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FIVE DAYS ACTIVITY BASED VALUE ADDED PROGRAMME

on

Groundwater Crisis, Water Security and Fostering Resilience towards Climate Change WORLD WATER DAY WEEK
CELEBRATION-2022

15th March-22nd March, 2022 || Hybrid Platform

Groundwater is invisible, but its impact is visible everywhere.

Out of sight, under our feet, groundwater is a hidden treasure that enriches our lives.

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Five Days Activity Based Value Added Programme

ON

**"Groundwater Crisis, Water
Security and Fostering Resilience
towards Climate Change"**

to Celebrate

WORLD WATER DAY 2022

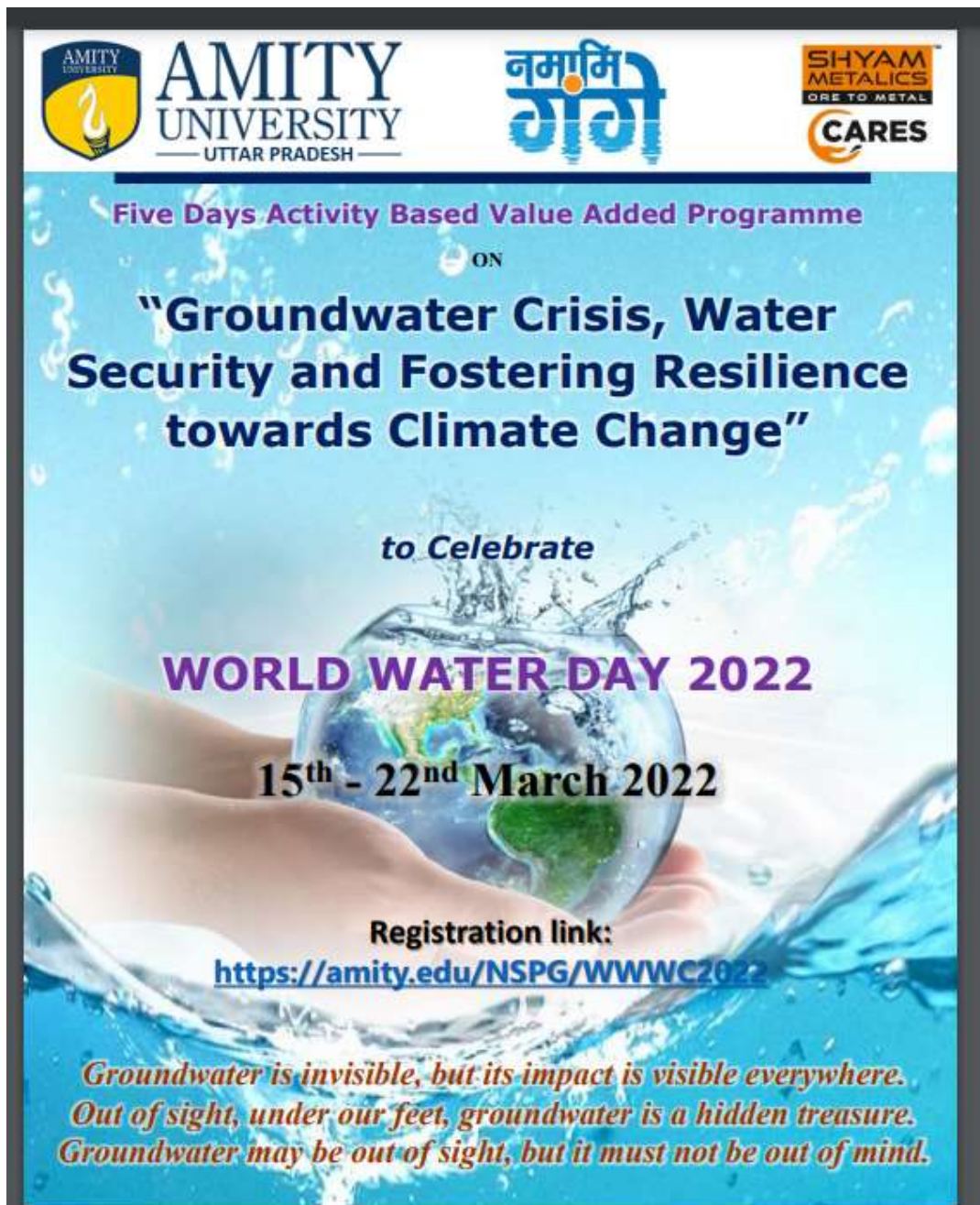
15th - 22nd March 2022

Registration link:
<https://amity.edu/NSPG/WWWC2022>

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Groundwater may be out of sight, but it must not be out of mind.*

WORLD WATER DAY-2022 on 15.03.2022

THEME 2022: GROUNDWATER - MAKING THE INVISIBLE VISIBLE



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Groundwater is invisible, but its impact is visible everywhere. Out of sight, under our feet, groundwater is a hidden treasure that enriches our lives. Almost all of the liquid freshwater in the world is groundwater. As climate change gets worse, groundwater will become more and more critical. We need to work together to sustainably manage this precious resource. Groundwater may be out of sight, but it must not be out of mind.

Every year, the World Water Day highlights a specific aspect of freshwater. The theme also sets the focus for the annual World Water Development Report. An annual theme is proposed by UN-Water Members and Partners two to three years in advance. At its meeting in Rome last week, UN-Water decided that “Groundwater: making the invisible visible” – proposed by IGRAC – will be the theme for the World Water Day 2022.

The 30th meeting of UN-Water was held at the headquarters of the International Fund for Agricultural Development (IFAD) in Rome, Italy. Over 50 delegates of UN-Water Members and Partners and 23 observers from governments and other organisations attended this meeting.

On this auspicious day of World Water day, Amity Institute of Environmental Sciences, Amity University Noida organized a Five days Activity based Value added programme on “**Groundwater Crisis, Water Security and Fostering Resilience towards Climate Change**” from 15th March to 22nd March 2022 in collaboration with **National Mission for Clean Ganga (NMCG)**, GOI, New Delhi.

The event was filled with several activities, for a week and training and webinars every day. The event was focused to explore the linkages and the connection between the various aspects of groundwater crisis, water security and the associated disasters. The event also explored the management strategies in relation to climate change and building resilience for water crisis. The idea was that all the organizers, scientists, experts, and other stakeholders across the world and nation should come together for a better understanding and solving the problems of water crisis, management, climate change and disaster mitigation through the mass awareness, technical/technological, policy and legal perspectives and sustainable solutions. The main aim is to monitor and manage the groundwater and will focus on sustainable management and protection of groundwater quality to meet the needs of both human and ecological systems and to timely predict the associated disasters.

Objective of the Five Days Activity Based Value Added Programme

The primary objective of the Five Days Activity Based Value Added Programme was to provide opportunity for academicians, researchers, practitioners, policy makers and research scholars to share and discuss ideas and practices across a range of empirical, theoretical, practical, technical and applied approaches to deal with the water crisis, climate change and climate triggered disasters. The other objectives included the mass awareness and capacity building for the nation and to developing eco-youth brigade to create public awareness through various competitions like photography, nuked natak, paintings, debate, model making projects, surveys etc

In the first session it started with the welcome address given by **Dr. Renu Dhupper**, Joint coordinator, Amity Institute of Environmental Sciences, Amity University with the blessings of Hon’ble Founder President Sir, Hon’ble Chancellor Sir, Hon’ble Vice Chancellor, and mentor AIES. The journey of days will aim and hope for interacting, enabling of information exchange and sharing experiences in the field of Groundwater Crisis, Water Security and Fostering Resilience towards Climate Change.

Dr. BALVINDER SHUKLA, honourable Vice Chancellor, stated that water is life and the best source of water in ground. The quality of ground water is deteriorated which leads to water scarcity, climate change plays a huge rule in deterioration of quality of water. She talked about how amity has taken initiative for a better environment.

Dr. Tanu Jindal talked about ground water contamination due to pesticides and ground pollution. she talked about the projects done with the organisation such as ministry of environment forest, ministry of earth sciences for solid waste leaching in ground water in areas like sirsa, yamuna river pollution , provided suggestion for better water filtration for pesticide. a patent has been granted to invention called lysimeter.



Dr. M. Ariz Ahammed IAS,

Principal secretary of government of Assam, Transformation and development department stated that water is life and the best source of water in ground. The quality of ground water is deteriorated which leads to water scarcity. he added that Climate change plays a huge rule in deterioration of quality of water. He talked about water budgeting. Collaboration of state and centre government is very important. Civil servants play a very important role. Water is ruled by hydrological units not political units. Water cycle understanding is very important in water governance. India is facing challenges in water storage capacity. Per capita water availability is also reducing by day. India is the largest ground water exploiter. If the same scenario keeps going water problem will keep increasing in India.





Budget!!! - Why not for Water?

- **Budget: Derived from**
 - Old **French** word *budget*, *purse*; Latin *budget*, **a little pouch** or knapsack
- **History:** Monarchs used to squander the country's tax revenues and rack up debts.
 - The reform is introduction of Budget, 18th Century; Modern Annual Budget
- **Is a quantified financial statement / plan for a forthcoming accounting period.**
- **Object of a budget: A tool**
 1. To provide a forecast of revenues and expenditures.
 2. To measure actual operations against the forecast.
 3. To serve as a single point of coordination between departments. **Organised Conflict**
 4. To control resources, evaluate and recognise the performance.
 5. To provide visibility and accountability
- **Outcomes of Financial Budgets: No deficits and Economic Security**
- **For finance- We have budget.**
- **Why not for Water? Which is much more precious?**

Let's make State Water Budget today -

for tomorrow's
Water security, safety and sustainability.



No Notes

SHRI G Asok Kumar, IAS,

Director general,

National mission for clean Ganga, GOI talked about role of youth in water conservation. water problem in india is not because of water shortage but because of it's unnecessary exploitation. rainfall intensity has increased in india which is causing water storage problems. due to population increase clean water bodies are becoming polluted. water demand in agriculture sector has also increased due to growing population.

Conclusion

we need to start conserving water and keep the water bodies clean.india need to upgrade their water storage capacity.

Vote of thanx for the session was given by Dr. Manju R Ranjan, Joint coordinator, Amity Institute of Environmental Sciences, Amity University



Session 1 Day 4



The first session of water day celebrations was started with Prof. (Dr.) Narayan C. Ghosh, **Principal-Bengal Institute of Technology,(Ex-Scientist 'G', National Institute of Hydrology, Roorkee, India)** He thanked everyone and talked about “Challenges in Groundwater Management in India”. He mentioned about the major issues- groundwater depletion (drying up aquifers and springs), groundwater quality deterioration (freshwater availability reducing) and increasing disconnect between groundwater and ecosystem

(environmental impact due to depletion and contamination). The problems include depletion due to overexploitation, waterlogging and salinity due to inadequate drainage, increasing urbanisation, natural aquifer recharge reduction. He also talked about the study on Ramganga Sub-basin using concept of “Ganges Water Machine”. The concept was part of floodwaters storage can be used for enhancing aquifer storage by groundwater pumping.



The next speaker was **Dr. Quamrul Hassan**, Professor, Department of Civil Engineering, Jamia Millia Islamia, New Delhi, India. He thanked everyone for organizing 5 day world water day program and talked about Sustainable development goals and how water conservation can be achieved. He talked about sustainable development which is the centre of current concerns about environment and development. It is the best known and most commonly cited idea linking environment and development. He mentioned about the rapid increase in population and continued socio-economic development- increase pressure on natural resources (water one of them). He said water availability greatly influences the health of the people and development potential of the area.



We had our next speaker, **Dr. Shivakumar Magada**, Professor and Dean, College of Fisheries, Mangalore, India. He thanked everyone and talked about the importance of water in our lives. He played a video showing the importance of water in a desert area. He mentioned about the natural water cycle which the recycles and reuses for millions of years which is called as natural buffering. He talked about the Indian river basins- Ganga, Brahmaputra, Mahanadi, Godavari, Krishna, Cauvery, Narmada, Luni and Indus. He said climate change is expected to negatively impact crop yield, particularly in the hungriest parts of the world.



The next speaker was **Dr. Kirpa Ram**, (PRL, Ahmedabad), Assistant Professor, Institute of Environment and Sustainable Development, Banaras Hindu University, Varanasi. He talked about the issue of River and groundwater interaction in the Indo-Gangetic Plain with emphasis on nitrate pollution. He said The Gravity Recovery and Climate Experiment (GRACE) satellite mission suggests that several centimeters worth of water is disappearing each year from beneath the northern Indian Subcontinent. He mentioned about the sources of nitrate which includes agricultural activities. Current agricultural systems allow for significant nitrate losses to groundwater much of it can occur outside the growing season. 70-90% of the nitrate contaminated groundwater comes from agricultural sources.



The next speaker was **Dr Shikha Wadhwa**, Assistant Professor, Department of Chemistry, Applied Science Cluster, University of Petroleum & Energy Studies (UPES), Dehradun. She thanked everyone and talked about "Plausible solution for persistent organic pollutant with the help of nanocomposites". She said Nanocomposites integrates the properties of functional nanoparticles and varying hosts of large size, minimizes the release or mobilization of nanoparticles while maintaining high reactivity and recyclable and cost effective method, scaling up has great advantages and is a effective and promising approach. She concluded that the nanocomposites have demonstrated much higher removal efficiencies for persistent organic compounds such as dyes, antibiotics etc in comparison to conventional methods (55-60% efficiencies)



The Vote of thanks was given by Dr. Richa D Nagar, AIES. Dr. **Richa D Nagar** gave the vote of thanks. She thanked on behalf of the entire fraternity of Amity would like to convey my deep regards and thanks to Honorable Founder President, President and Chancellor Sir and our Hon Vice Chancellor. She was thankful to all the speakers for presenting the importance of water in our lives.



Session 2 Day 4



The second session was started with the session's first speaker, **Dr. Bhavana Umrikar, Associate Professor, Pune University**. She thanked everyone and started the session with the topic "Groundwater Crisis, Water Security and Fostering Resilience towards Climate Change. She said that the task of water resource management for sustainable development requires a thorough understanding of the complexities of the physical environment covering factors and their variables. She explained the groundwater resource management can be achieved by- delineation of GW potential zones, delineation of GW recharge and storage zones, aquifer characterization and delineation, source identification of GW pollution, drought vulnerability analysis, site suitability for water harvesting structures and artificial recharge and impact assessment of water harvesting structures. At the end she talked about categorization of major landforms- HDP(A), HDP(B), MDP(A), MDP(B) etc.. She also mentioned about various recharge measures like cement bund on streams, earthen bund on streams, recharge pit/ trench/ shaft, dug well recharge, rooftop rainwater harvesting, underground bunds, trench gallery and spring development.



The second speaker was **Mr. Eklavya Prasad, Managing Trustee, Megh Pyne Abhiyan**, He thanked everyone and talked about “Why conservation of Groundwater is a non-negotiable”. He said conservation of groundwater is critical for minimizing environmental, social and health impacts triggered by human-induced disasters and changing climate. He said identifying factors impacting the water security in the village and developing ways of source protection as alternative practices. He talked about the typologies of floods- waterlogged flood, riverine floods, riverine flood riverbank erosion, flash floods, floods, waterlogging and inundation. He talked about reliance on groundwater- Bihar is particularly reliant on GW, even the piped drinking water connection depends on GW. He explained that Arsenic, Fluoride, Uranium and bacteriological contamination of GW poses serious water problem, more so for the women, as many are obvious of the reality. With piped water supply being recently introduced in rural areas, the uncertainties surrounding its sustainability and lack of knowledge pose a new challenge which are being attempted the addressed. At the end, he explained the key activities stemming from PGWM- drinking water protocol, source and resource sharing, demand for safe drinking, source and engaging in their protection, ecologically sustainable and disaster resilient sanitation system and institution building.



The next speaker was **Dr. Sandeep Singla, Prof. & Head Civil Engineering, RIMT University, Punjab**. He talked about “Geospatial models for water resource conservation and management”. He said that according to Dow to Earth at least 200 cities are fast running out of water. Cities across the world have grown, thrived and expanded along rich, perennial sources of water be it lakes, rivers, springs or even seas. He mentioned about the research gap of GW problems occurring in area of intense growth and development which include well interference and lack of comprehensive study. The new sources commonly are found near the region of outskirts of developing metropolitan zone. At the point when wells are found excessively near one another, drawdown territories for the wells may cover and result in diminished yields. There are studies which have been carried out butt considering very few influencing parameters and without proper monitoring and there is not any comparative study had been carried out. At the end he concluded that there is a scarcity of available groundwater. This project will highlight the groundwater potential zone for the various daily uses, Also, it will highlight the groundwater potential recharge zone so that the aquifers can be recharged to meet the requirement. We should plan accordingly to procure, harvest and recharge, find the most vulnerable regions.



Vote of thanks was given by **Dr. Ashutosh Tripathi**, AIES. Dr. Ashutosh Tripathi did the vote of thanks. He said we are very thankful for being with us on this second session of 4th day day of Five day activity based value added program that we are doing in collaboration with national mission for clean ganga on this groundwater crises water security and fostering resilience towards climate change, in order to celebrate the world water day week celebration 2022. He was privilege to extend his thanks to Hon'ble Founder President Sir, Hon'ble Chancellor Sir and Hon'ble Vice Chancellor. He thanked eminent speakers for explaining the geospatial models, conservation and management strategies of groundwater resources.. He expressed his gratitude by thanking Joint co-ordinators, faculties, non teaching staff and all the participants.

VALEDICTORY SESSION

Valedictory session was started with the welcome address given by **Dr. Manju Rawat Ranjan**, Joint coordinator, Amity Institute of Environmental Sciences, Amity University with the blessings of Hon'ble Founder President Sir, Hon'ble Chancellor Sir, Hon'ble Vice Chancellor, and mentor AIES. The journey began five days ago with an aim and a hope for interacting, enabling of information exchange and sharing experiences in the field of Groundwater Crisis, Water Security and Fostering Resilience towards Climate Change.

Report Presentation by Dr. Renu Dhupper, Joint coordinator, AIES, AUUP



The report Presentation was done by Dr. Renu Dhupper, Associate Professor, Joint Coordinator, Amity Institute of Environmental Sciences, briefing the discussion and the deliberations made by various eminent speakers. She has highlighted the key points of the Five Days Activity Based Value Added Programme and explained the outcomes achieved in detail. The ceremony was followed by a video by technical team showing glimpses of the five-day journey.



Announcement of results of competition conducted during Five Days Activity Based Value Added Programme



Announcement of results of competition conducted during Five Days Activity Based Value Added Programme was commenced by **Dr. Richa Dave Nagar**, Assistant Professor, AIES. The first competition of Model making and research solutions for local water problems was held in session II coordinated by Dr. Ashutosh Tripathi & Dr. Richa Sharma, ASNRSD. Second competition of Poster Making/Sketching was held in session III coordinated by Dr. Kartikeya Shukla, AIES & Dr. Deepak Kumar, AIGIRS. Third competition of Poem Writing was held in session IV- Coordinated by Dr. Manoj Chandra Garg, AIES & Dr. Murli, AIFWL.



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FIVE DAYS ACTIVITY BASED VALUE ADDED PROGRAMME ON **GROUNDWATER CRISIS, WATER SECURITY AND FOSTERING RESILIENCE TOWARDS CLIMATE CHANGE** 15th - 22nd March 2022

Student Competition – Models and local solution to groundwater pollution held on 15th March, 2021 under coordinator ship of Dr. Ashutosh Tripathi, Asst. Prof. AIES, AUUP



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FIVE DAYS ACTIVITY BASED VALUE ADDED PROGRAMME ON **GROUNDWATER CRISIS, WATER SECURITY AND FOSTERING RESILIENCE TOWARDS CLIMATE CHANGE** 15th - 22nd March 2022

Student Competition – Poster making/Sketching held on 16th March, 2021 under coordinator ship of Dr. Kartikeya Shukla, Asst. Prof. AIES, AUUP



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FIVE DAYS ACTIVITY BASED VALUE ADDED PROGRAMME ON **GROUNDWATER CRISIS, WATER SECURITY AND FOSTERING RESILIENCE TOWARDS CLIMATE CHANGE** 15th - 22nd March 2022

Student Competition – Poetry held on 17th March, 2021 under coordinator ship of Dr. Manoj Chandra Garg, Asst. Prof. AIES, AUUP



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Prof. D. K. Bandyopadhyay, Chief Advisor FPO / Chairman, Amity Law School, Mentor, Amity Institute of Environmental Sciences, Amity University Uttar Pradesh.



He congratulated for the success of five days activity-based value-added programme on Groundwater Crisis, Water Security and Fostering Resilience towards Climate Change on the occasion of world water day week celebration-2022. He said that this program made us meet many practitioners, academicians and policy makers at one common platform and get the students educate award and finding way ahead.

He welcomed and thanked all the dignitaries for sparing time and encourage and bless students in valedictory function. He also highlighted how Amity University is in a way contributing, creating awareness, generating ideas and bringing eminent personality to disseminate knowledge about the global environmental issues.



He described about the water conservation's collective and structural interventions and strategies that can be made for conjunctive use of water resources:

1. Rain water harvesting: The present drive towards the use of sustainable environmental systems and the protection of declining freshwater reserves has revived interest in the use of rainwater for some domestic purposes.
2. Vegetation management: Soil and vegetation management is the key to increasing water availability on rangeland. We can do little to alter the overall water cycle so our supply of water is fixed, depending upon local climate, season and current weather patterns.
3. Drainage system: Drainage water management is the process of managing the timing and the amount of water discharged from agricultural drainage systems. DWM is based on the premise that the same drainage intensity is not required at all times during the year. With DWM, both water quality improvement and production benefits are possible. Water quality benefits are derived by minimizing unnecessary tile drainage, reducing the amount of nitrate that leaves farm fields. DWM systems can also retain water in fields that could be used for crop production later in the season.
4. Irrigation management: Perhaps the best way to achieve the goal of using water in the most profitable way at sustainable levels is to schedule irrigations with the appropriate amounts of water applied with the appropriate frequency. This is accomplished by routinely measuring the soil water status, rainfall, irrigation water applied and estimating crop water use.
5. Protection of watershed: Watershed management is necessary for many reasons, including meeting requirements of the Clean Water Act (CWA) (to maintain the physical, chemical, and biological integrity of the nation's waters), the Safe Drinking Water Act (SDWA) (to protect drinking water supplies), and state programs, or meeting local community needs.
6. Wetland preservation: Wetlands can improve water quality by removing pollutants from surface waters. Three pollutant removal processes provided by wetlands are particularly important: sediment trapping, nutrient removal and chemical detoxification.
7. Establishment of effluent treatment plants: An important paradigm shift is necessary at multiple levels to advance sustainable sanitation services toward a circular economy in which wastewater is considered a valuable resource rather than a liability. Energy, clean water, fertilizers, and nutrients can be extracted from wastewater—and used to help achieve the SDGs.

8. Community participation: Community participation should be considered as mandatory in any development projects and local communities should be viewed as equal development partners who should participate fully in the design, implementation and benefit sharing for any water related development projects.
9. Awareness programmes: As many water issues need broad public support and understanding, raising awareness on issues surrounding water resources is increasingly seen as important. Public awareness means the general level of understanding of a certain topic. So raising awareness for water issues is a way to build a common understanding of water issues and to create shared values on how water should be used and managed.

Lastly, he concluded with a case study of the Chennai city, that how it was once struggling for water resource management and how it came up with innovative options to avoid high energy cost for transportation cost of water and the successful implementation of rain water harvesting programme.

Mohd Najeeb Ahsan, Sr. Communication Manager, National Mission for Clean Ganga, (DoWR,RD&GR) Ministry of Jal Shakti



Mohd Najeeb Ahsan is a senior communication manager for National Mission for Clean Ganga. He congratulated for coming up with this kind of programme and collaborating with Namami Gange to raise awareness about Groundwater Crisis, Water Security and Fostering Resilience towards Climate Change. He praised how the technical and practical aspects of water conservations were explored by eminent speakers from various fields and sectors.

He highlighted on the river rejuvenation programme that covers four components of the river Ganga and Impact and Progress of Namami Gange Programme.

Integrated River Basin Management (IRBM) approach is followed with multi-sectoral and multi-agency interventions such as (I) pollution abatement (Nirmal Ganga), (II) improving ecology and flow (Aviral Ganga), (III) strengthen people river connect (Jan Ganga) and (IV) facilitate diversified research, scientific mapping studies and evidence-based policy formulation (Gyan Ganga).

Pollution Abatement (Nirmal Ganga): Pollution abatement measures comprehensively tackle all sources of pollution such as municipal sewage, industrial effluents, municipal solid waste, rural sanitation, non-point sources of pollution such as agricultural runoff, open defecation, un-burnt dead bodies etc.

Ecology and Flow (Aviral Ganga): Drastic reduction in flow of river has a huge ecological cost with long term adverse Impact. A river is not a river without good flow. NMCG is working on improving flow and overall ecology through a mix of supply as well as demand side management of water.

People River Connect (Jan Ganga): River Rejuvenation is a continuous process which needs involvement of the people. The people river connect needs to be established so that they feel the need to join these efforts and are committed to maintaining her splendor and cleanliness. Namami Gange mission accords prime importance to this and is taking several steps for making it a people's movement.

Research, Policy and Knowledge Management (Gyan Ganga): Mission has given priority to evidence-based policy decisions and to get authentic data and information backed by scientific research.

He concluded that we need to have a better enforcement and also keep working for behavioral change as everything cannot be achieved by regulatory approach only. People's participation is key to transformation. So, asked students to come forward and how they can bring common public to this platform and further respect and protect natural resources.

Special Address by Guest of Honour

Dr. D. R. Pattanaik, Secretary IMS & Head, NWP, IMD New Delhi



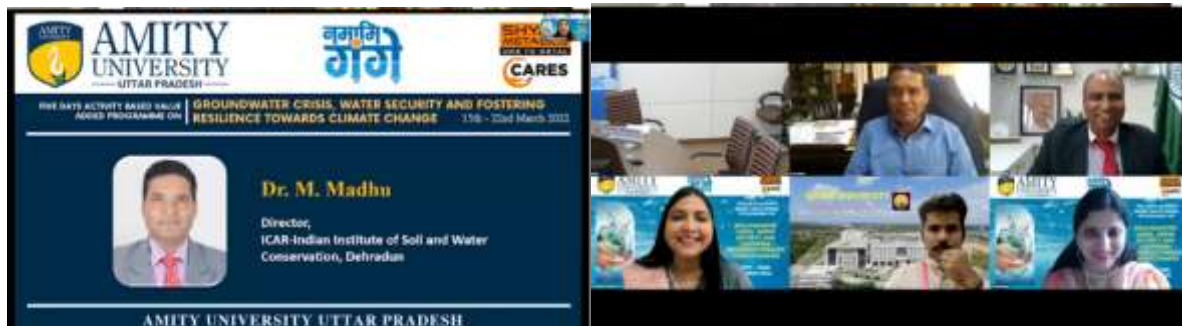
The ceremony was the followed by Special Address by Guest of Honour, Dr. D. R. Pattanaik, Secretary IMS & Head, NWP, IMD New Delhi. He congratulated on the successful five days activity-based value-added programme on Groundwater Crisis, Water Security and Fostering Resilience towards Climate Change on the occasion of world water day week celebration-2022.

He further highlighted that how the water sector is going to face problem in future and vulnerability due to climate change. He emphasized on the need to secure freshwater because per capita freshwater availability is decreasing in India and it can soon become a water stressed country. He further said that fortunately monsoon system is stable in India and total raining days are reducing climate change,

He highlighted how to manage this situation of water stress and how desalination along with other favorable options can address the water crisis, followed by how to judiciously use resources and preserve them. He said it is simply impossible to imagine human life without water, if there are no ample sources of water left then it would be a matter of great concern. Without water there will be no harvesting, no drinking water, no washing, cleaning and cooking as well. Hence it is very important to use our present water sources judiciously and try to save as much water as possible. It is very important to realize water conservation benefits and also to implement those in our day-to-day life. Water conservation encompasses the policies, strategies and activities to manage fresh water as a sustainable resource, and efforts to protect the water environment while maintaining a balance between current and future human demand. Population, household size and growth and affluence all affect how much water is used. Factors such as climate change will increase pressures on natural water resources, especially in manufacturing and agricultural irrigation. It is very important to realize the need for water conservation in the community as well as personal level.

Special Address by Guest of Honour

Dr. M. Madhu, Director, ICAR-Indian Institute of Soil and Water Conservation,Dehradun



Dr. M. Madhu is the Director, ICAR-Indian Institute of Soil and Water Conservation, Dehradun. He congratulated and highlighted the importance of water and water day.

He emphasized on utilizing traditional water harvesting system in coping with climate change scenario giving the examples of Rajasthan, Kerala Tamil Nadu and Nilgiris forest. He said Drawing upon centuries of experience, Indians continued to build structures to catch, hold and store monsoon rainwater for the dry seasons to come. These traditional techniques, though less popular today, are still in use and efficient. He gave a brief account of the unique water conservation systems prevalent in India and the communities who have practiced them for decades before the debate on climate change even existed. The eri system enables the complete use of river water for irrigation and without them, paddy cultivation would have been impossible in Tamil Nadu.

He said that these ecologically safe traditional systems are viable and cost-effective alternatives to rejuvenate India's depleted water resources. Productively combining these structures with modern rainwater-saving techniques, such as percolation tanks, injection wells and subsurface barriers, could be the answer to India's perennial water woes.

Valedictory Address by Chief Guest

Justin Mohan, Secretary, National Biodiversity Authority



Justin Mohan is secretary of National Biodiversity Authority and Working in Government for the past 21 years with experience in Biodiversity Conservation, Project Management, Infrastructure Development, Rehabilitation and development of conflict areas, Agriculture, Horticulture, Ground Water and Forest management.

He expressed happiness to be a part of World Water Day as water sector is close to his heart. He shared his past experience in Kerala and Tamil Nadu. He highlighted that how water harvesting schemes create awareness among people for groundwater. He discussed crisis of acute drought and flood problems due to climate change. He further praised the topic of this five day programme and said it will go a long way.

He gave concluding remarks about groundwater importance. He discussed the objectives like promoting measures addressing the principles of sustainable management of groundwater resources, addressing methods for the sound development, exploitation and protection of groundwater resources, developing new groundwater resource maps, and strengthening groundwater governance policy and water user rights in emergency situations. He concluded that these challenges call for comprehensive research, implementation of new science-based methodologies and the endorsement of principles of integrated management, and environmentally-sound protection of groundwater resources.

Vote of Thanks



At the end of session, the customary duty of presenting a vote of thanks was done by Dr. Renu Dhupper (Joint Coordinator, AIES). On behalf of everyone and the entire organizing team she thanked Honorable Founder President sir, Honorable Chancellor, Honorable Vice-chancellor, mentor, the Administration of Amity University, esteemed delegates, the scientific community, colleagues, participants and research scholars for their support and being an integral part of our journey and this event. She thanked the Admin, IT team, AUUP for their support throughout these five days World Water Day event celebration and helping since the beginning.