost vary significantly based on the principle besides accuracy and precision. However, all sensors need to be calibrated using the standard estimation procedure and the correction factor need to be estimated before its practical use. Moreover, Information and Communication Technology (ICT) is getting wide acceptability in different sectors and there is a need of integration of different sensing system with Internet of Things (IoT) protocol to link the sensor readings through mobile app for taking real time decisions. The soil moisture sensors can be integrated with the software for irrigation scheduling through IoT enabled protocol using the cloud server services. Such sensing systems will assist the stakeholders in deciding the time of irrigation event and the quantity of water to be supplied. Further, there is a need to supply measured quantity of water during irrigation event. There are a plethora of water measuring devices and digital sensing

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systems available for piped flow and in drip and sprinkler irrigation methods. But, in open channel flow in the surface irrigation method, there is scope for development of low cost digital sensing systems to measure the flow depth, flow rate and the total volume of water supplied in a given time. Further, integration of the soil moisture sensing system to identify the time for irrigation and the sensor based digital water measuring device to supply desired quantity of water using IoT enabled protocol and the mobile application would help the stakeholders to apply the right amount of water at right time. Such integrated system will not only assist the user for deciding the irrigation time and quantity for different crops, but also would save appreciable quantity of water leading to enhancement in agricultural water productivity. Further, in the method of irrigation scheduling in horticultural crops, the plant canopy temperature based irrigation scheduling criterion is also available. However, the system need to be integrated with a mobile app and the IoT protocol to assit the stakeholder in deciding the time and quantity of water to be supplied through any method of irrigation.

Use of ultrasonic flow depth measuring sensors to measure the depth of water in farm pond or water harvesting structures can also be developed to measure the depth of water on real time basis for estimation of water budgeting. This will lead to application of ICT under the '*amrit sarovar*' initiative by the Government of India. Further, such sensors can be installed in selected water harvesting structures at regional scale and can be integrated using the IoT protocol and through a mobile app to develop guidelines for judicious use of stored water in such structures. Besides this, the sensing systems to monitor the depth of irrigation water in the rice crop under conventional planting method with alternate wetting and drying practice can be standardized to enhance the water productivity in rice. Besides this, the efficacy of the ground water recharge structures can be investigated through construction of observation wells and installation of water depth sensing systems around the recharge structure to monitor the groundwater depth and ensure the functionality of the structure. Moreover, there is ample scope of using the digital water flow measuring systems, soil moisture sensors and the control of flow in the field channeled through sluice gates in the canal command under canal automation. Such devices will ensure judicious rostering in the canal command based on the crop water demand to ensure the prime objective of PMKSY initiative by GoI leading to '*har khet ko pani*' and '*per drop more crop*' in the canal commands of the country.

Attempts were made to undertake precision agriculture based experiments though use of sensing systems for judicious irrigation scheduling, assessment of sea water intrusion in coastal area to come up with optimal groundwater pumping schedule to prevent sea water intrusion in coastal area, the unrecognized aspects of land and atmosphere interaction leading to extreme temperature at regional scale besides development of integrated soil moisture and water depth sensing systems. Institute is associated with 26 AICRP centres pan India on Irrigation Water Management and enahncing agricultural water productivity. Further, the Institute research programme is supplemented with externally funded projects under RKVY, REWARD, NASF, NePPA, DST, NICRA, etc. The outreach and extension activity of the Institute is covered under TSP and SCSP programmes besides the Farmers' FIRST project and the *Mera Gaon Mera Gaurav* (MGMG) initiatives by MoA&FW, GoI. During the period from July to December 2022, about 60 farmers' training programme besides workshops and academic interactions both in physical and virtual mode were organized. Scientists and staff of the Institute were able to expand their knowledge and were encouraged by visit of eminent personalities and academicians including Secretary DARE and DG, ICAR and Former Minister of Agriculture and Farmers' welfare, GoI. Institute also organized several programmes as desired by the Council and GoI in form of awareness initiatives pertaining to cleanliness, *hindi pakhwada*, vigilance awareness campaign, Soil day, *Kisan divas* and rice field day, etc.. Further, different workshops and brain storming activities pertaining to crop diversification were being undertaken by the Institute and efforts are on to standardize the IoT enabled sensing devices for irrigation scheduling and enhancing water productivity in irrigated and rainfed ecosystems.

RESEARCH ACHIEVEMENTS

Assessment of Seawater Intrusion in Coastal Aquifers of Puri District, Odisha

Seawater intrusion is one of the major threats in coastal areas and subsequently a major concern for the groundwater resource management. Effective planning and management is required for mitigation of this problem in coastal aquifers. The present research is aimed to identify the spatial distribution of seawater intrusion in the coastal aquifers of Puri District in the state of Odisha. The vulnerability of aquifers to saltwater intrusion was assessed by GALDIT, an index-based method. To quantify the spatial extent of susceptibility of coastal intrusion, six hydro-geological characteristics were considered in the model such as G: Aquifer type (confined, unconfined & semi-confined), A: Conductivity of aquifer, L: Level of groundwater above MSL, D: Perpendicular distance from the shoreline, I: [Cl- /HCO^{3-} + $CO3^{2-}$] ratio representing existing effect of the intrusion of saline water and T: Saturated thickness of aquifer. Different weights and ratings were assigned to these layers according to the model and overlay analysis of the layers was done for mapping the seawater intrusion vulnerability map. For the pre-monsoon, susceptibility zones are categorized as low, moderate, and high, with percentages of 75.12%, 22.84%, and 2.034%, respectively (Fig. 1). Similarly, for the post-monsoon season, 78.07%, 21.08%, and 0.84%, area are categorized under low, moderate and high susceptible zones (Fig. 2).

The Gop block was found to be the most susceptible area out of the 5 studied blocks. Map removal sensitivity analysis showed that the level of groundwater above MSL and perpendicular distance from the shoreline are the most sensitive parameters and thickness of aquifer is the least sensitive parameter for groundwater contamination in the study area. Such modeling studies can help in planning and managing activities for sustainable groundwater resource management

S. Mohanty, P.P. Adhikary, K. Behura, M.P. Tripathi and S. Ghosh

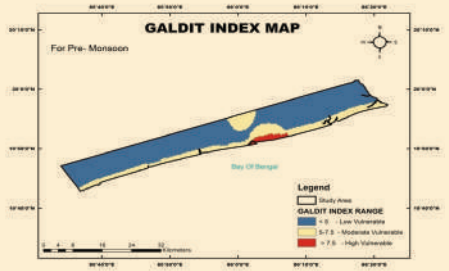


Fig. 1. GALDIT Index map (Pre-monsoon)

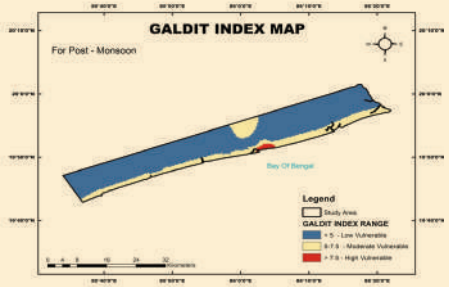
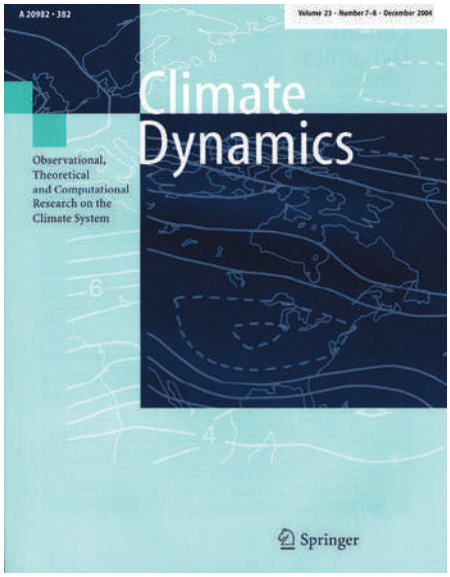


Fig. 2 GALDIT Index map (post-monsoon)

SCIENCE

Land–atmosphere Interactions Impact on Hot Extremes in India



This paper highlights some of the unrecognized aspects of land–atmosphere feedbacks that drive the summer season (March–May) temperature extremes and unleash compounding impacts in India, resembling other hotspots of the world. Analyzing a variety of drought and heat metrics found persistence of surface drying, following the monsoon season (June–September) rainfall deficit as the key driver of the twenty-first century hot extremes. In correspondence to a nationwide warming of 0.5°C since 2001, the hot days (HD) frequency has dramatically risen by~60%. This has contributed to an accelerated summer warming of 0.28°C per decade, two times faster than the annual average temperature. Strong coupling at the daily and seasonal scales provides useful predictive information about the summer heating process. We particularly illustrate how local feedbacks, in the backdrop of blocking anticyclones, played an important role in the evolution and amplification of India's hottest and second-hottest summers during the 2009/2010 and 2015/2016 hydrological years, respectively. Under cyclonic conditions, in turn, weakened feedback produced the coolest summer in 2011. Meteorological characteristics of the 2010 record-breaking event in India, reflected through HD and heat wave duration (HWD), are comparable at the global scale. But it's difference with respect to lethality helped us to explore the nuances of deadly heat waves, particularly their unique location specificity. Our study suggests surface drying under unabated anthropogenic global warming may accelerate feedback processes, unfolding new challenges with widespread socio-economic impacts, in absence of precautionary policy measures.

Adapted from Panda, D.K., Pradhan, S. & AghaKouchak, A. Surface drying impacts hot extremes in India: unravelling the exceptional 2010 and 2016 hot events. Climate Dynamics (2022). https://doi.org/10.1007/s00382-022-06536-2

EVENTS, NEWS & CELEBRATIONS

Institute Research Council (IRC) Meeting Organized

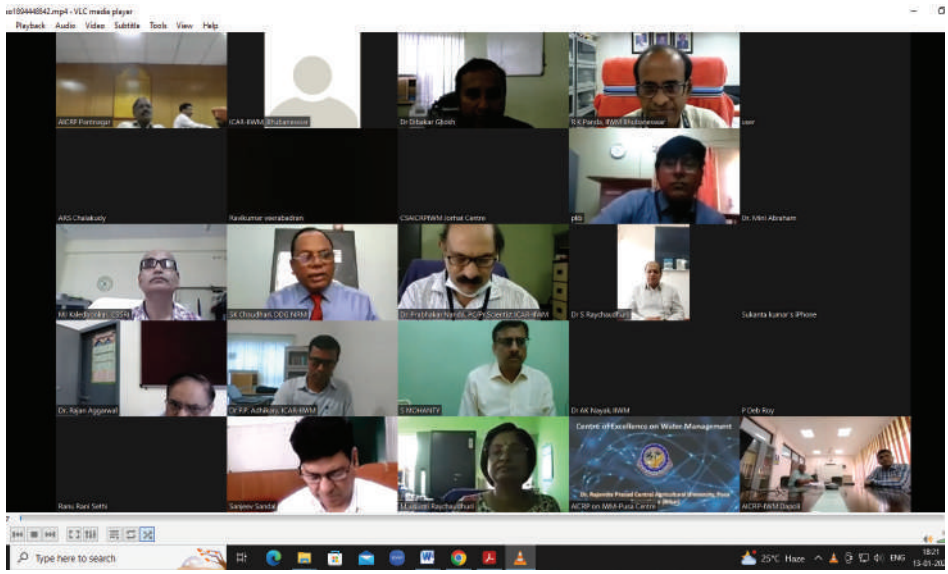
The Institute Research Council (IRC) meetings were held on July 18, August 6, 10, 11 and November 15, 2022. The progress and achievements of all the institute ongoing and concluding projects were presented and discussed in IRCs. The meeting was coordinated by Dr. S.K. Jena, Principal Scientist of the Institute.

Hon'ble DG Visited ICAR-IIWM

Honorable Secretary DARE and DG, ICAR, New Delhi visited ICAR-IIWM, Bhubaneswar on July 9, 2022. A Policy level interaction meeting was organized under the Chairmanship of Dr. T. Mohapatra, Secretary, DARE and DG, ICAR, New Delhi. In this meeting, Government Officials of Odisha, Dean (Extension), OUAT, Directors of local ICAR Institutes, Heads of local ICAR Regional stations, and Scientists of ICAR-IIWM discussed various important aspects of agriculture in Odisha.

ICAR-IIWM Organized Annual Workshop of AICRP-Irrigation Water Management

The Annual Workshop of AICRP on Irrigation Water Management was organized at ICAR-IIWM, Bhubaneswar during July 19-22, 2022 through video conferencing. Hon'ble DDG (NRM), ICAR, New Delhi Dr. S. K. Chaudhari graced Inaugural Function of the Workshop as Chief Guest and addressed the delegates. During the four-day period, research achievements of the 26 AICRP centers for the year 2021-2022 were presented by the respective Chief Scientists in seven Technical Sessions. The workshop was coordinated by Dr. S. Mohanty, Principal Scientist of the Institute.



ICAR-IIWM Organized Divisional Committee Meeting of Foreign-Aided Projects

The review meeting for monitoring progress of Foreign-Aided Projects for January-June 2022 was held at ICAR-IIWM Bhubaneswar on July 23, 2022 under the chairmanship of Dr. S.K. Chaudhuri, DDG (NRM). Detailed presentations of 6 completed projects, 18 ongoing projects and 1 new project was carried out from 10 ICAR Research Institutes i.e. ICAR-IIWM, Bhubaneswar; ICAR-CSSRI, Karnal; ICAR-CAZRI, Jodhpur; ICAR-CAFRI, Jhansi; ICAR-RCER, Patna; ICAR-CSSRI, Regional Research Station, Canning Town; ICAR-NBSS&LUP, Bangaluru; ICAR-IISS, Bhopal; ICAR-NIASM, Baramati and ICAR-IIFSR, Modipuram.

ICAR-IIWM Celebrated *"Bharat ki Azadi ka Amrit Mohatsav- Har Ghar Tiranga"*

Under '*Bharat Ki Azadi Ka Amrut Mahotsav*'- '*Har Ghar Tiranga*' programme was organized by ICAR-IIWM, Bhubaneswar during August 13-15, 2022. Under this programme, tri-colour flags were distributed among all the staff. An awareness programme was conducted in the Institute's premises and residential colony. *Prabhat Pheri* was done with the Indian National flag in the nearby locality. An extempore speech competition in *Hindi* was conducted among the school children. National flags were distributed in the SCSP adopted Hansapada village, Nimapada block of Puri district for celebration of *Har Ghar Triranga* programme.

ICAR-IIWM Organized a Review Meeting of Agri-CRP on Water

ICAR-IIWM organized review meeting for Agri-CRP on water at ICAR, New Delhi on August 24, 2022. The meeting was chaired by Dr. S.K. Chaudhari, DDG (NRM) and attended by ADG (SWM), ADG (AAF&CC) and Principal scientists of NRM Division, ICAR All the partner institutes of different themes of Agri-CRP on water presented the achievements of their centre. The future course of action was also discussed and finalized.

Hindi Pakhwada

ICAR-IIWM celebrated *Hindi Pakhwada*, during September 14-28, 2022. Hindi debate, Hindi note writing, Essay writing, Office order & Letter writing and Hindi speech were conducted. A Hindi workshop on *"Karyalay mein Hindi Tippniyon ke Lakshya Prapt Karne ke Upayon"* was organized on September 26, 2022. Dr. O.P. Verma, Senior Scientist and Mr. K.K. Sharma, Technical Assistant (Hindi Translator) co-ordinated this pakhwada.

Shri Radha Mohan Singh, Hon'ble MP, Loksabha Visited ICAR – IIWM

Shri Radha Mohan Singh, Hon'ble MP, Loksabha and former Union Minister, Ministry of Agriculture and Farmers Welfare, Govt. of India visited ICAR - IIWM, Bhubaneswar on September 16, 2022. During his visit, he interacted with the scientists and staff members of this Institute and discussed about the technologies developed by this Institute on agricultural water management.

ICAR- IIWM Conducted an Exhibition

ICAR- IIWM, Bhubaneswar participated and showcased its exhibits/ products in the exhibition held at Birsa Agricultural University, Ranchi, Jharkhand during September 22-24, 2022. The exhibition was organized on the occasion of a conference on "Landscape Management for Preventing Floods and Reservoir Sedimentation" (LMPFRS, 2022).

ICAR-IIWM Organized a Training Program on Watershed Management

ICAR-IIWM conducted three days training on "Water harvesting and management in watershed" during September 22-24, 2022 for progressive farmers, micro-watersheds chairman, SHG members and officials from Deobhog and Gariaband blocks of Gariaband district, Chhattisgarh under New Generation Watershed Development Programme (NGWDP), PMKSY- WDC 2.0. A total of 40 farmers including 6 women farmers had participated in the training programme. Dr. D.C. Sahoo, Principal Scientist coordinated the programme

ICAR-IIWM Organized a Training Program for Farmers of ATMA, Madhubani (Bihar)

ICAR-IIWM organized a training programme on 'Scientific Water Management for enhancing economic water productivity of farmers' during September 25-29, 2022. A total of 22 progressive farmers from Madhubani, Bihar attended the training programme, sponsored by (Agricultural Technology Management Agency), Madhubani. Drs. S.K. Rautaray, R.K. Panda, D Sethi, A.K. Thakur, O.P. Verma and R.K. Mohanty organized the training programme.

ICAR-IIWM Conducted Training Program in NAIF Project

ICAR-IIWM, Bhubaneswar conducted a training programme on "Technologies for sustainable management of groundwater" on September 30, 2022 to sensitize farmers about present and future challenges of groundwater utilization, efficient groundwater management technologies. A total of thirty (30) bore well owners from Chanarapada GP of Nimapara block in Puri district, Odisha attended the programme. Dr. H.K. Das, Principal Scientist coordinated this program.

ICAR – IIWM Coordinated Workshop on 'Water Resources Budgeting of Different States'

An on-line Workshop of All India Coordinated Research Project on Irrigation Water Management on "Water Resources Budgeting of Different States" was held on October 19, 2022. The Udaipur and Jabalpur Centers presented the water resource budgeting work of their respective states of Rajasthan and Madhya Pradesh. It was decided to carry out water resources budgeting work for all the states. The AICRP on IWM Centers responsible for water resources budgeting of different states were identified. The program was coordinated by Dr. S. Mohanty, Principal Scientist of the Institute.

ICAR-IIWM Coordinated an Exposure Visit

Fifty students of 1st year B. Tech (Ag Engg), OUAT, Bhubaneswar were visited ICAR-IIWM research farm on October 21, 2022 and exposed to different water management practices for sustainable agriculture. The event was coordinated by Dr. B.S. Satpathy, Senior scientist of the Institute.

ICAR-IIWM Organized PM - *Kisan Sammelan*

ICAR-IIWM, Bhubaneswar organized live streaming address by the Hon'ble Prime Minister during "PM - *Kisan Samman Sammelan*" on October 17, 2022. A gathering of 552 farmers from different districts of Odisha attended the meeting. Hon'ble Shri Jual Oram, Lok Sabha MP from Sundargarh, Odisha and Former Minister of Tribal Affairs was the Chief Guest and Hon'ble Shri Pratap Chandra Sarangi, Lok Sabha MP from Balasore, Odisha and Former Minister Animal Husbandry, Dairying and Fisheries and Micro, Small and Medium Enterprises, Govt. of India graced this occasion as Guest-of-Honor.

ICAR-IIWM Organized National Meeting on Crop Diversification

A National meeting on "Crop Diversification" was jointly organized by ICAR–CRIDA, Hyderabad and ICAR–IIWM, Bhubaneswar on October 31, 2022 under the Chairmanship of Shri Sanjay Agrawal, IAS, Former Agriculture Secretary, Govt. of India. Dr. S.K. Chaudhari, DDG (NRM), ICAR, New Delhi, Ms. Subha Thakur, CCS Joint Secretary (Crops), DA & FW, Govt. of India and, Directors & scientists from different partner ICAR Institutes/organizations attended the meeting.

ICAR-IIWM Observed Vigilance Awareness Week

ICAR-IIWM observed "Vigilance Awareness Week" during October 31 to November 6, 2022. Vigilance awareness workshop, essay writing and elocution were conducted during the program. President and Secretary of Bhargavi Mushroom producer organization, and members of several SHGs (75 numbers) were present in the workshop with a large participation of women. The programme was organized by Dr. S.K. Rautaray, Dr. D Sethi, Sri J Biswal and Sri J. Naik of the Institute.

ICAR-IIWM Organized an Online Interaction Meeting of AICRP – IWM

An on-line Workshop of All India Coordinated Research Project on Irrigation Water Management on 'Groundwater Potential Zoning and Identification of Sites for Groundwater Recharge' was held on November 3, 2022. Dr. P.K. Singh, Chief Scientist, Udaipur Center and Dr. S. Kaur, Senior Scientist, Ludhiana Center delivered lead presentations on the topic. The AICRP on IWM Centers responsible for groundwater potential zoning of different states were identified. Dr. S. Mohanty, Principal Scientist coordinated the meeting.

ICAR-IIWM Conducted "Rice Field Day"

Rice Field Day was organized by ICAR - IIWM in Viligram village of Nimapara block, Puri, Odisha on November 11, 2022. Important issues on crop cutting experiments of variety CR Dhan 206 of rice were carried out on this day. The event was coordinated by Dr. H.K. Dash, Principal Scientist of the Institute.

ICAR-IIWM Organized *'World Soil Day'*

ICAR-IIWM, Bhubaneswar organized a soil health awareness programme on the occasion of *"World Soil Day"* on December 5, 2022 at Balipatna, Khurdha, Odisha. Dr. R.K. Panda, Dr. M. Raychaudhuri, Dr. S. Raychaudhuri, Dr. P.P. Adhikary, Dr. A. Maity and Dr. S. Pradhan of ICAR-IIWM elaborated about the importance of soil day, soil health for sustainable crop production, vermi-compost, organic farming, natural farming, soil and water conservation and soil biological health. More than 70 farmers and students attended the program. The program was coordinated by Dr. Mausumi Raychaudhuri, Principal Scientist of the Institute.

ICAR-IIWM Organized *Hindi Timahi Baithak*

A *Hindi Timahi Baithak* was organized to discuss Rajbhasha Hindi work progress of ICAR-IIWM during July to September, 2022 on December 8, 2022. Dr. O.P. Verma, Senior Scientist and Mr. K.K. Sharma, Technical Assistant (Hindi Translator) coordinated this program.

ICAR-IIWM Organized Awareness Camps cum Exposure Visit

ICAR-IIWM, Bhubaneswar organized two farmers' Awareness camps cum Exposure visit under TSP project at Khaira village, Gunupur block of Rayagada District and Phatachanchada village, R.Udaygiri block of Gajapati District. About 200 farmers from both villages participated in the program.

ICAR-IIWM Observed *"Kisan Divas"*

ICAR-IIWM observed "National Farmers Day" (*Kisan Diwas*) at Hansapada village of Nimapara in Puri district in order to recognize the contribution of farmers to agricultural growth and food security in the country on December 23, 2022. Over 125 farmers and farm women from nearby villages of Nimapara block attended the programme. The participants were informed about the celebration of the International Year of Millets 2023 and the nutritional value of millets, their health benefits, climate resilient properties and discussed the farming environment. All the scientists and staff of the institute attended a special "Kisan Diwas" 2022 programme virtually organized by Ministry of Agriculture and Farmer Welfare, Govt. of India.

Activities under SCSP Project

Inputs distribution like vegetable seeds, fertilizers, fish feed, plant protection chemicals, etc. to farmers for improvement of their livelihood were carried out under the projects. More than 350 rural farmers from eight villages of Puri and Kalahandi districts benefited from the inputs. Nine training and awareness programmes were organized in which more than 400 farmers and farm women attended the programmes.

Activities under Farmers' FIRST Project

The Farmers' FIRST project has been implemented in three villages (Khuntapingu, Malarpada and Jamuda) of Saharapada block of Keonjhar district. Three new villages in Khordha district, such as Haridamada, Jamujhari and Giringaput were introduced during 2022-23 as per recommendation of the Zonal review meeting of ATARI Kolkata.

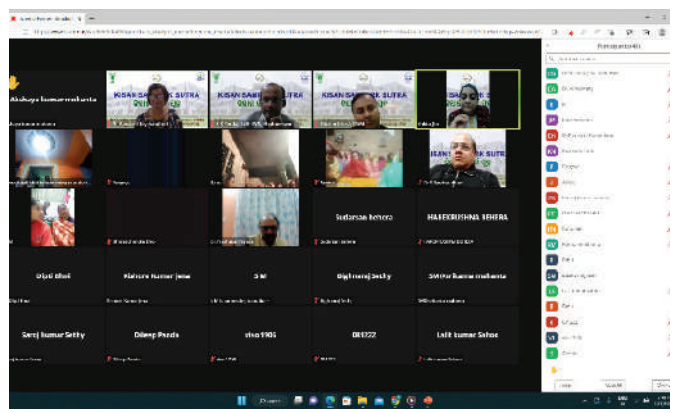
ICAR-IIWM Conducted Weekly e-*Kisan Gosthi*

Under *Azadi Ka Amrit Mahotsav* program, ICAR-IIWM, Bhubaneswar has conducted every week '*e- Kisan Gosthi*' for the farmers on various aspects for enhancing production and productivity for doubling farm income in virtual mode from 7:30 to 9:00 pm. Dr. H.K. Dash, Principal Scientist and Mr. B. Behera, Scientist organized these *Gosthis*. Following *Kisan Gosthis* has been arranged for the benefits of the farmers. A total of 6 number of e- *Kisan gosthis* have been conducted in which more 1691 farmers have participated.

S.N.	Date	Topic	No. of participants
1	07.07.2022	Role of cooperatives and farmers producer organizations for agriculture development in Odisha	61
2	14.07.2022	Scientific rice cultivation for higher crop productivity and profitability	57
3	21.07.2022	Insect-pest management in rice	55
4	28.07.2022	Disease-pest management in rice	61
5	04.08.2022	*Kharif* season vegetable cultivation for higher profitability	57
6	11.08.2022	Disease-pest management in vegetable crops	71

ICAR- IIWM Initiated *"Kisan Sampark Sutra"* Program

ICAR-Indian Institute of Water Management, Bhubaneswar, Odisha has launched a virtual platform named "*Kisan Sampark Sutra* (KSS)" on December 7, 2022 at 7.00 pm for Odisha farmers in Odia language and on December 21, 2022 at 7:00 pm for All India farmers in Hindi language. The program includes lectures of eminent Scientists/Experts from different disciplines, audio visuals, success stories, agro-advisory, Scientist-Farmer interaction, etc. relevant to agriculture including fisheries and animal sciences. Dr. M. Raychaudhuri, Principal Scientist coordinated the program. Two meetings had been conducted in which about 100 farmers have joined the program.



S.N.	Date	Topic	No. of participants
1	07.12.2022	Over view of ICAR-IIWM and Agro advisory for the farmers	50
2	21.12.2022	Over view of ICAR-IIWM, *Swachhata Pakhwara*, and International Year of Millets'	55

CAPACITY BUILDING & TRAININGS

Training and Capacity Building of ICAR- Employees

Official & Designation	Subject	Organization	Period
Dr Ankita Jha	Short virtual lecture series on different modules of weather & climate science & services	India Meteorological Department	July 11-August 12, 2022
Dr S.K.Jena	Training on Smart DPR preparation under the REWARD Program	UAS, GKVK, Bengaluru	December 26-30, 2022

Training / Program Organized for the Farmers by ICAR-IIWM

Subject	Place	Period	Participants
Farmers' Awareness campaigns on water management	Khaira village, Gunupur block, Rayagada district, Odisha	August 16, 2022	102
Farmers' interaction program on Irrigation water management	*Krishi Vigyan Kendra*, Gajapati	August 17, 2022	102
Training on Crop planning and management strategies for enhancing farm income in post flood situation	Hansapada village, Nimapara block, Puri district, Odisha	September 21, 2022	52
Training on Crop planning and management strategies for enhancing farm income in post flood situation	Viligram village, Nimapada block, Puri district, Odisha	September 23, 2022	51
Training on Scientific water management for enhancing economic water productivity of farmers	ICAR-IIWM, Bhubaneswar	September 25-29, 2022	22
Training on Technologies for sustainable management of groundwater	ICAR-IIWM, Bhubaneswar	September 30, 2022	30
Live streaming of Hon'ble Prime Minister's address during "PM *Kisan Samman Sammelan*	ICAR-IIWM, Bhubaneswar	October 17, 2022	552
Training program on 'Advanced technologies for enhancing economic water productivity'	Bhakarsahi, Khurda	October18, 2022	107
Orientation programme on Planning *rabi* crops and distribution of seeds and agroinputs	Bishnupur Village, Nimapada Block, Puri	October 28, 2022	37
Training on Efficient resource management in *rabi* crops for higher income	RRTTS, OUAT, Bhawanipatna, Kalahandi, Odisha	November 2-3, 2022	25
Rice Field Day (crop cutting experiment and feedback sharing on rice variety CR Dhan 206)	Viligram village, Nimapara block, Puri, Odisha	November 23, 2022	45
Celebration of '*Rice Field Day*'	Hansapada village, Nimapada block, Puri, Odisha	November 29, 2022	45
Farmers' Awareness camps cum exposure visit	Khaira village, Gunupur block, Rayagada district, Odisha	December 6, 2022	100
Farmers' Awareness camps cum exposure visit	Phatachanchada village, Gajapati district, Odisha	December 7, 2022	100
Awareness programme on '*Kisan Divas*'	Hansapada village, Nimapada block, Puri	December 23, 2022	135
Exposure visits on Waste management and micro composting	Bhubaneswar Municipal Corporation, Bhubaneswar	December 29, 2022	18

Webinar / Programs / Virtual Meetings Attended by Scientists of ICAR-IIWM

Officials	Name of the Conference / Meeting / Workshop / Symposium / Seminar	Organized by	Period
Dr. S.K. Rautaray	Interaction Meeting of ICAR institutes, OUAT and Department of Agriculture, Odisha	ICAR-IIWM, Bhubaneswar	July 09, 2022
Dr. R.K. Mohanty	Virtual program on 'Emerging aquaculture systems and practices'	ICAR-DCFR, Bhimtal,	July 11, 2022
Dr. S.K. Jena	National workshop cum hands on training on "Design and development process of agricultural gadgets in FRP"	ICAR-CIFA, Bhubaneswar	July 15, 2022
Dr. Ankhila R H	National workshops cum stakeholder meet on "Climate resilient natural farming for sustainable agriculture"	ICAR- IISWC, RC Udhagamandalam TN.	July 22-23 2022
Dr. P. K. Panda	ICAR-APAARI Knowledge management workshop	AKMU, ICAR, New Delhi	July 23, 2022
Dr. H. K. Dash	Intellectual Property Right (IPR)	IP India, NIPAM, ICAR and NAHEP	August 1-5, 2022
Dr. R.K.Jena	International Conference on "Advances in agriculture & food system towards sustainable development goals"	UAS, Bangalore	August 22-24, 2022
Dr. S.K. Rautaray	Brain-Storming Session on Agricultural water management in West Bengal: Issues and strategies	ICAR- CRIJAF, Barrackpore	August 27, 2022
Dr. P. K. Panda	National seminar on Save water every drop counts	Suryakhetra Foundation, Mumbai at Jayadev Bhawan, Bhubaneswar	Aug 28, 2022
Dr. P. K. Panda Dr. B.K.Sethy	National Conference on "Landscape Management for Preventing Flood and Reservoir Sedimentation" (LMPFRS-2022)	IASWC, Dehradun at BAU, Ranchi	September 22-24, 2022
Dr. R.K. Mohanty	National virtual conference (Hindi) on "Sustainable aquaculture for *Atmanirbhar Bharat*"	ICAR-CIFA, Bhubaneswar	September, 23-24, 2022
Dr. S.K. Jena Dr. R. R. Sethi	31st National conference on innovative resource management approaches for coastal and inland ecosystems to sustain productivity and climate resilience	Soil Conservation Society of India, New Delhi & Navsari Agricultural University, Navsari, Gujarat	October 13-15, 2022
All Scientists	National meeting on Crop Diversification and micro irrigation.	IIWM, Bhubaneswar	October 31, 2022
All scientists	PM *Kissan Sanman Sammelan*	ICAR-IIWM, Bhubaneswar	October 17, 2022
Dr. P.P. Adhikary Dr. S. Pradhan Dr. Ankhila R.H. Dr. B. Behera Dr. A. Maity	86th Annual convention and national seminar on developments in soil science - 2022	Indian Society of Soil Science, New Delhi	November 15-18, 2022
Dr. S. Mohanty	National Symposium cum Workshop on "Springshed Management"	NERIWALM, Tezpur	November 18-19, 2022
Dr. R. K. Panda	Multi stakeholder consultation meets on "Transformative futures for water security initiative" by on hybrid mode.	IWMI, New Delhi	November 23, 2022
Dr. S.K. Rautaray	Preparatory meeting for conduct of *Pani Panchayat Pakkhya*	Department of Water Resources, Bhubaneswar	November 25, 2022
Dr. R.K. Mohanty	Virtual meeting of Mid-term RCM (Zone-VIII)		November 30, 2022
Dr. R. K. Panda	Brainstorming meeting on "Integrated modeling of water-energy-food - ecosystem nexus in the Ganges basin"	IWMI, New Delhi	December 02, 2022

Swachha Bharat Abhiyan

Two major *Swachhta Abhiyan* have been organized during October and December, 2022. Under this *Abhiyan*, several drawing, essay, debate competitions were organized among school children. Total 156 students participated in the program. Several sanitation drives were organized outside the office campus. Smt. Aparajita Sarangi, Hon'ble Member of Parliament (Lok Sabha), Bhubaneswar attended the special *Swachhta* programme under *Swachhta Pakhwada* organized at ICAR-IIWM, Bhubaneswar on December 30, 2022. Dr. Roomesh K. Jena, Scientist & Nodal Officer, Dr. A.K.Nayak and Dr. S. K. Mishra, Principal Scientists and Dr. S.K. Karna, Technical Assistant coordinated all the *swachhta* activities.

AWARDS, HONOURS & RECOGNITIONS

- Dr. R.K. Panda delivered key note address on Excellence in the sphere of the water intensive industry for the year 2021-2022 by 1st edition of the Indian Chamber of Commerce (ICC) on September 9, 2022.
- Dr. R.K. Panda acted as Chief Guest and delivered key note address in the valedictory function on "Role of fishery for *Atmanirbhar Bharat*" at ICAR-CIFA on September 23, 2022.
- Dr. S.K. Jena acted as Member of the committee for "Periodic review of assessment and mapping of waterlogged area of major and medium irrigation projects in India" (Nominated by Government of India, Ministry of Jal Shakti).
- Dr. B.S. Satpathy. Senior Scientist received Best oral paper award in the "National conference on Landscape Management for Preventing Flood and Reservoir Sedimentation (LMPFRS-2022)", at Birsa Agricultural University, Ranchi, Jharkhand during September 22-24, 2022.
- Dr. Ranu Rani Sethi, Principal Scientist has been awarded the 'Gold Medal Award-2022' by the Soil Conservation Society of India (SCSI) in the 31st National Conference of SCSI.
- Mr Ajit Nayak received Young Scientist award in the National workshop on "Smart IF- Smart Management of Agricultural Resources for Transforming Indian Farms" held at ICAR-CTCRI, Thiruvananthapuram during December 15-17, 2022.
- Mr Ajit Nayak has received Second Prize in National Essay Competition in Indian National Science Academy, DST on "Our life and the science: during and after the pandemic."
- Dr. P.K. Panda received Paribesa Ratna award from "Suryakhetra Foundation, Mumbai" in Jayadev Bhawan on August 28, 2022.
- Dr. P.K. Panda has received Best poster Award in the "National Conference on Landscape Management for Preventing Flood and Reservoir Sedimentation (LMPFRS-2022)" at BAU, Ranchi organized by IASWC, Dehradun.

Radio/TVTalk

- Dr. P.K. Panda, Principal Scientist acted as resource person in the discussion on *"Odishara Krusna Karpas Murttikare Barsa jala Sanrakhyana Bidhi"* at All India Radio, Bhawanipatana on July 7, 2022.
- Dr. P.K. Panda, Principal Scientist acted as resource person in the live phone in programme under *Jalashakti Abhiyan* on *"Catch the Rain"* Programme" at All India Radio, Cuttack on July 13, 2022.
- Dr. P.K. Panda, Principal Scientist acted as resource person in the discussion on *"Dharana kyama Krushi Pain Jala Sampadara Upajukta Sanrakhyan & Superichalana*" at All India Radio, Puri on July 28, 2022.
- Dr. P.K. Panda, Principal Scientist of the institute acted as resource person in the discussion on *"Mahanadi re Banya Niyantrana*" at News 18 Odia TV on August 16, 2022.
- Dr. P.K. Panda, Principal Scientist acted as resource person in the discussion on *"Amrit Sarovar dwara Jala Sanrakhyan"* at All India Radio, Cuttack on September 22, 2022.
- Dr. P.K. Panda, Principal Scientist acted as resource person in the discussion on *"Krushi Khetra re Shakti Sanrakhyanara Abasyakata*" at All India Radio, Puri on December 14, 2022.
- Dr. R.K. Panda participated in the telecast exclusive interview on Naxatra News Television on "Role of Water Management for Sustainable Development" on December 22-23, 2022.

Joining, Promotion and Superannuation

- Dr. Arjamadatta Sarangi joined as Director of ICAR-IIWM, Bhubaneswar on December 9, 2022.
- Dr. D. C. Sahoo, Principal Scientist joined this Institute on August 29, 2022 after getting transferred from ICAR-Central Soil and Water Conservation Research Institute, Koraput Centre, Koraput, Odisha.
- Dr. Sumanta Kumar Mishra, Principal Scientist joined this Institute on August 31, 2022 after getting transferred from ICAR-National Rice Research Institute, Cuttack.
- Dr. Ashis Maity, Senior Scientist joined this institute on August 23, 2022 after transfer from ICAR-National Research Centre on Pomegranate, Solapur, Maharashtra.
- Dr. Bhabani Sankar Satapathy, Senior Scientist joined this Institute on September 1, 2022 after getting transferred from ICAR-National Rice Research Institute, Cuttack.
- Mr Sanjay Kumar Jena, Administrative Officer joined this Institute on November 9, 2022 after getting transferred from ICAR-National Rice Research Institute, Cuttack.
- Dr. Sachidulal Raychaudhari, Principal Scientist superannuated from the ICAR -IIWM on December 31, 2022.