



AMITY UNIVERSITY
— UTTAR PRADESH —

University Initiatives on educational opportunities provided by the university for local communities to learn about good water management

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Water Annexure 1: Building Capacity to Enhance Farmers Capabilities to Address the Challenges of Climate Change Using Climate Smart Agriculture Strategies

Water Annexure-1



Goal
Promotion of smart agriculture technologies and practices in South Asia

Purpose
To make it available to grass root farmers in South Asia regions.

TRAINING OF MASTER TRAINERS

- Master trainers are trained
- Development of training manual
- Seminars on different climate practices
- Field trips
- Development of training manual

TRAINING OF FARMERS

- Conduction of training
- Development of local training manual for farmers
- Data Collection from training sessions
- Agenda setting



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APN

Asia-Pacific Network for Global Change Research

BUILDING CAPACITY TO ENHANCE FARMER'S CAPABILITIES TO ADDRESS THE CHALLENGES OF CLIMATE CHANGE USING CLIMATE SMART AGRICULTURE STRATEGIES



OBJECTIVE

To learn and practice new climate smart agriculture methodologies and make it available to grass root farmers in South-Asia regions



Dr. Nutan kaushik
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[www.https://amity.edu/afat/faculty.asp](https://amity.edu/afat/faculty.asp)

Water Annexure-2 : Workshop on methods of water conservation and restoration of moisture in the field #Sunokissanhumhain!!!

One Day Workshop on 400 Farmers

Workshop on methods of water conservation and restoration of moisture in the field

#Sunokissanhumhain!!!

Water management in vegetable crop in relation to soil borne pathogen

Jal Sansadhan aur Sinchai Upyogi Sanshodhan Karyashaala” Was Organised by Amity Food and Agriculture Foundation, Amity University Lucknow at Perikalp Bhawan, Department of Irrigation on 22 August 2022. Jal shakti minister Shri Swatantra Dev Singh ji. This program was attended by approx...400 farmers in which 200 farmers were from our project site Bahraich registered under this project. Farmers were sensitized about the different irrigation methods, techniques to conserve water and how they can preserve moisture content in their soil. Experts told them about importance of soil moisture in relation to disease development and how they can be restrict spread of soil borne pathogen by managing irrigation in their field.

Guest speaker for the event were.

Dr. Manoj Tripathi, Principal Scientist IISR Lucknow

Dr. Daya S. Srivastava, Acting Head, Scientist KVK II Sitapur

Mr. Ashish Dixit, Assistant Professor Amity University

Dr. Artika Singh, Scientist CAU Jhansi

Coverage of Scenes

During the post lunch session, "**Suno Kisan....Hum Hain**" slogan was surfaced to ground reality and included expert talks. Dr Shalini Singh Visen Director AFAF welcomed the experts and highlighted the importance of moisture management in the agriculture. She gave emphasis on selection of crops and varieties according to climatic condition especially amount of rain locally and also concept of mixed farming to minimize the loss caused due to natural calamities Further she sensitized the farmers about the subsidy available with NABARD and other governments aids. Dr Manoj Tripathi Principal scientist IISR Lucknow discussed with farmers on "Sustainable Water Management in Agriculture under Climate Change" to increase Soil Water Holding Capacity, effective steps for water conservation and motivated them.

Dr. Daya S. Srivastava Scientist KVK II Sitapur told the farmers about "Moisture Conservation Methods in Agriculture" including importance of water in agriculture, water source-based agriculture, village and farm water harvesting techniques, micro irrigation methods, agricultural practices and soil conservation. He provided information about use of moisture indicators, crop management for waterlogged land with less water etc. He also invited the farmers to contact him directly for any advice.

Shri Ashish Dixit Assistant Professor Amity University discussed with the farmers on "Modern Technology and Irrigation" by adopting the modern techniques crops can be grown even in less water and also his talk focused on depleting the dependency on the electricity and adopting solar energy for regular use.

Dr. Artika Singh Scientist CAU, Jhansi discussed various aspects of water management including integrated and judicious use of water for regenerative agriculture, water efficiency, water harvesting, water conservation and crop irrigation, industry, important cropping systems and improvement in water productivity. The complete session “**Suno kisan hum hai**” was moderated by Director AFAF.

The farmers who attended in the workshop got benefited from the technologies and various schemes of the government for the farmers. The title SUNO KISAN HUM HAI is now trending as vision of Jal shakti Minister on social media # sunokisanhumhai.



Major Events

S. no.	Title of the event	Date of the event	Venue	Name of the institution organized	Major Highlights
1	"Groundwater Depletion in India – Causes, Implication & Way Forward for Sustainable Practices"- SDG6	21 July 2023	Online	NATURAL RESOURCES & ENVIRONMENTAL SCIENCES	The webinar on "Groundwater Depletion in India – Causes, Implications & Way Forward for Sustainable Practices" was organized with the aim of bringing together experts from various fields to discuss the critical issue of groundwater depletion in India

2	Capacity building to enhance the capabilities of farmers to meet the challenges of Climate change using Climate smart strategies	5th June 2022	Amity University in collaboration with the University of Western Australia	Amity Food and Agriculture Foundation	Climate Change, Dry Land Agriculture Client Resilient Soil Nutrient Management Economics of Climate Change Conservation of Agriculture & Future Smart Food Mobile and Cellular Technology Climate-Smart Practices Natural Resource Management for Climate-Smart Agriculture
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3	Organized a one-day workshop on 400 Farmers "Jal Sansadha n aur Sinchai Upyogi Sanshodh an Karyashaa la"	August 22, 2022	Ram Manohar Lohia Parikalp Bhawan, Auditoriu m, Telibagh Lucknow	Amity Food and Agriculture Foundation , Amity University Lucknow In Collaborati on With Irrigation and Water Resource Managemen t Department , Govt.U.P.	<p>This program was attended by approx...400 farmers in which 200 farmers were from our project site Bahraich registered under this project. Farmers were sensitized about the different irrigation methods, techniques to conserve water and how they can preserve moisture content in their soil. Experts told them about importance of soil moisture in relation to disease development and how they can be restrict spread of soil borne pathogen by managing irrigation in their field.</p> <p>The farmers who attended in the workshop got benefited from the technologies and various schemes of the government for the farmers. The title SUNO KISAN HUM HAI is now trending as vision of Jal shakti Minister on social media #sunokisanhumhai.</p>
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NATURAL RESOURCES & ENVIRONMENTAL SCIENCES DOMAIN

Organizes Webinar on the occasion of

भूजल सप्ताह

16-22 जुलाई 2023

"यह संकल्प निभाना है, हर एक बूँद बचाना है"

"Groundwater Depletion in India – Causes, Implication & Way Forward for Sustainable Practices" – SDG6

21 जुलाई 2023

Mode: Online

Time: 2:00pm - 5:10pm

Introduction:

The webinar on "Groundwater Depletion in India – Causes, Implications & Way Forward for Sustainable Practices" was organized with the aim of bringing together experts from various fields to discuss the critical issue of groundwater depletion in India. The event took place from 2:00 pm to 5:10 pm and saw renowned speakers sharing their insights on the topic.

Agenda:

The program started with Lighting of Lamp & Saraswati Vandana followed by Welcome and Introduction by Dr. Renu Dhupper, Assistant Director, AIES. She welcomed the participants and set the stage for the discussions. Following which Dr. S.P Singh, Director ASNRSD delivered the opening remarks, highlighting the significance of addressing groundwater depletion and its implications on India's sustainability. Prof. Tanu Jindal, Director of AIETSM shared valuable insights into the importance of sustainable practices in managing groundwater resources.

Prof. D. K. Bandyopadhyay, Chief Advisor FPO and Chairman of Amity Law School, Mentor at Amity Institute of Environmental Sciences, discussed the

various causes of groundwater depletion and the legal and policy aspects involved in addressing the issue. Prof. (Dr.) Balvinder Shukla, Vice-Chancellor of Amity University Uttar Pradesh (AUUP), shed light on the implications of groundwater depletion for agricultural practices and the role of educational institutions in promoting sustainable solutions. She conveyed her best wishes for the successful implication of the program.

SPEAKERS

Lecture 1:

Speaker: Dr. P. R. Ojasvi, Pr. Scientist (SWCE), ICAR-Indian Institute of Soil and Water Conservation

Topic: Rainwater Management for Food Security

Dr. P. R. Ojasvi presented a comprehensive overview of rainwater management techniques and their significance in ensuring food security. He discussed the role of rainwater harvesting, conservation, and efficient utilization in agricultural practices. Dr. Ojasvi highlighted the potential benefits of rainwater management, such as groundwater recharge, increased crop yield, and reduced dependence on groundwater resources. His lecture emphasized the need for integrating rainwater management strategies into agricultural policies for achieving long-term food security in India.

Lecture 2:

Speaker: Dr. Gopal Krishan, Scientist D, National Institute of Hydrology, Roorkee

Topic: Isotopic Applications for Groundwater Recharge

Dr. Gopal Krishan delved into the innovative use of isotopic applications for understanding groundwater recharge processes. He explained the use of isotopes as tracers to study the movement and origin of groundwater, providing valuable insights into recharge mechanisms. Dr. Krishan highlighted the importance of accurate groundwater recharge assessments for sustainable water resource management. His lecture showcased how isotopic techniques can contribute to informed decision-making and efficient groundwater recharge strategies.

Lecture 3:

Speaker: Mr. Mukesh Anand, Scientist B, Central Ground Water Board, NCCR, Raipur

Topic: Integrated Water Resource Management

Mr. Mukesh Anand's lecture centered around the concept of integrated water resource management (IWRM). He discussed the significance of adopting a holistic approach to manage water resources, incorporating social, economic, and environmental dimensions. Mr. Anand emphasized the need for collaboration between various stakeholders and government agencies to ensure efficient water allocation and usage. His lecture emphasized the role of

IWRM in mitigating groundwater depletion and ensuring sustainable water availability for present and future generations.

Lecture 4:

Speaker: Prof. (Dr.) Brijesh Yadav, Professor & Head, Department of Hydrology, IIT Roorkee

Topic: Groundwater: Making the Invisible Visible

Prof. (Dr.) Brijesh Yadav's lecture focused on the importance of understanding and visualizing groundwater dynamics for effective management. He elaborated on advanced technologies, such as remote sensing, geophysical methods, and modeling techniques, that aid in mapping and monitoring groundwater resources. Prof. Yadav emphasized the need for comprehensive data collection and analysis to develop robust groundwater management strategies. His lecture highlighted the significance of making groundwater information accessible and transparent for sustainable utilization.

Conclusion

The webinar successfully provided a platform for experts to share their knowledge and ideas on groundwater depletion in India. Some of them also shared their real time success of the various ideas of ground water conservation and management. The webinar highlighted the urgent need for sustainable practices to conserve this vital natural resource. Participants gained valuable insights into the various causes, implications, and potential solutions for addressing groundwater depletion in the country. It is hoped that the knowledge shared in the webinar will contribute to a more informed and concerted effort towards sustainable groundwater management in India.

Few photographic glimpses:



भूजल सप्ताह
16-22 जुलाई 2023

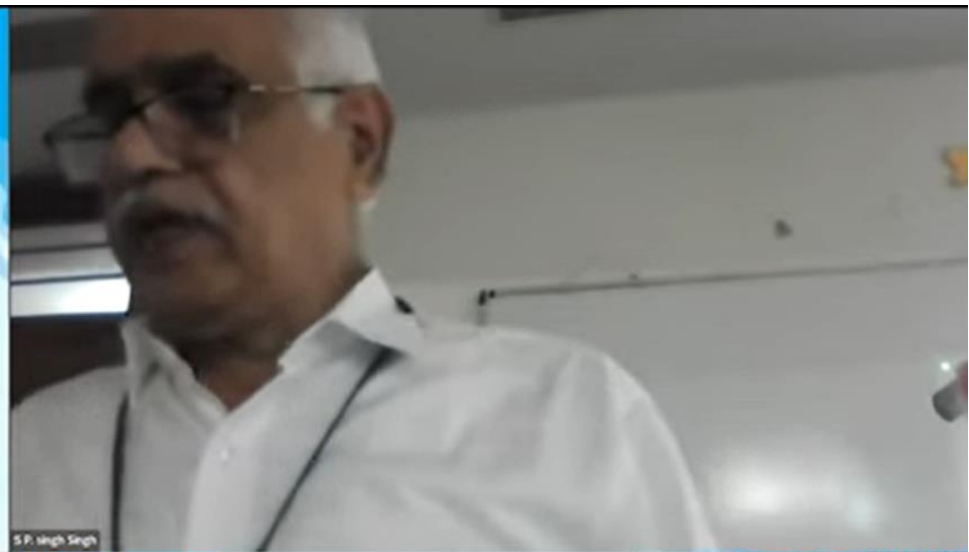
यह संकल्प निभाना



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"Groundwater Depletion
in India – Causes,
Implication & Way
Forward for Sustainable
Practices"



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16-22 जुलाई 2023

यह संकल्प निभाना है, हर एक बूँद बचाना है



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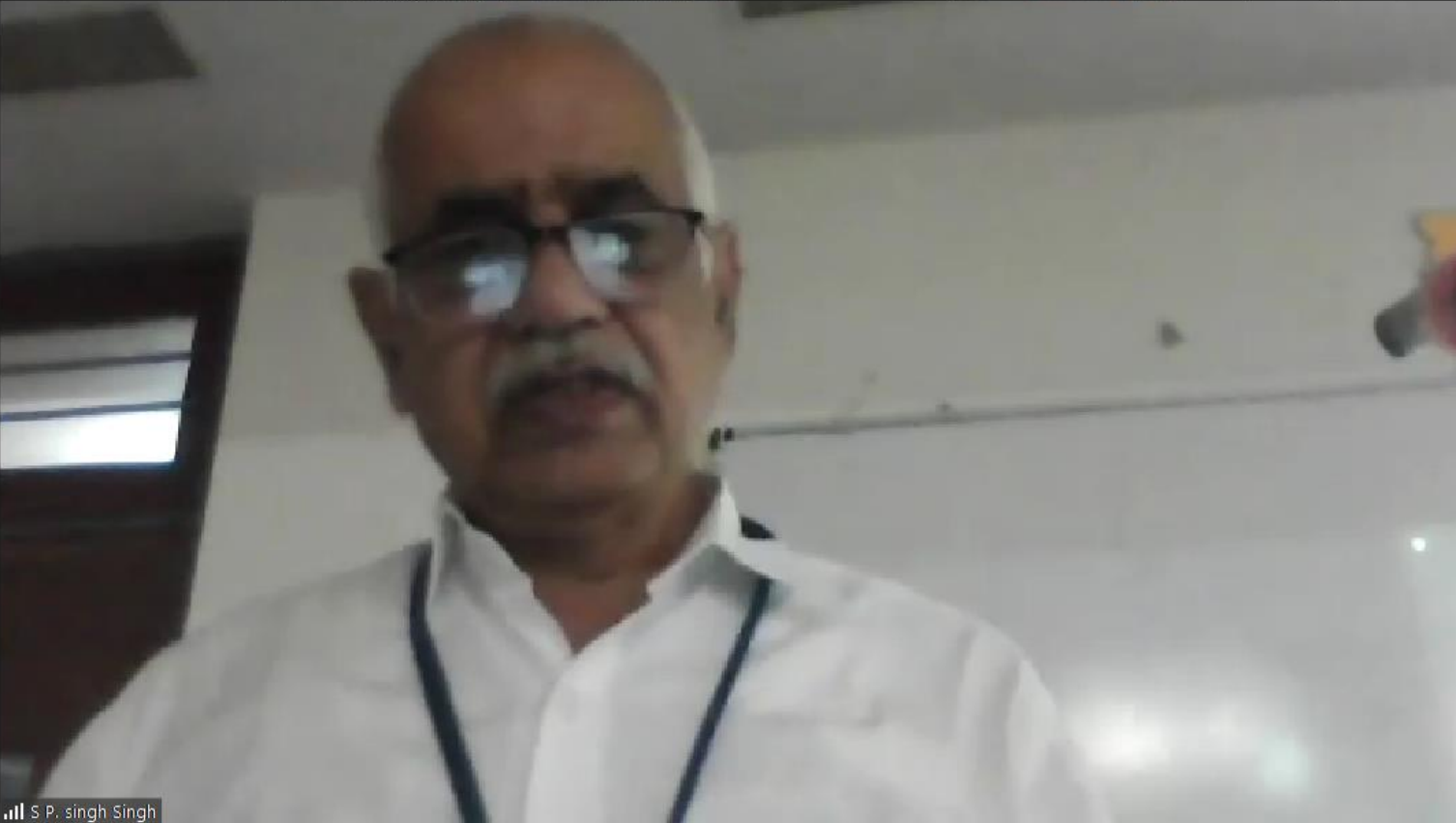


"Groundwater Depletion
Causes,
Way
Forward for Sustainable
Practices"



Prof. Dr. Vandana Sharma

NARESH KUMAR NARESH KUMAR	 Juhi Gupta	 Gopal Krishan	Tanu Jindal Tanu Jindal	 RENU DHUPPER	Amity University Amity University	
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S. P. Singh Singh

36°C
Haze

Windows taskbar with search bar and application icons: Start button, Search, Task View, Teams, File Explorer, Mail, Chrome, Edge, PowerPoint, Zoom.

ENG IN 14:20 21-07-2023

NARESH KUMAR

NARESH KUMAR



Juhi Gupta

S P. singh Singh

S P. singh Singh

Tanu Jindal

Tanu Jindal



RENU DHUPPER

Gopal Krishan

Gopal Krishan



View



Dr D K Bandyopadhyay

Remove Spotlight
 Recording...

 LIVE
 YouTube

Audio
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 Participants
 Chat
 Share Screen
 Pause/Stop Recording
 Breakout Rooms
 Reactions
 Apps
 Leave

36°C Light rain
 Search

 ENG IN
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 21-07-2023

NARESH KUMAR

NARESH KUMAR



Juhli Gupta



Dr. D. K. Bandyopadhyay



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16-22 जुलाई 2023 यह संकल्प निभाना है, हर एक बूँद बचाना है



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“Groundwater Depletion in India – Causes, Implication & Way Forward for Sustainable Practices”





Tanu Jindal

Audio

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Security

Participants 73

Chat 1

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Reactions

Apps

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NARESH KUMAR

NARESH KUMAR

S P. Singh Singh

S P. Singh Singh

Juhi Gupta

Juhi Gupta

Tanu Jindal

Tanu Jindal

Gopal Krishan

Gopal Krishan

Dr D K Bandyop...

Dr D K Bandyopadhyay

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16-22 जुलाई 2023

यह संकल्प निभाना है, हर एक बूँद बचाना है



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"Groundwater Depletion in India – Causes, Implication & Way Forward for Sustainable Practices"




Dr. Renu Dhupper

Audio

Start Video

Security

Participants 70

Chat

Share Screen

Pause/Stop Recording

Breakout Rooms

Reactions

Apps

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भूजल सप्ताह
16-22 जुलाई 2023

यह संकल्प निभाना है, हर एक बूँद बचाना है

AMITY UNIVERSITY

“Groundwater Depletion in India – Causes, Implication & Way Forward for Sustainable Practices”



Dr. N. Gupta



Gopal Krishan



Dr. D K Bandyopadhyay

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“Groundwater Depletion in India – Causes, Implication & Way Forward for Sustainable Practices”



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S P. singh Singh RENU DHUPPER Tanu Jindal

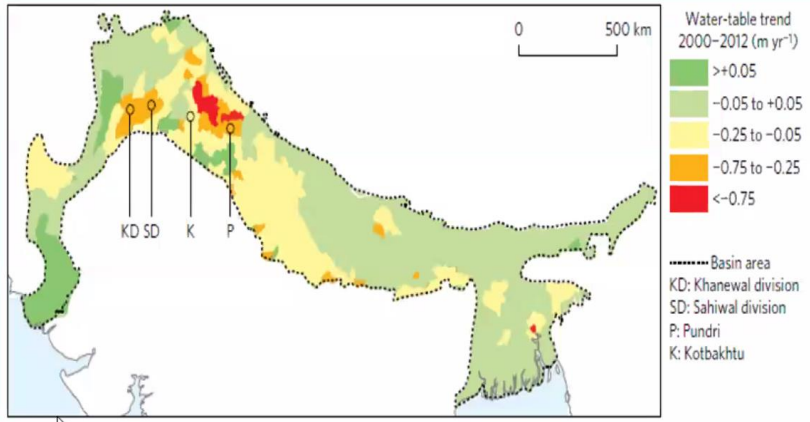
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Groundwater depletion Indo-gangetic basin

It has been estimated that the total volume of groundwater is about 30,000 km³.

About 20 times the combined annual flow in the Ganges, Indus, and Brahmaputra (1200 km³).

However, as estimated, 23% of this is saline and 37% is affected by arsenic.



nature geoscience LETTERS PUBLISHED ONLINE: 29 AUGUST 2016 | DOI: 10.1038/NGE02791

Groundwater quality and depletion in the Indo-Gangetic Basin mapped from *in situ* observations

A. M. MacDonald^{1*}, H. C. Ronsse¹, K. M. Ahmed², W. G. Burgess³, M. Basharat⁴, R. C. Calow⁵, A. Dixit⁶, S. S. D. Foster⁷, G. Gopal⁸, D. J. Lapworth⁹, R. M. Lark¹⁰, M. Moench¹¹, A. Mukherjee¹², M. S. Rao⁹, M. Shamsudduha¹³, L. Smith¹⁴, R. G. Taylor¹⁵, J. Tucker⁹, F. van Steenberghe¹⁶ and S. K. Yadav⁶



Prabhat Ojasvi

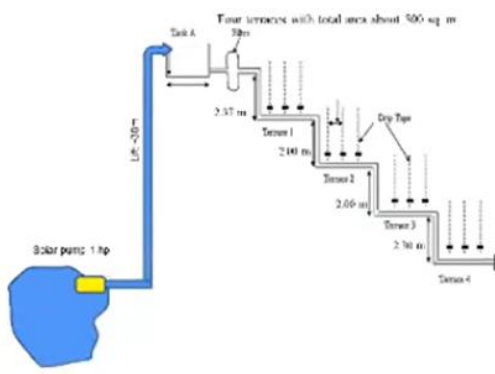


भा.क.अनु.प.
ICAR
भा.क.अनु.प. भारतीय मृदा एवं जल संरक्षण संस्थान (भामुजसंस.)
ICAR-Indian Institute of Soil & Water Conservation (IISWC)



Enhancing Rainwater productivity through Solar power for small farmers

A model for irrigated hill terraces for enhanced productivity with solar and micro-irrigation system

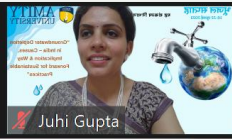


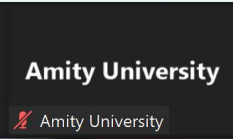




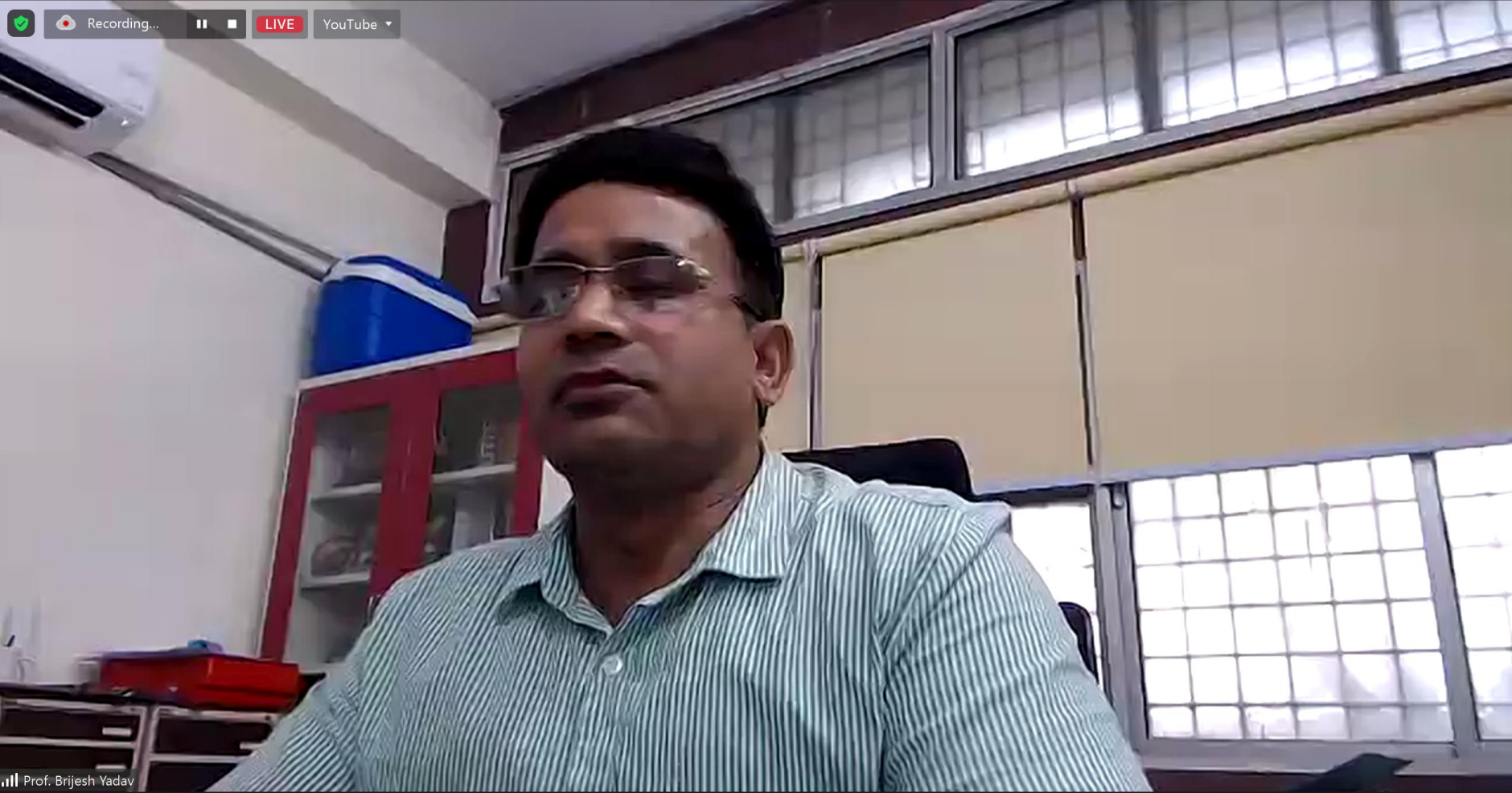
Crops	Fruits/pod yield (t/ha)
Tomato	39.1
Cabbage	31.5
Brinjal	38.8
Chili	26.5
Capsicum	23.0
Okra	8.7
SE m	1.71
CD	2.96



Integrated Water Resource Management

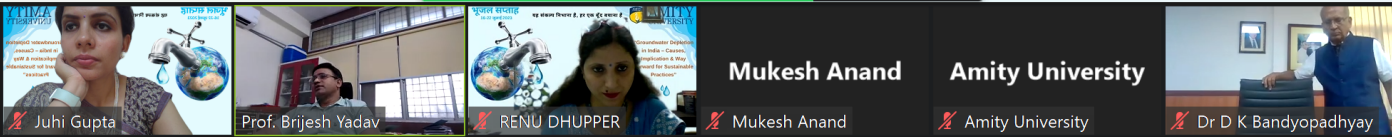
- ❑ Water is recycled and reused several times in IWRM, in contrast to a one-way route from supply to use, treatment and disposal.
- ❑ Storm water is utilized as a valuable resource to fight against water scarcity, recharge groundwater and support natural vegetation.
- ❑ The water system includes green infrastructures and a mix of grey and green infrastructure that form a hybrid system as compared to grey infrastructure in conventional water management.
- ❑ The interconnectedness of surface water, groundwater, storm water and wastewater is collectively recognized and managed by these separate but connected entities.
- ❑ Active collaborations with industry, agencies, policymakers, business leaders and various stakeholders is a regular practice in the 'One Water' approach, whereas collaboration is need-based in conventional water management systems.

 **Juhi Gupta**
 **RENU DHUPPER**
 **Mukesh Anand**
 **Amity University**
 **Dr D K Bandyopadhyay**
 **S P. Singh Singh** View >



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Groundwater Vs Surface Water

Extent: GW extends over a very large area than SW

Availability: Exploitation of GW needs energy; SW is easily available. GW is more reliable than SW (many streams are ephemeral/intermittent)

[Ephemeral channels that flow only for hours or days following rainfall, intermittent" streams which normally cease flowing for weeks or months each year, perennial stream has continuous flow in parts of its bed all year round during years of normal rainfall]

Temperature: GW has nearly constant temperature; SW Temperature changes with the temperature of the surrounding.

Time of residence: Long for GW



Dr. D.K. Bandyopadhyay



RENU DHUPPER



Event recording link:

<https://youtu.be/Po-kvhFDwMI>