

भाजल संवाद



Govt. of India
Ministry of Jal Shakti
Dept. of WR, RD & GR
Central Ground Water Board

*The quarterly newsletter of Central Ground Water Board (CGWB)
Jan. - Mar. 2020, Vol.8*

IN FOCUS

Sh. G. C. Pati takes over as Chairman, CGWB

Tripartite MoU signed between CGWB,
NMCG and NGRI

CGWB wins Vaijayanti Puraskar

PATHSHALA

What is sea water intrusion

LITERATURE REVIEW

Text Book on Water Chemistry:
Sampling, Data Analysis and
Interpretation.

Tunnel wells of Kerala

COVER STORY

*Rajiv Gandhi National Ground Water
Training and Research Institute (RGNGWTRI)*

भुजल संवाद

The quarterly newsletter of Central
Ground Water Board
Dept. of Water Resources,
River Development and
Ganga Rejuvenation,
Ministry of Jal Shakti, Govt. of India

Vol. 8

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Cover Photo: Chhattisgarhi folk dance on the occasion of inauguration of the newly constructed building of Rajiv Gandhi National Ground Water Training and Research Institute. The institute building was inaugurated by the Hon'ble Minister of Jal Shakti on 25th February 2020.



MESSAGE

Our Country, along with the whole world is undergoing a tough time as human kind is confronting its new enemy COVID 19. We salute the contributions of frontline warriors like health professionals, sanitation workers, police, people involved in the essential supplies in the fight against the global pandemic. A new face of philanthropy has emerged as many are doing their bit to provide food and ration to the poor and needy.

In CGWB, we are also doing our bit for the fight against the pandemic. Notwithstanding the adversaries, CGWB is carrying out the permitted activities by following all the norms and advises of the authorities and experts. In the last three months (January to March 2020), CGWB has achieved many milestones and the most significant of them is the inauguration of the training institute building in Raipur. Our cover story in this issue provides a brief review of the history and achievements of the Institute.

In this issue (8th) of Bhujal Samvad, in addition to regular sections, we have added a new section *pathshala*, where we will introduce a new term related to ground water in every issue. We have also introduced a review section where we will provide review of select books and research papers published by CGWB professionals.

Thoughts and feedback of the avid readers are most welcome to make the Newsletter a success. Please email us or post your feedbacks on our social media pages. We are eager to hear from you.

(G. C. Pati)
Chairman, CGWB

Shri G. C. Pati takes over as the new Chairman of Central Ground Water Board

Shri G. C. Pati took over as the 27th Chairman of Central Ground Water Board, DoWR, RD & GR, Ministry of Jal Shakti, Government of India on 1st February, 2020. Shri Pati took over the charges from the outgoing Chairman, Shri K. C. Naik.

Sh. Pati has more than thirty years of experience in the field of Groundwater science.

An alumni of Utkal University, Odisha and a Post Graduate Diploma in EEMGR from Hebrew University, Israel, Shri G C Pati started his career in 1986 as a Scientist (Junior Hydrogeologist) in CGWB and handled wide range of responsibilities in various capacities in different parts of the country, including leadership



positions as Regional Director, Kolkata and Director (Administration) at CHQ, Faridabad. In 2015, Shri Pati has joined as Member (T T & W Q) and subsequently he has held the key position in Administration & Human Resources as Member (HQ). Widely travelled, Shri Pati has versatile experience of working in various facets of ground water management such

as, Ground Water Survey, exploration, estimation of ground water resources, sustainable development and management of ground water, Mathematical Modeling, Artificial Recharge to ground water. He worked as a specialist in Remote Sensing and GIS application to ground water studies and Geostatistics. He has chaired/attended various national & international conferences & workshops. He has more than forty National and International publications at his credit. Shri Pati has headed various inter-ministerial committees and member of national committees / Task Force. He has played a key role in framing policies on various ground water issues.

CGWB family heartily welcomes Shri. G. C. Pati as the Chairman of the Board.

Inauguration of Rajiv Gandhi National Ground Water Training & Research Institute at Raipur

Hon'ble Union Minister of Secretary, DoWR, RD & the function. Sh. Gajendra Singh Shekhawat, Jal Shakti, Govt. of India GR, Govt. of India and Sh. Hon'ble Minister and Sh. U.P. Singh, Sh. Gajendra Singh G. C. Pati, Chairman, Secretary, DoWR, RD & GR stressed upon the Shekhawat inaugurated the Central Ground Water role and importance of a Training Institute like new building of Rajiv Board. Around 850 people RGI to tackle the looming water scarcity that Gandhi National Ground including Officers from India is going to face in near future.

Water Training & Research various Central and State Institute (RGNGWTRI) at Government Departments, Raipur on 25th Feb., 2020. Non - Governmental Organizations, Faculty The inaugural function was attended by Sh. Sunil Kumar Soni, Hon'ble from various Schools, Member of Parliament from Colleges and Universities Raipur, Chhattisgarh, Sh. as well as inhabitants from Upendra Prasad Singh, IAS, nearby villages attended



Discussion on Atal Bhujal Yojana

Sh. G. C. Pati, Chairman, CGWB (L) ; Dr. Nandakumaran P., Project Director ABHY (R) with Sh. U. P. Singh, Secretary, WR, RD & GR, Ministry of Jal Shakti (Centre) in the studio of Prasar Bharti during recording of a discussion programme on **Atal Bhujal Yojana**. The Scheme was launched by Hon'ble Prime Minister of India on 25th December, 2019 – the birth anniversary of Former Prime Minister of India, Sh. Atal Bihari Vajpayee.



Tripartite MoU signed between Central Ground Water Board (CGWB), National Mission for Clean Ganga (NMCG) and National Geophysical Research Institute (NGRI) on 14th February 2020

A Tripartite Memorandum of Understanding has been signed between CGWB, NMCG and NGRI on 14th February 2020 to study the disposition of aquifers, characteristics of the palaeochannels in the Ganga Yamuna Doab and possible interaction of the aquifers with Ganga and Yamuna Rivers. Aquifers in the Ganga Yamuna Doab play an important role in sustaining flows in these rivers.



The disposition of aquifers and their interaction with the rivers is not very well understood yet. Hence, NGRI proposes to investigate in the NW direction of doab upto Kanpur to trace the extension of the newly discovered palaeochannel under the aegis of National Mission for Clean Ganga. This study is expected to help in developing plans for effective augmentation of flow for rejuvenation of Ganga through managed aquifer recharge.



जल शक्ति मंत्रालय द्वारा केंद्रीय भूमि जल बोर्ड को राजभाषा के उत्कृष्ट कार्यान्वयन के लिए वैजयंती पुरस्कार से सम्मानित किया गया। नई दिल्ली में आयोजित एक समारोह में माननीय जल शक्ति राज्य मंत्री श्री रतन लाल कटारिया ने अपने कर कमलों से श्री जी सी पति, अध्यक्ष केंद्रीय भूमि जल बोर्ड को पुरस्कार प्रदान किया। श्री सुनील कुमार, सदस्य मुख्यालय तथा श्री राकेश गुप्ता, उपनिदेशक राजभाषा को प्रशस्ति पत्र प्रदान किये गए। इस अवसर पर सचिव, जल शक्ति मंत्रालय तथा मंत्रालय एवं इसके संगठनों से अन्य वरिष्ठ अधिकारी भी उपस्थित थे।

Induction Level Training Course for Scientists of CGWB conducted at RGNGWTRI, Raipur



Induction Level Training Course (ILTC) is organised every year by Rajiv Gandhi National Ground Water Training & Research Institute, Raipur for the newly inducted Scientists of CGWB. This year also ILTC, 2019-20 was conducted during 25th November 2019 to 13th March 2020. About 27 newly recruited Scientists of CGWB attended the training course.

Sh. G. C. Pati, Chairman, CGWB addressed the trainees in the valedictory session of ILTC 2019-20 batch on 13.03.2020.

RAJIV GANDHI NATIONAL GROUND WATER TRAINING AND RESEARCH INSTITUTE

Rajiv Gandhi National Ground Water Training and Research Institute (RGNGWTRI), established in the year 1997, is the premier institute of ground water training and research in India. On 25th February 2020, the new Institute building was dedicated to the Nation by the Hon'ble Minister of Jal Shakti. In 23 years since its operationalisation, RGNGWTRI has seen many ups and downs and has achieved many milestones. A summary of its history and achievements is presented here

ESTABLISHMENT OF RGNGWTRI- A Chronology

1990: On recommendations of HLMC proposal for establishing ground water training institute initiated.

1992: On recommendations of HLMC proposal for establishing ground water training institute initiated.

1994: Foundation stone laid for construction of the institute building in Raipur, Chhattisgarh (Then Madhya Pradesh).

12 May 1997: First training programme commenced at RGNGWTRI, Raipur.

1999: The institute started to operate from the new institute building.

2000: Chhattisgarh State was carved out of Madhya Pradesh. The newly constructed institute building was handed over to the Govt of Chhattisgarh to house the Vidhan Sabha. Training activities continued through the region offices of CGWB.



2010: RGNGWTRI relaunched at Raipur from rented building and trainings started in full swing.

2004: Govt of Chhattisgarh allocated new land. But there were many issues that it could not be acquired. Training activities continued through the region offices of CGWB.

2013: Govt. of Chhattisgarh allocated ~50 acre in New Raipur Area.

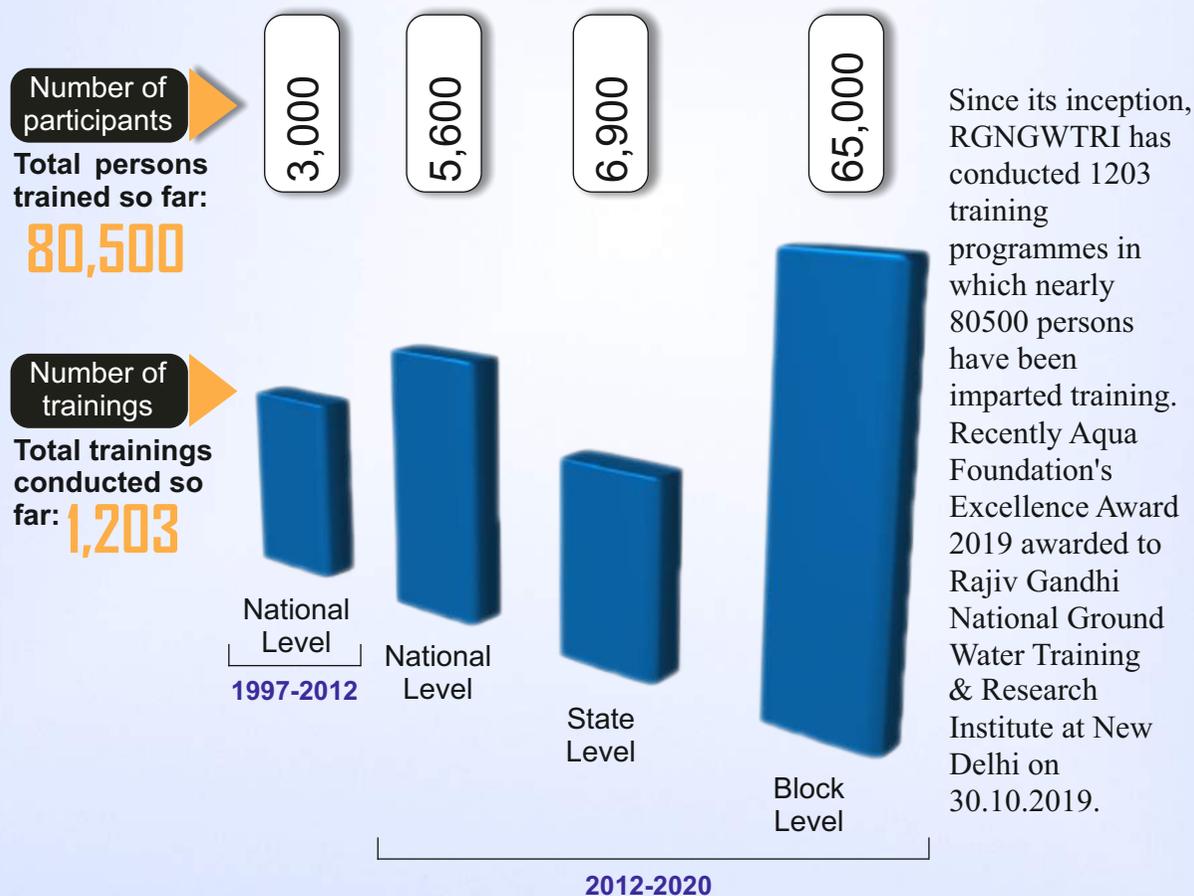
2014: MoA signed between CGWB and NPCC for construction of the institute building at Naya Raipur, Chhattisgarh.

25th February 2020: New institute building inaugurated by on'ble Minister of Jal Shakti

ACTIVITIES OF RGNGWTRI

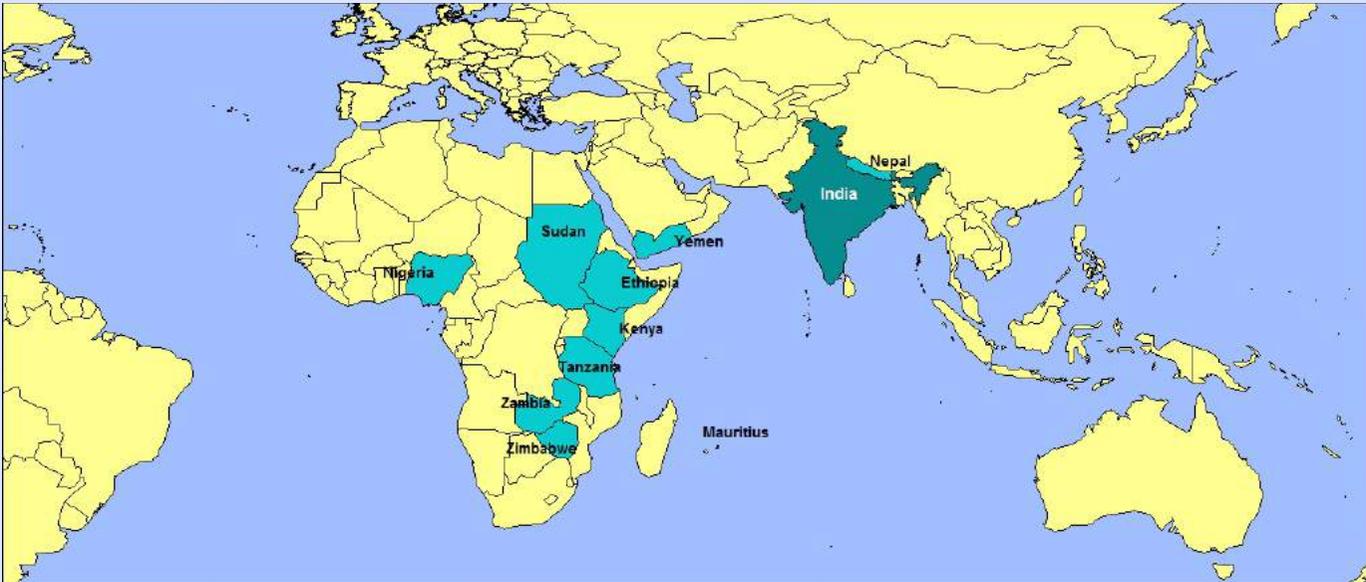
The first training programme by RGNGWTRI commenced on 12th May 1997. Till 2012, RGNGWTRI used to conduct training programmes mostly to meet the capacity building requirements of CGWB personnel only. Since the twelfth plan (2012), RGNGWTRI under the HRD&Capacity Building Scheme started implementing a three tier training programme:

Tier I	National Level	For ground water professionals of CGWB, State ground water departments and other govt agencies. Training durations vary from one week to 16 weeks.
Tier II	State Level	Trainings are organised for professionals of state ground water departments, NGOs and related professionals.
Tier III	Block Level	Trainings on local groundwater issues and management are organised for progressive farmers, NGOS, Vos, Social workers and other stakeholders.



RGNGWTRI is carrying out research using its inhouse resources and also in collaboration with leading academic and research institutes like PRL, Ahmedabad and IIT, Kharagpur. The institute has also opened its doors for carrying out research related to M.Sc. and M.Tech programmes. The institute has also started a PG Diploma course which is offered in association with Pt. Ravi Shankar Shukla University, Raipur.

TRAININGS FOR FOREIGN NATIONALS ORGANISED BY RGNGWTRI



Starting from imparting trainings to direct stakeholders at grassroots level, RGNGWTRI has also extended its scope to impart trainings to foreign Nationals. In this link, RGNGWTRI has conducted three trainings for foreign nationals: i) training for professionals from Republic of Yemen on 2006, ii) training on ground water modelling and management for 18 professionals from 8 African countries in 2011 and iii) training for professionals from Nepal in 2016.

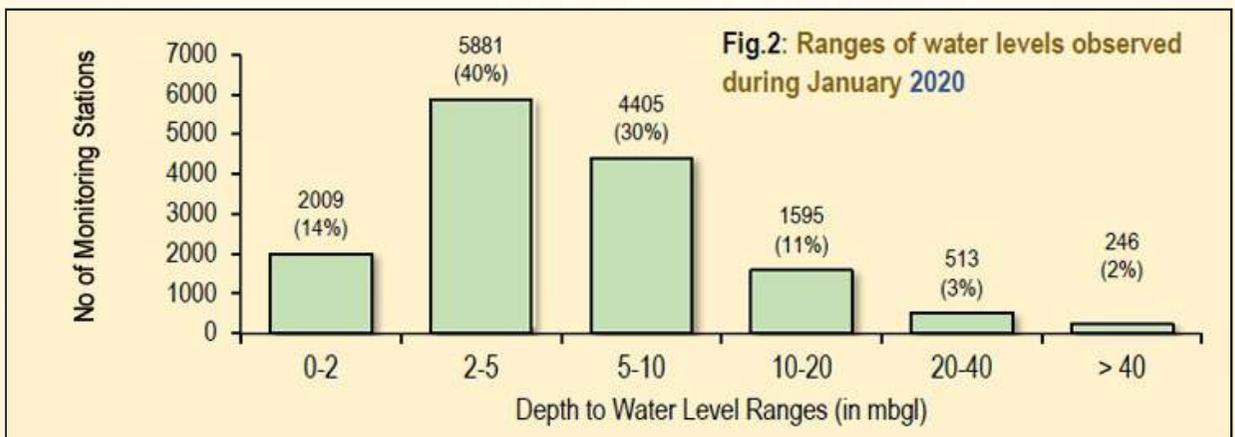
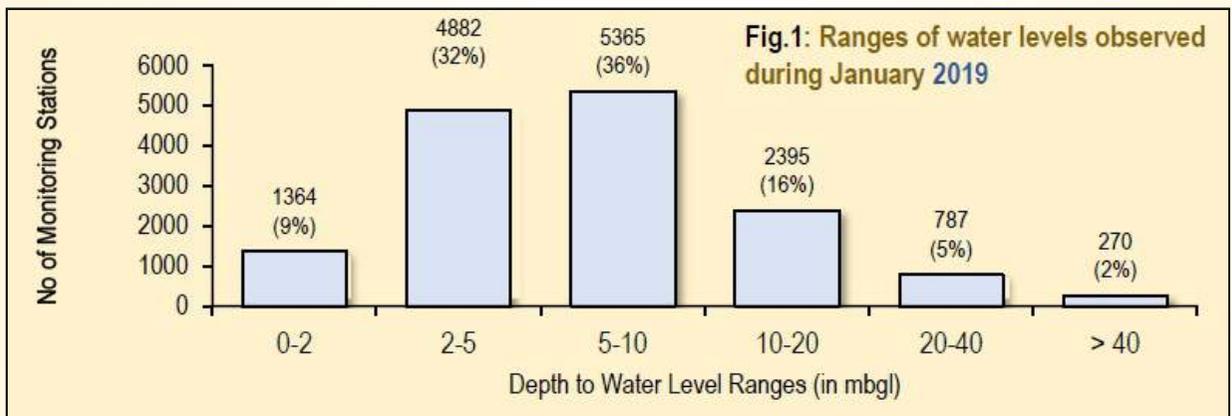


ANTICIPATED GROUND WATER SCENARIO IN THE COUNTRY DURING SUMMER 2020

ANALYSIS

Water levels in the wells and their variation over time are the direct indicators of present and expected future status of ground water availability in an area. Central Ground Water Board (CGWB) through its network of monitoring wells spread across the country carries out periodic monitoring of water levels. State ground water departments also have their own monitoring station networks. The analysis presented here is based on analysis of water levels recorded during the month of January in two successive years 2019 and 2020. While the primary analysis is based on data of ~16000 monitoring stations of CGWB, data obtained from nearly 5000 monitoring stations of different state governments have also been considered.

As per the water level measurements recorded during January 2019, nearly 68% of all the wells had water levels in the range of 2 to 10 m below ground level (m bgl). While the deepest water levels recorded go much beyond 40 m bgl, nearly 23% of the observations were more than 10m bgl (Fig.1).



During the month of January 2020, shallower water levels in the range of 2 to 10 m were recorded from nearly 70% of the monitoring stations (Fig.2). It is noteworthy that the percentage of wells showing deeper water levels (>10 m) has decreased from 23% in 2019 to 16% in 2020.

Water level data collected from the state ground water departments also show similar trend. In January 2019, while the deeper water levels were recorded from the western part of the country, the eastern and northeastern parts had shallower water levels (Fig.3.). Similar to the water level variations in the month of January 2019 (previous year), during the year 2020 also general deeper levels were recorded from the western part and shallower water levels were recorded from the eastern and north-eastern parts. However, a comparison of the maps show that the areas representing shallower water levels have significantly increased during January 2020.

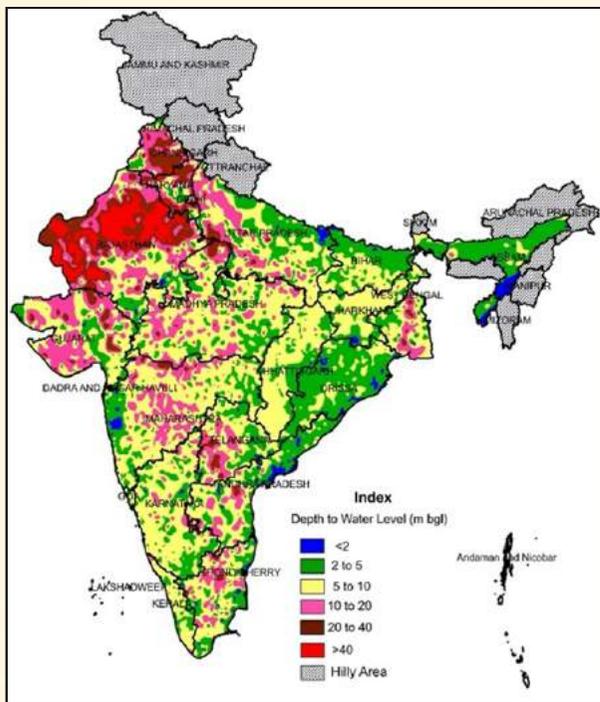


Fig. 3: Variations in water levels January 2019

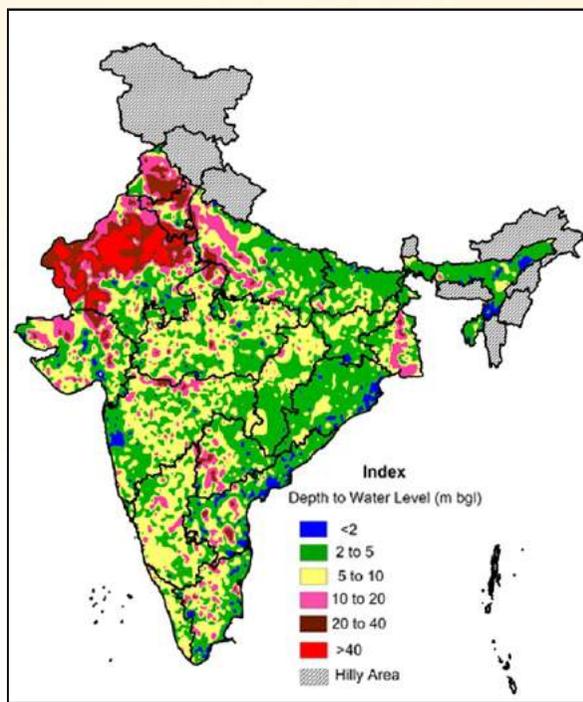


Fig. 4: Variations in water levels January 2020

A comparison of water level depths observed during January 2020 with the ones recorded during January 2019 shows that water levels in 69% of the analysed wells are shallower in 2020 (Fig.5). Water levels in January 2020 are shallower mostly in the range of 0-2m in all the states/ UTs of

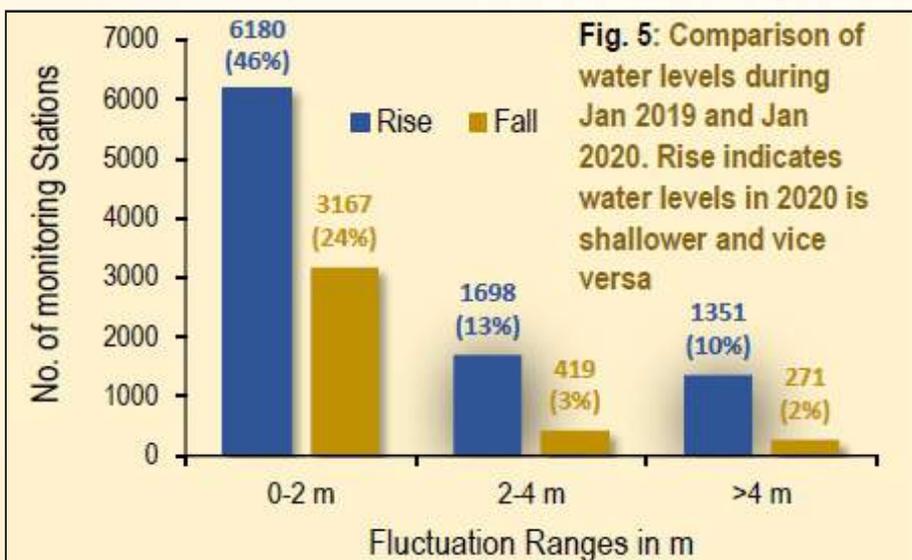


Fig. 5: Comparison of water levels during Jan 2019 and Jan 2020. Rise indicates water levels in 2020 is shallower and vice versa

the country except a few such as Chandigarh, Haryana and Karnataka. Similar to this observation, the water level data obtained from state departments also show shallower water levels during January 2020 (as compared to January 2019) in nearly 70% of the wells analyzed.

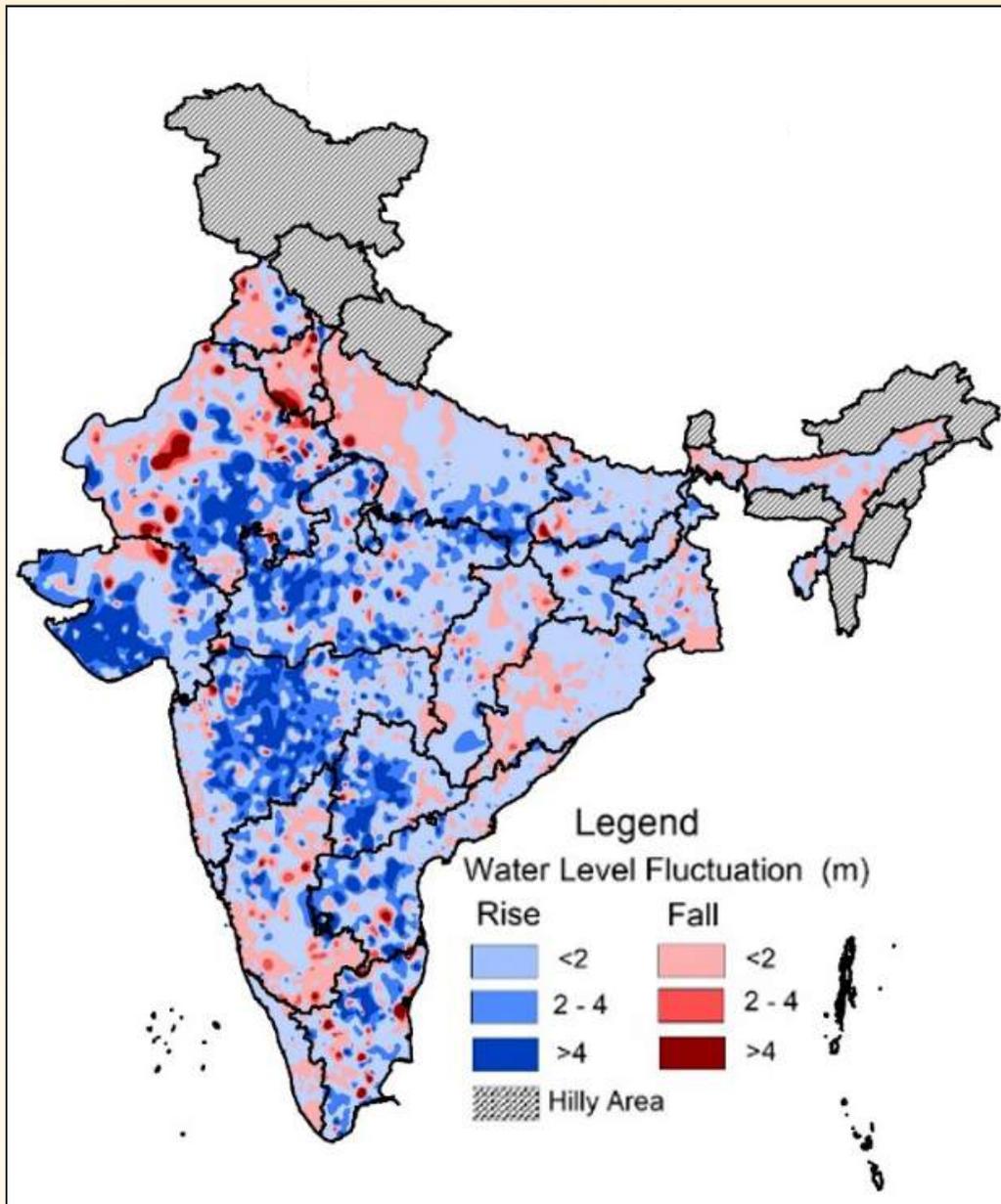


Fig. 6: Comparison of water levels during Jan 2019 and Jan 2020. Rise indicates water levels in 2020 is shallower and vice versa.

Rainfall being the primary source of recharge, ground water levels are controlled mostly by and pattern of rainfall. During October 2019 to March 2020, rainfall received is 44% above normal in almost all parts of India except in Sikkim and north-eastern states. The country, as a whole has received a rainfall that is on an average 29% higher than the normal (IMD).

Impact of high premonsoon rainfall is apparent on the observed water levels of January 2020 as the water levels are significantly shallower as compared to the water levels recorded in 2019. This influence of high rainfall on water levels is expected to continue and it is likely that water levels during this summer will be shallower than the water levels recorded a year ago. However, this is only a small consolation and interventions to conserve and augment ground water resources to contain over-exploitation needs to continue.

PUBLIC INTERACTION PROGRAMMES

EVENTS

To empower users at grassroots level with usable information on aquifers, their potential, status of use and management options, CGWB carries out Public Interaction Programmes. During the quarter ending March 2020, CGWB, through its various region offices, conducted a total of 247 public interaction programmes.

	PIP Programmes	Total Participants
Jan. 20	23	2395 (Including 766 female participants)
Feb. 20	117	10741 (including 5170 Female Participants)
Mar. 20	107	9082(Including 4447 female participants)



Basanti Island,
District: South 24 Praganas,
State: West Bengal
Date: 25.02.2020.



Village:Gobil Ading,
District: East Garo Hills,
State:Meghalaya
Date: 28.02.2020

WORKSHOPS/MEETINGS



Presentation of National Aquifer Mapping and Management Plan covering Ahmedabad and Gandhinagar districts, Gujarat at State Ground Water Coordination Committee meeting on 09.01.2020.



Presentation of National Aquifer Mapping and Management Plan Report for Goa by CGWB at State Ground Water Coordination Committee meeting and release of the State Report on Hydrogeology of Goa on 21.01.2020.

Ground water management plans were shared in meetings with the district authorities (Dy. Commissioners) of four districts of Meghalaya.



West Khasi Hills



West Garo Hills



East Garo Hills



North Garo Hills

Workshop on **India-European Union Water Partnership (IEWP)** for the Tapi River Basin Management Plan held during 20-24 January 2020 at CGWB, WCR, Ahmedabad. Sh. S.G.Bhartariya, Scientist D and Shri Rahul R. Shende, Scientist B attended the workshop. A presentation was made by Shri Shende on characterisation and risk assessment of 51 ground water management units (GMU).



Dr. S.K.Jain, Regional Director, CGWB, Jaipur participated as a panelist in the discussion at **Times Water Summit 2020**, Jaipur to discuss on “Roadmap to make Rajasthan Water Positive” organised by Times of India at Jaipur on 29-02- 2020.



Secretary (WR, RD & GR) Shri U. P. Singh chaired a meeting to review the status of 'Water Conservation and Revival of Rivers in **Saharanpur Division**' at Saharanpur on 20.02.2020. The meeting was attended by the Commissioner, Saharanpur Division and all the District Magistrates of Saharanpur Division along with concerned district level officers. Shri Y. B. Kaushik, Regional Director and Dr. Vikas Ranjan, Scientist C, CGWB, Lucknow attended the meeting and made a presentation on 'Aquifer Mapping and Management Plans in Saharanpur Division' .



A divisional workshop-meeting chaired by Shri U. P. Singh, Secretary (WR,RD&GR) was held at Banda to review the status of 'Water Conservation, Participatory Ground Water Management and Water Bodies Rejuvenation in **Chitrakoot Dham Division**'. Commissioner, Banda Division and all the District Magistrates of Banda Division along with concerned district-level officers attended the meeting. From CGWB, Shri Y. B. Kaushik,

Regional Director, Shri P K Tripathi, Scientist D, Shri Jagdamba Prasad, Scientist D and Shri T. K. Pant, Scientist D attended the meeting.

A presentation on 'Aquifer Mapping and Management Plans in Chitrakoot Dham Division' was made during the meeting.

Shri U. P. Singh, Secretary (WR, RD & GR) chaired a meeting to review the status of 'Water Conservation and Revival of Rivers in **Meerut Division**' at Saharanpur on 04.03.2020. The meeting was attended by the Commissioner, Meerut Division and all the District Magistrates of Meerut Division along with concerned district level officers. Shri Y. B. Kaushik, Regional Director and Dr.Vikas Ranjan, Scientist C, CGWB, Lucknow attended the meeting and made a presentation on 'Aquifer Mapping and Management Plans of Meerut Division'.





Shri K. C. Naik, Chairman, CGWB delivering presidential address during inaugural session of **Public Outreach Workshop on Participatory Ground Water Management at GKVK, Bangalore** on 11.01.2020.



State Technical Advisory Committee meeting of PMKSY HKKP GW Irrigation for Assam chaired by Chief Engineer, Department of Irrigation, Assam on 08.01.2020.



State Level Technical Advisory Committee meeting chaired by Secretary & Commissioner, Irrigation, Assam at Guwahati on 03.02.2020.



The second Sub Committee of the Parliamentary Committee on Official Language visited Chennai during 14th – 16th January, 2020 for inspection of Central Government Offices.



Inaugural function of **International Ground Water Conference 2020 at Kozhikode, Kerala** on 18.02.2020. Sh Sanjay Marwaha, Member, CGWB delivered the keynote address.



Awareness Raising Program under National Hydrology Project by CGWB at YASHADA, Pune, Maharashtra on 05.02.2020.



Awareness Raising programmes in Schools

Igniting young minds: CGWB organized **awareness campaigns in schools** on basics of ground water science, ground water conservation and good practices in ground water management.

Officers of CGWB went to the schools and interacted



with the school kids. So far CGWB has conducted more than 200 such programmes in the schools both in urban as well as rural areas. The enthusiasm shown by the teachers and students have been overwhelming.

A text book on water chemistry by A.G.S. Reddy

REVIEW

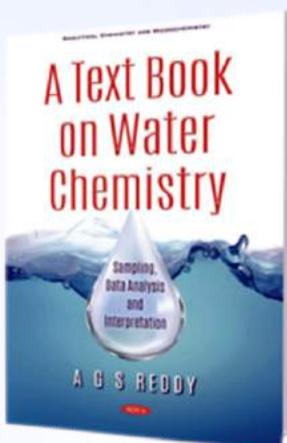


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Along with depletion of water table, deterioration of water quality is becoming an alarming issue throughout the world. In this context, the scientific understanding of water quality scenario, quality monitoring and management is inevitable for the water professionals, researchers, students, NGOs and renowned experienced Dr. Reddy has systematically been perspectives through well precious book is a beautiful decades long field experience and water chemistry. I do strongly through the book entitled “A Text Sampling, Data Analysis and the timely need of the students of environmental sciences, civil dealing with water chemistry.



policy makers. Dr. A.G.S. Reddy is a Hydrogeochemist of international level ground water training institute. explained all the hydrochemical organised chapters in this book. This amalgamation of his more than three years long teaching in the arena of believe that his ardent contribution Book on Water Chemistry: Interpretation” will be able to fulfil geology, hydrogeology, engineering and the institution

Tunnel Wells, The Traditional Water Harvesting Structures of Kasaragod, Kerala: Re-Visited

E. Shaji, K. V. Sarath, Pranav Prakash, Adithya Pazhoor
Abraham, V. Deepchand, V. Kunhambu and A. P. Pradeepkumar
CURRENT SCIENCE, VOL. 118, NO. 6, 25 MARCH 2020. doi: 10.18520/cs/v118/i6/977-983

Tunnel wells or surangams are less common traditional groundwater harvesting structures of Kasaragod district in Kerala, southern India. These horizontal wells, structurally resembling Qanats, are driven into the laterite plateaus and hills for tens of metres. The status of tunnel wells of Kasaragod is synthesized, the problems and prospects examined to evolve a common strategy for sustainability. Functionally four different types of tunnel wells exist: (1) single tunnel, (2) single tunnel with branches, (3) tunnel system ending in a vertical well, and (4) tunnel system ending in a well with a horizontal outlet. The yield of tunnel wells has reduced over the years and 50% of them are now dry. Single tunnels (types 1 and 2) act as conduits for excessive draining of groundwater from the aquifer system during the rainy season, leading to wastage of groundwater and lowering the water table. The discharge estimates from the 24 tunnel wells indicate that 6653 m³ of groundwater gets discharged from the aquifer per day. To prevent wastage, the mouth of the tunnel wells should be fitted with half shutter gate with a control valve at the bottom. There is an urgent need to create awareness to protect and modify these traditional water harvesting structures for sustainability of water resources.



Contributed by Sh. V. Kunhambu, Regional Director, CGWB, SWR, Bengaluru
For details please refer the complete paper
(<https://www.currentscience.ac.in/Volumes/118/06/0983.pdf>)

SEA WATER INTRUSION

Sea water intrusion is the movement of salt water (from the sea) into the fresh water (coastal aquifer) due to natural process or human activities. The coastal aquifers with fresh groundwater are in hydraulic continuity with the sea water or saline water. Under natural conditions, the coastal aquifers have seaward movement of freshwater as the hydraulic gradient is towards the sea thus preventing sea water intruding the coastal aquifer. This results in development of an interface referred as 'saltwater-freshwater interface' or 'zone of transition' adjoining the coast or far below the ground level. The higher pressure and density of saltwater causes the saltwater to move into coastal aquifers in a wedge shape under the freshwater. The inland extent of the saltwater wedge is limited because the height of the freshwater column increases as land elevation gets higher.

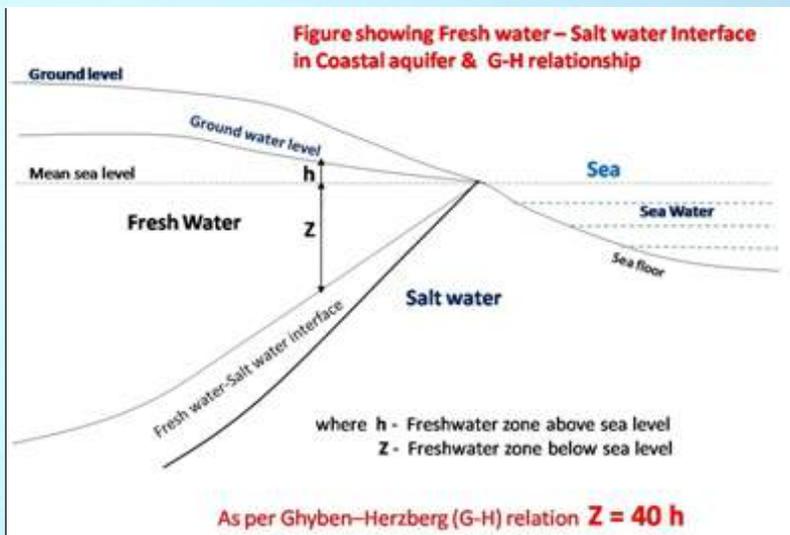


D. Gnanasundar,
Scientist D, CGWB,
SECR, Chennai

The Ghyben-Herzberg (G-H) relation is widely used to demarcate the seawater-freshwater interface of coastal aquifers.

Ghyben-Herzberg relation (figure below) is an analytical solution to approximate the intrusion behaviour.

If 'h' is the thickness of the freshwater above sea level and 'z' is the thickness of fresh water below sea level, then $Z = 40 h$. For every meter of fresh water above sea level, forty meters of fresh water will be below sea level in an unconfined aquifer.



Sea water intrusion in the coastal aquifers takes place mainly by reversal in hydraulic gradient or by up-coning caused due to continuous withdrawal of groundwater. The extent of saltwater intrusion into the coastal aquifer depends on

- i) volume of the water withdrawn vis-a-vis freshwater recharge to the aquifer.
- ii) distance between the pumping wells,
- iii) rate of pumping,
- iv) distribution of hydraulic properties of the aquifer,
- v) hydrostatic conditions of the aquifer (unconfined/confined) and
- vi) presence of confining units that limits the lateral and vertical flow of salt water into the aquifer.

The fresh groundwater resources of the coastal aquifers are much more fragile in comparison to that of the inland aquifers. Decisive coastal aquifer management plan (that includes; annual groundwater withdrawal limit, distance between two pumping wells, rate and hours of pumping per day, groundwater level and quality monitoring etc), maintaining hydraulic heads above mean sea level and regulatory measures in region of heavy and continuous pumping can prevent sea water intruding into the fresh coastal aquifers.

जल संकट पंजाबी फिल्मों को यूपी में खास सुविधाएं : राजू श्रीवास्तव

पंजाबी फिल्मों को उत्तर प्रदेश में खास सुविधाएं देने के लिए राजू श्रीवास्तव ने राज्य सरकार से अनुरोध किया है। उन्होंने कहा कि पंजाबी फिल्मों को उत्तर प्रदेश में प्रदर्शित करने के लिए राज्य सरकार को विशेष सुविधाएं देनी चाहिए। श्रीवास्तव ने कहा कि पंजाबी फिल्मों को उत्तर प्रदेश में प्रदर्शित करने के लिए राज्य सरकार को विशेष सुविधाएं देनी चाहिए।

भूमि जल के दोहन पर रोक ज़रूरी

भूमि जल के दोहन पर रोक ज़रूरी है, यह एक प्रमुख विचार है। जल संकट को दूर करने के लिए भूमि जल के दोहन को रोकना आवश्यक है। जल संकट को दूर करने के लिए भूमि जल के दोहन को रोकना आवश्यक है।

प्रदेश में सबमर्सिबल पीप के लिए पंजीकरण जरूरी

प्रदेश में सबमर्सिबल पीप के लिए पंजीकरण जरूरी है। यह एक प्रमुख विचार है। जल संकट को दूर करने के लिए सबमर्सिबल पीप के लिए पंजीकरण जरूरी है।

जल संचयन के लिए लोगों को जागरूक करें : बीडीओ

जल संचयन के लिए लोगों को जागरूक करने के लिए बीडीओ ने एक प्रमुख विचार है। जल संकट को दूर करने के लिए जल संचयन के लिए लोगों को जागरूक करने के लिए बीडीओ ने एक प्रमुख विचार है।

जल संरक्षण से पानीदार बनना बुदेलाखंड: सचिव

जल संरक्षण से पानीदार बनना बुदेलाखंड: सचिव ने एक प्रमुख विचार है। जल संकट को दूर करने के लिए जल संरक्षण से पानीदार बनना बुदेलाखंड: सचिव ने एक प्रमुख विचार है।

20 साल बाद राष्ट्रीय जल संरक्षण दिवस

20 साल बाद राष्ट्रीय जल संरक्षण दिवस का आयोजन किया गया। यह एक प्रमुख विचार है। जल संकट को दूर करने के लिए 20 साल बाद राष्ट्रीय जल संरक्षण दिवस का आयोजन किया गया।

राजीव गांधी भू-जल प्रशिक्षण व रिसर्च संस्थान का उद्घाटन आज

राजीव गांधी भू-जल प्रशिक्षण व रिसर्च संस्थान का उद्घाटन आज किया गया। यह एक प्रमुख विचार है। जल संकट को दूर करने के लिए राजीव गांधी भू-जल प्रशिक्षण व रिसर्च संस्थान का उद्घाटन आज किया गया।

जल संचयन पर दिया बल

जल संचयन पर दिया बल, यह एक प्रमुख विचार है। जल संकट को दूर करने के लिए जल संचयन पर दिया बल, यह एक प्रमुख विचार है।

आवर्त के लिए पंचायतों को टीम में किया

आवर्त के लिए पंचायतों को टीम में किया, यह एक प्रमुख विचार है। जल संकट को दूर करने के लिए आवर्त के लिए पंचायतों को टीम में किया, यह एक प्रमुख विचार है।

जल संकट को दूर करने के लिए

जल संकट को दूर करने के लिए, यह एक प्रमुख विचार है। जल संकट को दूर करने के लिए जल संकट को दूर करने के लिए, यह एक प्रमुख विचार है।

जल संकट को दूर करने के लिए

जल संकट को दूर करने के लिए, यह एक प्रमुख विचार है। जल संकट को दूर करने के लिए जल संकट को दूर करने के लिए, यह एक प्रमुख विचार है।

कुडाल ग्रामपंचायत कार्यालय में भूजल सांख्यिकी विचार विमर्श कार्यक्रम उन्माहत

कुडाल ग्रामपंचायत कार्यालय में भूजल सांख्यिकी विचार विमर्श कार्यक्रम उन्माहत, यह एक प्रमुख विचार है। जल संकट को दूर करने के लिए कुडाल ग्रामपंचायत कार्यालय में भूजल सांख्यिकी विचार विमर्श कार्यक्रम उन्माहत, यह एक प्रमुख विचार है।

TheHitvada

Oldest and Largest Circulated English Daily of Central India
Raipur on Wednesday, February 29, 2020 at Page No. 113 325

Shekhawat inaugurates new building of RGNGWTRI

Ground Water Board's C.P. Patel and member Sunit Kumar were present on special invite. Joint Secretary of Water Resources Department Chhatnagarh Anirban Chatterjee, officials from Agricultural Department, Forest Department, Department, Geological Survey of India, METI and other department officials participated in the programme.

Making Raj water positive is need of the hour, feel experts & officials

THE TIMES OF INDIA
TIMES WATER SUMMIT 2020
AGADAPUR TO MAKE RAJASTHAN WATER POSITIVE
JAPUR, RAJASTHAN

Water is the lifeblood of any nation. In Rajasthan, where water scarcity is a perennial problem, it is more so than ever. Experts and officials at the Times Water Summit 2020 in Jaipur stressed that making Rajasthan water positive is a need of the hour. They called for a paradigm shift in water management, from a focus on supply to a focus on demand management. The summit was attended by government officials, industry leaders, and experts from across the country.

टीम बनी नेशनल चैम्पियन

टीम बनी नेशनल चैम्पियन, यह एक प्रमुख विचार है। जल संकट को दूर करने के लिए टीम बनी नेशनल चैम्पियन, यह एक प्रमुख विचार है।

New water reserve to quench thirst for 100 yrs, says report

Pradhan Directs Petroleum Cos To Help Tap The Resource

A report by the Ministry of Water Resources has revealed that a new water reserve has been created to quench the thirst for 100 years. The report also states that the Prime Minister has directed petroleum companies to help tap the resource. This is a significant step towards ensuring water security for the future.

छात्रों ने जल संरक्षण की महत्ता बताई

जल संवाद
छात्रों ने जल संरक्षण की महत्ता बताई, यह एक प्रमुख विचार है। जल संकट को दूर करने के लिए छात्रों ने जल संरक्षण की महत्ता बताई, यह एक प्रमुख विचार है।

अटल भूजल योजना से पानी-पानी होगा बुदेलाखंड

अटल भूजल योजना से पानी-पानी होगा बुदेलाखंड, यह एक प्रमुख विचार है। जल संकट को दूर करने के लिए अटल भूजल योजना से पानी-पानी होगा बुदेलाखंड, यह एक प्रमुख विचार है।

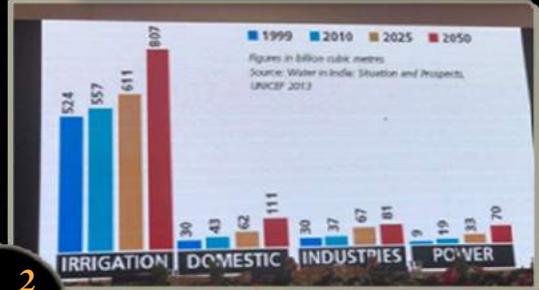
COLLECTABLES



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3



2



3

1
Dr. Nandakumaran P., Member (CGWA) planted a tree in the premises of CGWB Western Region, Jaipur on 23-1-2020.

2
Presentation on Ground Water and Demand side Management by Mrs. Anuradha Bhatia, Scientist D, CGWB during workshop on Increasing Water Use Efficiency in Agriculture organized by National Water Mission at Aurangabad, Maharashtra on 13.01.2020.

3
Plastic Free Campaign and Painting Competition on this theme by CGWB at Raipur on 23.01.2020.

4
Rain Centre established at CGWB, CR, Nagpur for Awareness Creation and demonstration of Rain Water Harvesting, Water Conservation and Artificial Recharge.



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5
Awareness Raising Program on Water Conservation and Artificial Recharge by CGWB at NIC, Chennai on 12.02.2020.

6
CGWB SECR, carried out "Swachhata Campaign" at Uroorkuppam, Besant Nagar Beach, Chennai on 24.02.2020.

7
Demonstration of Artificial Recharge Projects by CGWB to the students of B. Tech. Civil Engineering of St. Peters College, Gundimaisamma at CGWB campus, Hyderabad

8
Dr. S. K. Samanta, HOD, CGWB, NCCR, Raipur at the 170th Foundation Day of Geological Survey of India at State Unit Office, Raipur on 04.03.2020.



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11 12



9

Dr. P. K. Jain, Regional Director, CGWB, Nagpur shared the dais with the Hon'ble Union Minister of Road Transport and Highways Shri. Nitin Gadkari Ji in the Regional Users Meet-2020 organised by IMD, Nagpur on 7th March 2020.

10

Field Visit of CGWB Officers to Kotumsar limestone cave for exposure on lithological & structural control on occurrence and movement of ground water in Jagdalpur, Kanger and Tirathgarh formations of Chhattisgarh during their Induction Level Training Course at Rajiv Gandhi National Ground Water Training & Research Institute at Raipur.

11

International Women's Day being observed by CGWB, NCCR, Raipur on 08.03.2020.

12

Joint Hindi workshop for the quarter ending on March, 2020 was organized by Central Ground Water Board, Bengaluru on 12-03-2020. Dr. Ranjeet Kumar, Senior Translation Officer, DRDO was invited as Guest lecturer.



13 14



13

Central Ground Water Board, Central Region and Division-6, Nagpur jointly carried out Ploughing & Shramdaan for Swachhata and Awareness programme on 16th March 2020 in and around the CGWB Division premises Nagpur. The "Swachhata Pledge", was also given to all the participants.

14

Shri Ajit Singh, Draftsman, CGWB measures rainfall manually from rain gauge station installed in the premises of Bhujal Bhawan, Faridabad