

BEFORE THE NATIONAL GREEN TRIBUNAL, NEW DELHI

EXECUTION APPLICATION NO. 41 OF 2023

IN

ORIGINAL APPLICATION NO. 94 OF 2021

IN THE MATTER OF:

Haider Ali

... Applicant

Versus

Union of India & Ors.

... Respondents

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4

**Prashant Mishra and Shashank Singh,
Advocates for the Respondent No.25
(Impleaded Respondent No.18)
Chamber No. 306,
Supreme Court Additional Building Complex
Mathura Road, New Delhi 110001
Email.: shashanksinghadvocate@gmail.com Mob: 9654413791**

**NEW DELHI
DATE:01.05.2024**

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**REPLY ON BEHALF OF RESPONDENT NO.25 IMPEADED RESPONDENT
NO. 18 - KARYAVOTTAM SPORTS FACILITIES LIMITED [SPORTS HUB
INTERNATIONAL CRICKET STADIUM]**

1. That the instant Reply is being filed on behalf of Respondent No. 25 (impleaded Respondent No. 18) Karyavattom Sports Facilities Limited (KSFL) pursuant to the order dated 07.12.2023 passed by this Hon'ble Tribunal in the instant execution application. By means of the order dated 07.12.2023, this Hon'ble Tribunal had been pleased to implead Sports Hub International Cricket Stadium through KSFL as a party respondent with the express direction to file its response. Thereafter, by means of order dated 21.02.2024, all the parties were given further time to file their comprehensive replies with reference to the queries raised by this Hon'ble Tribunal.
2. That the order dated 07.12.2023 was passed by this Hon'ble Tribunal in the instant execution application filed by the applicant upon his allegation of non-compliance of the order dated 15.04.2021 passed by this Hon'ble Tribunal in Original Application No. 94 of 2021.

3. That at this juncture, it would be appropriate to summarize the observations made by this Hon'ble Tribunal in the order dated 15.04.2021. This Hon'ble Tribunal *inter alia* observed that there can be no dispute with the proposition that conservation of water is the dire need of the environment. Every effort is required to save potable water for drinking. Cricket or other such grounds may be maintained, as far as possible from the Sewage Treatment Plant treated water of high quality having no pathogens and offensive components. Rain Water Harvesting and storage of such water may be ensured. In the background of these observations, this Hon'ble Tribunal had directed the Respondent No. 1 therein to hold joint meeting with Respondents Nos. 2, 6 and 7 and consider the issue of regulating extraction of ground water for maintenance of Cricket grounds in particular:-

“(i) Prohibiting use of ground water for maintenance of the play grounds at least during the time no match is being actually played and exploring utilization of STP treated water;

(ii) Ensuring that effective rain water harvesting and water storage/recharging systems are installed in all playgrounds to save the ground water;

(iii) Laying down mandatory requirement of engagement of an environmental expert for every cricket stadium for ensuring compliance with the environmental norms; and

(iv) Using every sport event with the programme of awareness for environment protection using a part of profit from commercial activities as a mandatory obligation. The decisions taken in the meeting may be followed up by appropriate statutory orders.”

4. That, thereafter, the Respondent No. 1 filed its Action Taken Reports dated 04.08.2023 and 01.12.2023 before this Hon’ble Tribunal in the instant execution application. The aforementioned action taken reports showed that notices were issued to about 20 stadiums including sports hub International Cricket Stadium through KSFL (answering respondent) for allegedly operating Borewell / Tubewell in the stadium premises without obtaining a valid No Objection Certificate (NOC) from it for ground water extraction. A copy of the notice Dated 02.08.2023 issued by the Respondent No. 1 to the answering Respondent is being attached as **Annexure No. R-1** to the instant replay 14-17
5. That in the background of the facts stated hereinabove, this Hon’ble Tribunal was pleased to implead Sportshub International Cricket Stadium through KSFL in the instant execution application. In compliance of the directions dated 07.12.2023 and 21.02.2024 passed by this Hon’ble Tribunal in the instant execution application, the instant replay is being filed for stating the correct position regarding the efforts being made by the answering respondent with reference to the following aspects:
 - (a) Operation of the Borewell/Tubewell without a valid NOC
 - (b) The status of operation and function of STP
 - (c) Current status of the installation of Rain Water Harvesting System (RWH)

6. That before giving a detailed reply with respect to the points mentioned hereinabove, it would be appropriate to bring on record the specific arrangement based on which the Sportshub International Cricket Stadiums is being managed by Karyavattom Sports Facilities Limited. Understanding this arrangement is necessary for the proper adjudication of the controversy being raised in the instant execution application.
7. That in the year 2009, the then Government of Kerala had taken a policy decision to develop Cricket and Football stadium of international standards with all the necessary related facilities in the 31 Acres of land belonging to the Kerala University at Karyavattom. This arrangement was to be made on the basis of Private Public Partnership (PPP) on annuity based “design, build, operate and transfer” (DBOT model).
8. That in furtherance of this avowed objective, the National Game Secretariat (NGS) selected IL & FS Transportation Networks Limited (ITNL) through the competitive bidding process to implement the Karyavattom Stadium Project.
9. That in pursuance of the above, a concession agreement was signed on April 04, 2012 with the National Games Secretariat and Kerala University on one part as Authority and Karyavattom Sports Facilities Limited (KSFL) on the other part as concessionaire. It is notable that KSFL is a Special Purpose Vehicle (SPV) created by ITNL. The project concession is of the term of 15 years and would end in December 2027, when the facilities and the stadium would be returned back to Government of Kerala.
10. That the KSFL has entered into an agreement dated 12.09.2016 with the Kerala Cricket Association (KCA) to use the Field of Play (FOP) for a license period of 180 days on rental basis. It is worthwhile to mention that KCA is

an affiliate of Board of Control for Cricket in India (BCCI) established with the objective to develop and regulate the game of Cricket in the State of Kerala.

11. That it would be appropriate to clarify the terms and conditions of the concession agreement signed between Kerala Government and KSFL. The land on which the Stadium exists has been leased in the two-step process. Kerala University has leased the land to the Kerala Government which in turn has sub-leased it to KSFL for constructing and operating the project including the Cricket Stadium among other things. Now in light of the same, land tax has to be paid by the land owner which in our case is Kerala University. The tax due has not been paid by the Kerala University since 1983, thereby creating hurdles in obtaining NOC for usage and operation of borewell.

Re: Operation of the Borewells / Tubewells without a valid NOC

12. That in compliance of the order dated 28.03.2023 passed by this Hon'ble Tribunal in the instant execution application on June 8th, 2023, the State Ground Water Authority carried out an inspection of the KSFL site and sent a report to the Central Ground Water Authority. The inspection was conducted on the basis of the instructions from the Ministry of Jal Shakti in compliance of the orders of the Hon'ble Tribunal.
13. That thereafter an online meeting was convened by Ministry of Jal Shakti on July 17, 2023 based on the instructions from the Hon'ble Tribunal. The Department of Water Resources with representatives of all Cricket Boards and Stadium owners, all the Pollution Control Boards and the officials of

Central Ground Water Authority attended this meeting. During this meeting the following observations were made by the Ministry: -

- (a) KSFL was found not being able to submit the NOC for Borewell for extracting the ground water which it is currently using for eradicating the Field of Play (FOP)
- (b) STP is functional, however, the water from STP is not being used for irrigating the FOP or the Greenery around it
- (c) KSFL does not have a Rain Water Harvesting System in place.

14. That after the meeting the Ministry of Jal Shakti had directed the KSFL to carry out / implement the following and has taken it on their records -

- (a) To submit the NOC from the State Ground Water Authority within the time requested (30 days) to complete and maintain the STP System so as to enable the re-use of the treated water for irrigation of FOP
- (b) To set up RWH in a time bound manner and report the same to CGWA and SGWA on propose timelines.

15. That it would pertinent to mention here that KCA is one of the major users of the Borewell and extracted ground water, being the main user of the Cricket Stadium and the FOP for organizing domestic and international cricket matches. Therefore, the KCA is also included as a party to the notice by Ministry of Jal Shakti CGWA and SGWA.

16. That with respect to the action taken by the KCA and KSFL in compliance to the orders, notices and directions received in pursuance to the orders by

this Hon'ble Tribunal in the instant execution application it would be appropriate to bring on record the sincere steps taken by the answering Respondent for compliance of this Hon'ble Court's order.

17. That KCA has requested the State Ground Water Authority to issue NOC in the name of KSFL, for extracting ground water from the existing Borewell at the stadium by means of their letter dated 15.11.2023. For this purpose, KCA had written a letter dated 15.11.2023 to the Director, Kerala Ground Water Department. A copy of the letter dated 15.11.2023 written by KCA to the Director Kerala Ground Water Department is being attached as **Annexure No. R (2)** to the instant reply. 18
18. That in pursuance of the letter dated 15.11.2023 the aforesaid request has been forwarded to the office of the District Officer, Ground Water Department by means of File No. DGWD / 2891 / 2023 - T4 dated 28.12.2023. A copy of the forwarding letter dated 28.12.2023 as well as the NOC application made by KSFL is being attached collectively as **Annexure No. R (3)**. 19
19. That despite of timely submission of application, the answering Respondent has not been able to obtain NOC from the concerned Government Department because of certain criterion required in the NOC application form of District Water Authority. Firstly, in light of the land sub-lease arrangement made in the concession agreement the land tax has to be paid by the land owner which in our case is Kerala University. However, Kerala University has not paid the tax since 1984.

20. That for the purpose of issuance of the NOC, the Ground Water Department requires the submission of the proof of the payment of land tax deposition certificate to the Ground Water Department. Owing to the non-payment of land tax, the Ground Water Department is constrained from issuing in the NOC. Therefore, in light of the fact that the answering Respondent is a mere concessionaire engaged in the work of maintaining and using the Cricket Stadium it carried out active discussions with the Ground Water Department to waive this particular condition for the issuance of the NOC. However, in light of the Lok Sabha elections whole State machinery is grossly involved in the conduct of election therefore, no decision has been taken on this point till date.

21. That it is humbly submitted that the answering Respondent is leaving no stone unturned to comply with the directions of this Hon'ble Tribunal. It is making all necessary and sincere efforts to obtain NOC from the concerned Department at the earliest.

Re - STP compliance

22. That the Kerala Cricket Association has also initiated discussions with the Managing Director, Kerala Water Authority by means of a letter dated 15.11.2023 for the purpose of supplying STP treated water for the maintenance and upkeep of the playing area at the Sport sub-international Cricket Stadium. A copy of the letter dated 15.11.2023 written to the Managing Director, Kerala Water Authority is being attached as Annexure No. R (4). 20-21

23. That the KSFL is already having a fully functional STP present at the greenfield stadium with the capacity of 75 KLPD. Sewage water as well as service water is collected in two kilo liter tanks and the output tank capacity of the current STP is 45,000 liter per day. In order to ensure proper use of the STP treated water KSFL and the Kerala Cricket Association are jointly using a tanker vehicle as a stop gap arrangement for collecting the treated STP water from the outlet tank to the Stadium FOP for watering both the FOP as well as for surrounding greenery. Therefore, in absence of full-fledged automated system of re-using the treated STP water, the answering Respondent is making all necessary efforts to comply with the directions of this Hon'ble Tribunal.
24. That it would be appropriate to bring on record the fact that in reply to the request made by the KCA dated 15.11.2023 the Hon'ble Mayor Thiruvananthapuram held a joint meeting on 30.12.2023 at her esteemed office to assist the requirement and feasibility of supplying treated water to the stadium. The discussion concluded fruitfully with the instructions being given to the authority to compile the requirement of parties and formulate strategy for the supplying of treated water after the site visit.
25. That in compliance of the aforesaid direction, an inspection was made and the requirements have been submitted. However, owing to financial constraints which shall be explained in detail later, the answering Respondent has not been able to install the facilities relating to the re-use of STP treated water for the purpose of irrigating the Field of Play.

Re.: Installation of Rain Water Harvesting System

26. That KCA has also approached Kerala Rural Supply and Sanitation Agency by means of letter dated 15.11.2023 for installing Rain Water Harvesting System at sports of International Cricket Stadium. A copy of the letter dated 15.11.2023 written by the KCA to KRWSA is being attached as **Annexure No. R (5). 22**
27. That in reply to the letter dated 15.11.2023, KRWCA through letter dated 11.12.2023 has suggested developing a scientific rain water harvesting system to harvest rain water from the stadium roof top and surroundings of the Stadium. Furthermore, KRWSA has also suggested for installation of Grey Water System Management by which the treated water can be re-used for play area irrigation and the other non-domestic purposes. A copy of the letter dated 20.11.2023 as well as the proposal for the installation of RWH System is being attached as **Annexure No. R(6). 23**
28. That, significantly, KCA's general body has approved the suggestion of a comprehensive Rain Water Harvesting System and remodeling in renovation and expansion of existing STP. However, owing to the fact that KSFL is an entity which is under the Resolution Process presently under Hon'ble National Companies Law Tribunal (NCLT Mumbai) . Therefore, it is required to take approval for each and every financial expense firstly, from the Kerala Government and then from the Board appointed by Hon'ble NCLT. Therefore, the whole process is cumbersome and takes time. Furthermore, the company itself is under a resolution process is reflective of its weak financial position.

29. That in light of the fact of the above it is humbly submitted that KSFL is awaiting the final decision of the Hon'ble NCLT for conclusion of its Resolution Process which would result in the release of the necessary funds for the installation of the rain water harvesting and STP facilities in a full-fledged manner.
30. That the RWH System involves a completely new line of investment which would require approval from various authorities within the company as well as the State. It is being solemnly undertaken by the answering Respondent that it would comply with the directions of this Hon'ble Tribunal as soon as it receives the funds necessary for it from the State Government under the present Concession Agreement.
31. That the answering Respondent most humbly also submits that the Sportshub International Cricket Stadium is situated at Karyavattom in Thiruvananthapuram which is not falling draught prone zone. In fact, it is a matter of common knowledge that Kerala receives heavy rainfall during monsoon. Owing to the availability of rain water, the ground water tables are not as depleted as compared to some other draught prone zone areas of the country.
32. That, in fact, the Ground Water Authorities of Kerala have termed the area in which the stadium is situated as a "Safe Category" zone as per the Ground Water Estimation Committee Report - 2022 for Nemon panchayat block where the Stadium is situated. Also, as per the latest Pre-Monsoon assessment of the draught conditions (For January, February & March 2024) the Ground Water Draught Index (GDWI) for the same Nemon panchayat block is "NORMAL". In order to substantiate the averment made herein, the

answering respondent is attaching the ground water report as Annexure No. R (7). 24-33

33. That it is also being humbly submitted that the instant reply could not be filed a week before the hearing of the instant application as the answering respondent was diligently pursuing the NOC application. However, owing to continuing Lok Sabha elections as well as other technical hurdles explained in the preceding paragraphs the answering respondent could not obtain the same before the next date of hearing. Hence, it is most humbly prayed that this reply may be taken on record.

34. That in light of the above stated facts and circumstances it is humbly submitted that the answering Respondent is fully committed towards the compliance of the directions of this Hon'ble Tribunal. Therefore, it requests this Hon'ble Tribunal to give it some more reasonable time to ensure full compliance with the directions issued in the instant execution application.


Prashant Mishra and Shashank Singh,
Advocates for the Respondent No.25
(Impleaded Respondent No.18)
Chamber No. 306,
Supreme Court Additional Building Complex
Mathura Road, New Delhi 110001
Email.: shashanksinghadvocate@gmail.com Mob: 9654413791

NEW DELHI
DATE:01.05.2024

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... Respondents

AFFIDAVIT

I, Deepak Kumar Chaturvedi s/o Sh. Prem Lal Chaturvedi, aged about 47 years, having his office at ITNL, 815, FIRST FLOOR, Udhyog Vihar Phase V, Gurgaon, do hereby solemnly affirm and state as under:-

PRESENTLY AT DELHI

1. I am Manager, Project Implementation of Respondent No. 25 - Sportshub International Cricket Stadium and well conversant with the facts and circumstances of the instant case. I am competent and authorized to swear and affirm the instant Affidavit.
2. I have read and understood the contents of the accompanying Reply which has been drafted under my instructions. The contents of the accompanying Reply are true and correct to the best of my knowledge as derived from the records of the KSFL. Nothing material has been concealed therefrom.
3. The annexures to the accompanying Reply are true copies of their respective originals.

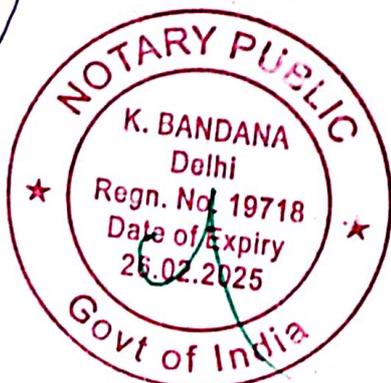
VERIFICATION

Verified at Delhi on this 1st day of May, 2024 that the contents of the foregoing Affidavit are true and correct to the best of my knowledge and nothing material has been concealed therefrom.

EMPOWERED TO ADMINISTER THE OATH 01 MAY 2024
SECTION 139 OF CPC 1908
SECTION 297 OF CRPC 1973
DELHI HIGH COURT RULES 1967
PART-6, CHAPTER XVIII-227
EVIDENCE BY AFFIDAVIT BEFORE NOTAR
SUPREME COURT RULES, 2013
ORDER-X-7

DEPONENT

ATTESTED
NOTARY PUBLIC DELHI
Govt of India
Mob.: 9854768498



IDENTIFIED

File No. CGWA-21/31/2020-CGWA -364
Government of India
Ministry of Jal Shakti
Department of Water Resources, River Development & Ganga Rejuvenation
CENTRAL GROUND WATER AUTHORITY
18/11 Jam Nagar House, Man Singh Road, New Delhi – 110011
cgwa-noc.gov.in

Date: 27.06.2023

SHOW-CAUSE NOTICE

Whereas the Central Government constituted the Central Ground Water Authority (hereafter referred to as the Authority) vide notification of the Government of India in the Ministry of Environment and Forests number S.O. 38 (E), dated the 14th January, 1997, followed by notification number S.O. 1124(E) dated 6th November, 2000 and S.O. 1121 (E) dated 13th May, 2010, for the purposes of regulation and control of ground water development and management in the whole of India and to issue necessary regulatory directions.

And whereas the Ministry of Jal Shakti has issued 'Guidelines to control and regulate ground water extraction in India' vide notification number S.O. 3289(E) dated 24th September, 2020, notified by Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti, which have pan India applicability.

And whereas an Amendment Notification dated 29.03.2023 has been further issued by Ministry of Jal Shakti, published in the Gazette of India, Extraordinary, Part II, section 3, sub-section (ii), vide Notification number S.O. 1509 (E), where clause (vi) has been added to Para 4.3 of the said Guidelines which provide that "**All stadiums, cricket grounds, and other sports grounds/courts, golf courses etc shall construct/install appropriate mechanism for artificial recharge of ground water / rain water harvesting.**"

And whereas SGWA/ Concerned Department is regulating groundwater in some States and MoJS Guidelines provide that "*wherever States/ Uts have come out with their own groundwater abstraction guidelines, which are inconsistent with the CGWA guidelines, the provisions of CGWA guidelines will prevail.*"

And whereas vide Order dated 15.04.2021 (copy enclosed) in Haider Ali vs. Union of India and Ors. (O.A. NO. 94/2021) passed by Hon'ble NGT, **the issue of excessive use of ground water for maintenance of Cricket playgrounds without availing alternatives, such as using STP treated water and installing rainwater harvesting systems for storing and recharge of ground water**, has been raised and the Hon'ble NGT has directed the Secretary, Ministry of Jal Shakti to hold a joint meeting with the nominees of the Ministry of Youth Affairs and Sports (not below the rank of Joint Secretary), representative of BCCI and CPCB to consider the issue of regulating extraction of ground water for maintenance of Cricket play grounds.

And whereas a list of all major stadiums has been provided by BCCI which includes Sports Hub International Cricket stadium, Trivandrum, Kerala.

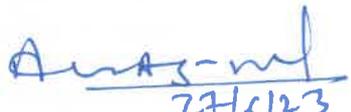
And whereas a Meeting was held on 02.06.2023 under the Chairmanship of Secretary, DoWR. Ministry of Jal Shakti with all the concerned officers / officials wherein it was directed that "*Inspections of listed stadiums may be carried out by CGWA/ SGWA/ CPCB/ SPCB to ensure the compliance of Hon'ble NGT directives/ CGWA Guidelines/ MoHUA guidelines. Suitable penal action may be initiated in case of violations / non-compliance of guidelines issued by the Government of Indian or State Government as per Groundwater Regulation Guidelines 2020 and the Environment (Protection) Act 1986.*"

And whereas, an inspection of Sports Hub International Cricket stadium, Trivandrum, Kerala was carried out by the officials of CGWB/ other concerned departments in compliance of the directions of Secretary, DoWR, Ministry of Jal Shakti, and during the inspection, it has been found that the stadium has 1 tubewells / borewells in its premises and is using groundwater without valid NOC from concerned State Ground Water Authority/ Department.

Now therefore, in exercise of the powers vested under Section 5 of the Environmental (Protection) Act, 1986 and Gazette Notification, S.O. 3289(E) dated 24/9/2020, the authority hereby directs you to show cause to explain the reason as to why No Objection Certificate for ground water extraction was not sought from the concerned department, i.e. CGWA/SGWA and why suitable penalty / Environmental Compensation should not be imposed for illegal withdrawal of ground water.

You are hereby given an opportunity to submit your response, in any case within 15days of receipt of this notice, failing which appropriate action will be initiated under the provisions of Environmental (Protection) Act, 1986 and Gazette Notification S.O. 3289(E), dated 24/9/2020 and its Amendment dated 29.03.2023, at your own risk, cost and responsibility for illegal withdrawal of groundwater. Please note that failure submit a response will be understood that you have nothing to say in this regard.

To
Ram Gopal
Manager
KSFL
ram.Varma@ilfsindia.com
office@keralacricket.in


(A.K. Agrawal)
Member Secretary

Copy to:

1. The Director (GW), DoWR, RD & GR, Ministry of Jal Shakti, Shram Shakti Bhawan, New Delhi.- for information.

2. The Secretary, Ground Water Department, Govt. of Kerala, Room No. 393, 1st Floor, Main Block, Secretariat, Thiruvananthapuram-695001, secy.wrd@kerala.gov.in - for information.

(A.K. Agrawal)
Member Secretary

भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन, नदी विकास और गंगा संरक्षण विभाग
केंद्रीय भूजल प्राधिकरण
18/11 जामनगर हाउस, मानसिंह रोड
नई दिल्ली-110011
ई-मेल: cgwa@nic.in



Government of India
Ministry of Jal Shakti
Department of Water Resources, RD & GR
Central Ground Water Authority
18/11, Jamnagar House, Mansingh Road
New Delhi – 110011
E-mail: cgwa@nic.in

File no: - CGWA-21/31/2020-CGWA - 481

Date – 02.08.2023

To

Sh. Ram Gopal
Manager
Sports Hub International Cricket stadium,
Trivandrum
KSFLram. Varma@iflindia.com

Subject – Compliance of Hon'ble NGT Order dated 15.04.2021 in Haider Ali vs. Union of India and Ors. (O.A. NO. 94/2021) w.r.t. construction / installation of appropriate mechanism for artificial recharge of ground water / rain water harvesting in stadiums, cricket grounds etc. – reg.

Sir,

This is in reference to the Order dated 15.04.2021 (copy enclosed) in Haider Ali vs. Union of India and Ors. (O.A. NO. 94/2021) passed by Hon'ble NGT, wherein the **issue of excessive use of ground water for maintenance of Cricket playgrounds without availing alternatives, such as using STP treated water and installing rainwater harvesting systems for storing and recharge of ground water, has been raised.** The Hon'ble NGT has stated to consider the issue of regulating extraction of ground water for maintenance of Cricket play grounds and ensuring that effective rain water harvesting and water storage/recharging systems are installed in all playgrounds to save the ground water.

2. It is to bring to your kind notice that Ministry of Jal Shakti has issued 'Guidelines to control and regulate groundwater extraction in India' vide notification number S.O. 3289(E) dated 24th September, 2020, notified by Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti, which have pan-India applicability. Subsequently, the Amendment Notification dated 29.03.2023 has been further issued by Ministry of Jal Shakti, vide Notification number S.O. 1509 (E), which provides that:-

4.3 (vi) All stadiums, cricket grounds, and other sports grounds/courts, golf courses etc shall construct/install appropriate mechanism for artificial recharge of ground water / rain water harvesting.

MoJS Guidelines dated 24.09.2020 and the Amendment Notification dated 29.03.2023 are enclosed herewith.

3. In compliance to the NGT Order, a meeting was held under the chairmanship of the Secretary, DoWR, RD&GR, Ministry of Jal Shakti on 02.06.2023, wherein it was advised to conduct an inspection of cricket stadiums. Accordingly, inspections were conducted of all the major stadiums according to the list provided by BCCI. During the inspection, it was observed that your stadium is non-compliant of NGT directions in respect of installation of RWH structures, use of STP treated water for maintenance of cricket ground and obtaining No

Objection Certificate from the Authority regulating and controlling ground water in your respective State for extraction of ground water despite having functional tubewell/ borewell.

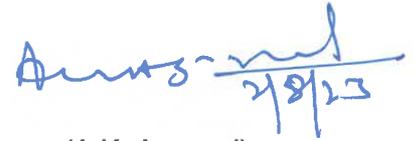
4. Another meeting was held under the chairmanship of the Secretary, DoWR, RD&GR, Ministry of Jal Shakti on 17.07.2023 wherein further directions have been given to owner/ management of the cricket stadium to comply NGT order in time bound manner i.e. within 3 months.

Therefore, it is advised to explore feasibility of RWH in the stadium and use of STP treated water for maintenance of cricket ground and accordingly install above-mentioned systems within 3 months. It is further advised to obtain No Objection Certificate from the Authority regulating and controlling ground water in your State at the earliest.

Compliance report in all respect may please be communicated within three months from the date of issue of this letter.

Yours sincerely,

Encl: as above



(A.K. Agrawal)
Chairman

Copy to:

1. The CEO, hemang.amin@bcci.tv, Board Of Control For Cricket In India, 4th Floor, Cricket Centre Wankhede Stadium, 'D' Road, Churchgate, Mumbai- 400020- with the request to ensure the compliance.
2. The Secretary, Ground Water Department, Govt. of Kerala, Room No. 393, 1st Floor, Main Block, Secretariat, Thiruvananthapuram-695001- for kind information with request to impress upon the owner/ management of the cricket stadium in your jurisdiction for obtaining NOC for ground water extraction.
3. The Regional Director, Central Ground Water Board, North Eastern Region, Betkuchi, Opposite ISBT, NH-37, Guwahati, Kamrup Metro, Assam, 781005 - with the request to impress upon the owner/ management of cricket stadiums for obtaining NOC from CGWA.
4. The Director (GW), DoWR, RD & GR, MoJS, Shram Shakti Bhawan, New Delhi- for kind information.



(A.K. Agrawal)
Chairman



KCA COMPLEX, T.C. 28/152
SASTHAMKOVID ROAD, THYCAUD
THIRUVANANTHAPURAM - 695 014

TELE & FAX : 0471 2326522
E-MAIL : office@keralacricicket.in
WEBSITE : www.keralacricicketassociation.com

15.11.2023

To
The Executive Director
Kerala Rural Water Supply and Sanitation Agency
Thiruvananthapuram

Sub: Request for installing rainwater harvest system at Sports Hub,
Karyavattom Greenfield International Stadium.

Ref: Compliance of the Hon'ble NGT Order dated 15.04.2021 in Haider Ali Vs.
Union of India and Ors.(O.A.No.94/2021) w.r.t. construction/installation of
appropriate mechanism for artificial recharge of ground water/rain
water harvesting in stadiums, cricket grounds etc.

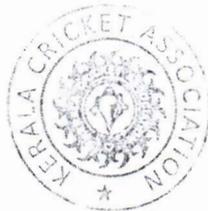
Kerala Cricket Association is the sole affiliated unit of the Board of Control for
Cricket in India (herein after **BCCI**) in the State of Kerala. The Kerala Cricket
Association (KCA in short) is a society registered under Travancore, Cochin,
Literary, Scientific and Charitable Societies Registration Act, 1955 (ACT XII OF
1955).

KCA is hosting international matches and domestic cricket matches at Sports
Hub, Greenfield International Stadium Karyavattom on license agreement with
Karyavattom Sports Facilities Ltd. (KSFL). As part of the compliance of above
referred order we intend to instal rainwater harvest system at Sports Hub,
Karyavattom Greenfield International Stadium.

Hence, we request your good office to provide necessary guidance and
assistance for installing rainwater harvesting system and we undertake to incur
the cost related to the same.

Yours faithfully

Vinod S Kumar
Secretary



Received
18/11/2023

ANNEXURE R3

FORMAT OF APPLICATION FOR GROUNDWATER INVESTIGATION

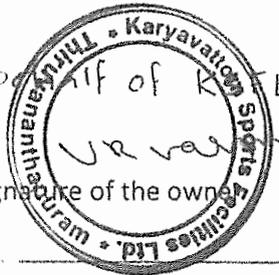
(DIRECTORATE OF GROUNDWATER, JALAVINJANA BHAVAN, THIRUVANANTHAPURAM)

1. Name and address of the applicant with Phone number : MANAGER.
Karyavattom Sports Facilities Lim
Greenfield Stadium, Karyavattom, Tr
PH : 914717105000
2. Purpose of groundwater extraction : irrigation/domestic/industrial/infrastructure/
water supply/ others specify
3. Proposed type of abstraction structure : open well/dug well/pond/tube well/bore well/
filter point well/ others specify
4. Type of Groundwater abstraction existing :
5. Preferred Services for Drilling : Private drilling/Departmental Drilling
6. Local name of the Place : Karyavattom
7. Village : Kazhakuttom
8. Panchayath :
9. Ward No : 2011 / 1 Kazhakuttom
10. Block Panchayath :
11. Extent of Land : 37 Acres
12. Survey No of the Land : 507 / 1
13. Type of Land : Hilly/Wet Land/Reclaimed land/Normal Land

Date:

Place: Karyavattom

On behalf of Karyavattom Sports Facilities Ltd.
Signature of the owner



Office use only

- Investigation charges paid for investigation :
- Challan Number :

Possession certificate and latest tax receipt should be produced along with the application. In case of small and marginal farmers, to avail subsidy charges for drilling a certificate stating the same from an agricultural officer should also be produced. Route to reach the location should also be clearly specified.



KCA COMPLEX, T.C. 28/152
SASTHAMKOVID ROAD, THYCAUD
THIRUVANANTHAPURAM - 695 014

TELE & FAX : 0471 2326522
E-MAIL : office@keralacricicket.in
WEBSITE : www.keralacricicketassociation.com

15.11.2023

To
The Executive Director
Kerala Rural Water Supply and Sanitation Agency
Thiruvananthapuram

Sub: Request for installing rainwater harvest system at Sports Hub,
Karyavattom Greenfield International Stadium.

Ref: Compliance of the Hon'ble NGT Order dated 15.04.2021 in Haider Ali Vs.
Union of India and Ors.(O.A.No.94/2021) w.r.t. construction/installation of
appropriate mechanism for artificial recharge of ground water/rain
water harvesting in stadiums, cricket grounds etc.

Kerala Cricket Association is the sole affiliated unit of the Board of Control for
Cricket in India (herein after **BCCI**) in the State of Kerala. The Kerala Cricket
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Karyavattom Sports Facilities Ltd. (KSFL). As part of the compliance of above
referred order we intend to instal rainwater harvest system at Sports Hub,
Karyavattom Greenfield International Stadium.

Hence, we request your good office to provide necessary guidance and
assistance for installing rainwater harvesting system and we undertake to incur
the cost related to the same.

Yours faithfully

Vinod S Kumar
Secretary



Received
18/11/2023



KERALA RURAL WATER SUPPLY & SANITATION AGENCY

3rd Floor, PTC Towers, SS Kovil Road, Thampanoor
 Thiruvananthapuram – 695001
 Phone: 2337002,3,5 Fax: 2337004
 E-mail: dtjalanidhi@gmail.com
 www.jalanidhi.kerala.gov.in

KRWSA-PMU/134/2022-TA (Tech)

11-12-2023

From
 Executive Director
 KRWSA, Thiruvananthapuram

To
 The Secretary
 Kerala Cricket Association
 KCA Complex, T.C. 28/152
 Sastamkovil Road, Thycaud
 Thiruvananthapuram 695 014

KCA HQ	
INW. No. 003670	GAMES & ADMIN.
	FINANCE
INW. DATE 18/12/2023	AUTH. SIGNATORY

Sir,

Sub:- Request for installing Rain water Harvesting System at Sports Hub, Karyavattom International Stadium- reg.

Ref:- Your. letter. dt. 15-11-2023

This is in reference to your discussion held in my office and subsequent visit of our officials to the Sports Hub- Karyavattom International Stadium on 24/11/23. For developing a scientific rain water harvesting to harvest rain water from the stadium roof top and surroundings of the stadium was discussed with your deputed personnel at site. It was felt that the undeveloped sump where the water is now drained has to be developed to a fool proof structure where the water from the roof water, surroundings, swimming pool change off water, water from the convention centre and other buildings in the spots hub are to converged to a single point after filtration. This require a grey water system management wherein the treated water can be reused for play area irrigation and other non domestic purposes like cleaning, etc. The existing sewage /septage treatment is also in a dilated state which require new remodeling renovation etc. Construction of a new well in the lower topographic elevation to store additional water is also an added option if required.

You are therefore requested to formally issue a letter to us for taking up the work including the commitment on availability of funds to take up the work by KRWSA. The modus operandi has to be worked out mutually. As a first step you may agree to release funds to KRWSA to take up the topographic survey of the land where the activities are to be taken up, including cost of preparation of a DPR.

Yours faithfully,

Signed by

Dr. Dinesan Cheruvat I A S

Date: 11-12-2023 17:09:03

EXECUTIVE DIRECTOR

KERALA CRICKET ASSOCIATION

(MEMBER, BOARD OF CONTROL FOR CRICKET IN INDIA)

KCA COMPLEX, T.C. 28/152
SASTHAMKOVID ROAD, THYCAUD
THIRUVANANTHAPURAM - 695 014TELE & FAX : 0471 2326522
E-MAIL : office@keralacricicket.in
WEBSITE : www.keralacricicketassociation.com

To
Executive Director
KRWSA, Thiruvananthapuram

29.12.2023

Dear Sir,

Sub: Installation of rainwater harvesting system at The Sports Hub, Greenfield International Stadium, Karyavattom, Thiruvananthapuram.

Ref: Letter No. KRWSA-PMU/134/2022-TA(Tech) dtd 11.12.2023 from your good office.

As suggested in the referred letter we request your good office to take up the work of comprehensive rainwater harvesting system and remodelling/renovation of existing sewage/septage treatment at The Sports Hub, Greenfield International Stadium, Karyavattom, Thiruvananthapuram.

As part of the first stage of the work you are requested to share:

1. Cost of topographical survey and preparation of DPR as mentioned in the letter.
2. Detailed project proposal, drawings and estimate cost of the project.
3. Draft agreement/terms of reference with stage payments.

The above will be helpful in obtaining financial sanction/budget allocation/fund release from our side.

Thanking you.

Yours sincerely,

Virfod S Kumar
Secretary



KERALA CRICKET ASSOCIATION

(MEMBER, BOARD OF CONTROL FOR CRICKET IN INDIA)



KCA COMPLEX, T.C. 28/152
SASTHAMKOVID ROAD, THYCAUD
THIRUVANANTHAPURAM - 695 014

TELE & FAX : 0471 2326522
E-MAIL : office@keralacricicket.in
WEBSITE : www.keralacricicketassociation.com

To

12.02.2024

The Executive Director
KRWSA, Thiruvananthapuram

Sub: Proposal for installation of comprehensive rainwater harvesting – grey water system management at Sports Hub, Greenfield International Stadium, Thiruvananthapuram

Ref: 1. Our letter dated 29.12.2023.
2. Letter No. KRWSA-PMU/134/2022-TA (Tech) dated 11.12.2023 from your good office.
3. Our office letter dated 15.11.2023.

As suggested in the 2nd referred letter and based on discussions with Deputy Director (Water Conservation), KRWSA we hereby confirm our willingness to engage your agency as our Consultant for designing and implementing rainwater harvesting/conservation and management system with appropriate technology for grey water treatment and reuse for irrigation at field of play and remodelling/renovation of existing sewage/septage treatment at the Sports Hub, Greenfield International Stadium, Thiruvananthapuram.

As discussed, you are requested to include the following in the proposal:

1. Rainwater Harvesting system by converting the existing unprotected water collection pit near to down end behind the Convention centre.
2. Waste water treatment and grey water treatment and reuse for irrigation and non-domestic purposes.
3. Water Storage Tank (underground) for collecting the rainwater /treated grey water/wastewater in the upper elevated portion near the back entrance which can be connected to the sprinkler lines for ground irrigation.
4. Septage treatment restoration using modular onsite technology.
5. Food waste/bio waste and cut grass waste processing unit.
6. Plastic shedder unit etc.

For the same, it is requested to share us a detailed project report including estimate/cost break so that we can obtain necessary approvals.

Yours faithfully

Vinod S Kumar
Secretary



NO: GW/DOT/1582/2023

Office of the District Officer
Ground Water Department
Jalavijnana Bhavan,
Ambalamukku,
Kowdiar.P.O.Thiruvananthapuram.03
Phone: 0471 2430279.
Email: gwdtvm@gmail.com

Dated : 19/03/2024.

From

District Officer

To

Secretary
Kerala Cricket Association
TC 28/152, Sasthamkovil road
Thycaud, Thiruvananthapuram-695 014.

Sir,

Sub:-District Office, GWD, Tvp- Report on drought condition of
Thiruvananthapuram - forwarding- reg.

Ref: - Email dated: 13/03/2024 on the subject.

With reference to the email I am forwarding a report based on the drought index for the month of January and February 2024 of Trivandrum district. Relevant details of the GEC station of ground water in the district is also attached as desired.



Yours faithfully

DISTRICT OFFICER

ജില്ലാ ആഫീസർ
ഭൂജല വകുപ്പ്
തിരുവനന്തപുരം

Encl:- Grounwater drought index

GROUNDWATER DROUGHT INDEX**THIRUVANANTHAPURAM DISTRICT**

Based on the observation well data ground water index has been computed for the month of March 2020 and April 2020. The data from observation dug wells have been utilized for computing the groundwater index for these months.

The following computation procedure has been utilized.

$$\mathbf{GWDI_{ij}} = \frac{(\mathbf{MGWD_j - GWD_{ij}})}{\mathbf{GWD_{imax}}}$$

Where,

$GWDI_{ij}$ = Groundwater Drought Index for i^{th} month and j^{th} year

$MGWD_j$ = Mean depth to groundwater table below surface (in meter)

GWD_{ij} = Depth to groundwater table in i^{th} month and j^{th} year (in meter)

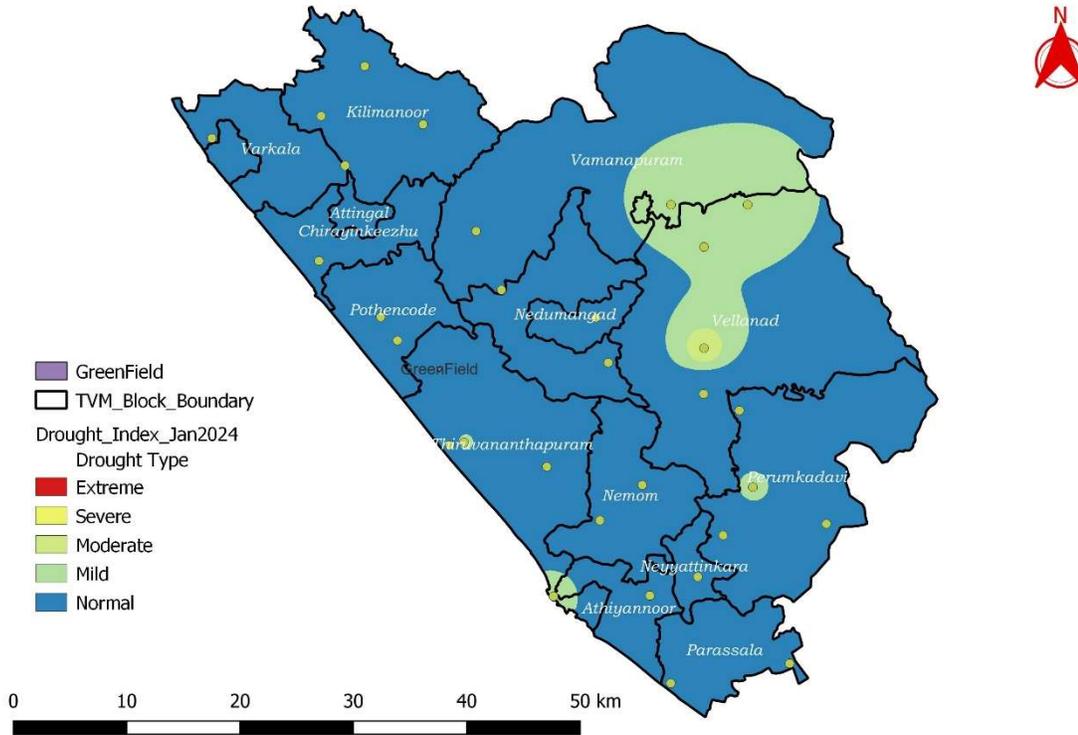
GWD_{imax} = Maximum depth to groundwater table in i^{th} month in available data set for n number of years (in meter)

As per the guidelines laid down in the 'manual for drought management' following are the GWDI and the corresponding Groundwater deficit class.

Groundwater drought index (GWDI)	Groundwater deficit class
>-0.15	Normal
-0.16 to -0.30	Mild
-0.31 to -0.45	Moderate
-0.46 to -0.60	Severe
< -0.60	Extreme

Based on the above categorization, GWDI values computed from the water level data in the observation wells have been interpolated to the whole district and maps have been prepared separately for the month of January 2024 and February 2024.

Drought Index For the Month of January 2024 - Thiruvananthapuram District

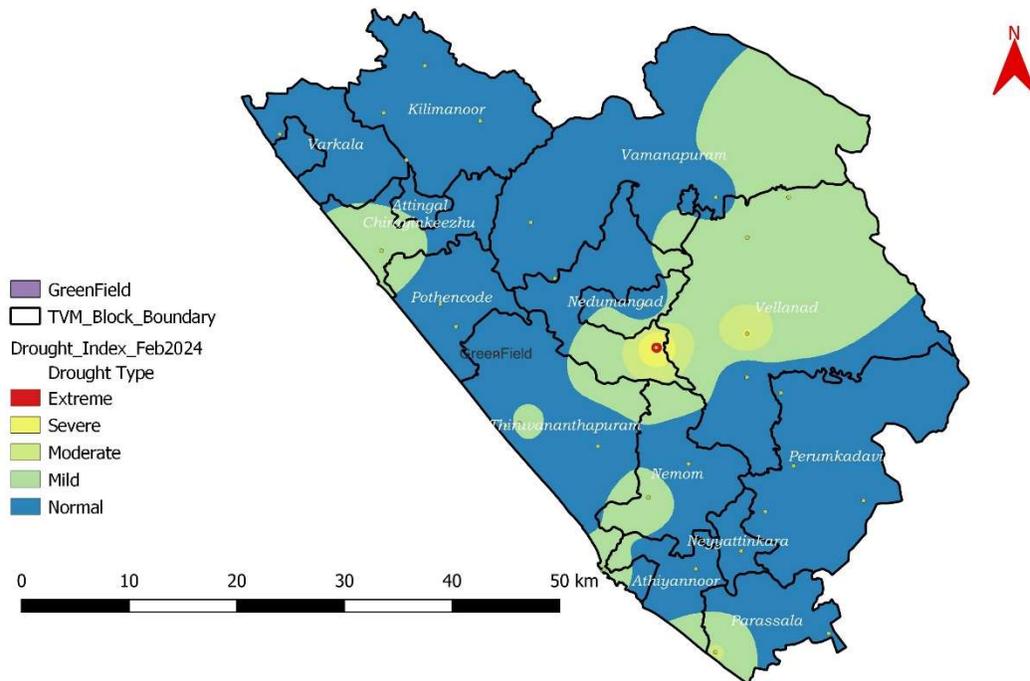


Groundwater drought index and groundwater deficit class based on the data for the month of January 2024

Well No	Jan-24	Mean WL(m)	Max GWL January	Drought Index	Drought Type
TVM A OW-2 :Sasthamangalam	4.66	4.689	5.65	0.01	Normal
TVM OW01:Thiruvallom	2.02	1.491	2.27	-0.23	Mild
TVM OW02:Poovar	7.44	7.213	11.38	-0.02	Normal
TVM OW03:Vellarada	4.08	4.430	8.45	0.04	Normal
TVM OW04:Keezharoor	4.93	3.709	6.26	-0.20	Mild
TVM OW05:Nemom	4.32	3.720	8.48	-0.07	Normal
TVM OW06 :Balaramapuram	7.69	8.254	11.29	0.05	Normal
TVM OW07: Neyyattinkara	11.45	11.647	15	0.01	Normal

Well No	Jan-24	Mean WL(m)	Max GWL January	Drought Index	Drought Type
TVM OW08:Kallikkad	4.07	4.763	6.91	0.10	Normal
TVM OW09:Aryanad	7.31	4.176	7.31	-0.43	Moderate
TVM OW10:Vithura	2.53	2.043	3.05	-0.16	Mild
TVM OW11:Vithura (Kallar)	4.95	3.684	4.95	-0.26	Mild
TVM OW12:Nedumangad	7.5	7.917	11.48	0.04	Normal
TVM OW13:Kulathoor	1.76	1.674	3.02	-0.03	Normal
TVM OW14:Pallippuram	3.53	6.699	4.65	0.68	Normal
TVM OW15:Sarkara-Chirayinkeezhu	2.45	2.373	4.03	-0.02	Normal
TVM OW16:Edava	8.13	7.497	10.86	-0.06	Normal
TVM OW17:Navaikulam	4.31	4.041	4.54	-0.06	Normal
TVM OW18 :Pazhayakunnummel	6.45	6.493	9.26	0.00	Normal
TVM OW19:Vembayam	9.1	8.505	11.38	-0.05	Normal
TVM OW20:Nellanad	7.97	8.263	10.25	0.03	Normal
TVM OW21:Aruvikkara	3.48	2.872	6.03	-0.10	Normal
TVM OW22 :Perumkadavila	9.74	11.250	15.4	0.10	Normal
TVM OW23 :Mannoorkara	4.19	4.903	6.62	0.11	Normal
TVM OW24:Thennoor	6.97	5.106	6.97	-0.27	Mild
TVM OW25:Karavaram	6.43	6.456	8.17	0.00	Normal
TVM OW26:Madavoor	6.74	6.133	7.9	-0.08	Normal
TVM OW28 :Veiloor-Murukkumpuzha	14.86	13.634	16.59	-0.07	Normal
TVM OW29:Parassala	6.82	11.485	18.86	0.25	Normal
TVM OW30 :Malayinkeezhu	9.42	10.437	12.58	0.08	Normal
TVM OW31 :Kadakampally	7.76	6.394	7.76	-0.18	Mild

Drought Index For the Month of February 2024 - Thiruvananthapuram District



Groundwater drought index and groundwater deficit class based on the data for the month of February 2024

Well No	Feb-24	Mean WL(m)	Max GWL(Feb)	Drought Index	Drought Type
TVM A OW-2 :Sasthamangalam	5.15	4.689	5.74	-0.08	Normal
TVM OW01:Thiruvallom	2.05	1.491	3.31	-0.17	Mild
TVM OW02:Poovar	11.47	7.213	13.57	-0.31	Moderate
TVM OW03:Vellarada	4.33	4.430	8.86	0.01	Normal
TVM OW05:Nemom	5.74	3.720	8.75	-0.23	Mild
TVM OW06:Balaramapuram	9.2	8.254	11.94	-0.08	Normal
TVM OW07:Neyyattinkara	12.41	11.647	13.71	-0.06	Normal
TVM OW08:Kallikkad	5.31	4.763	7.01	-0.08	Normal
TVM OW09:Aryanad	7.71	4.176	7.71	-0.46	Extreme
TVM OW10:Vithura	2.53	2.043	2.92	-0.17	Mild
TVM OW11:Vithura (Kallar)	4.91	3.684	4.91	-0.25	Mild
TVM OW12:Nedumangad	8.57	7.917	11.94	-0.05	Normal
TVM OW13:Kulathoor	1.85	1.674	3.03	-0.06	Normal

Well No	Feb-24	Mean WL(m)	Max GWL(Feb)	Drought Index	Drought Type
TVM OW14:Pallippuram	3.82	6.699	414.2	0.01	Normal
TVM OW15 :Sarkara-Chirayinkeezhu	3.7	2.373	4.37	-0.30	Moderate
TVM OW16 :Edava	8.97	7.497	10.95	-0.13	Normal
TVM OW17:Navaikulam	4.51	4.041	6.02	-0.08	Normal
TVM OW18 :Pazhayakunnummel	7.31	6.493	9.21	-0.09	Normal
TVM OW19:Vembayam	9.41	8.505	11.58	-0.08	Normal
TVM OW20:Nellanad	8.3	8.263	11.36	0.00	Normal
TVM OW21:Aruvikkara	7.61	2.872	7.61	-0.62	Severe
TVM OW22:Perumkadavila	10.87	11.250	16.3	0.02	Normal
TVM OW23:Mannoorkara	5.35	4.903	13.96	-0.03	Normal
TVM OW24:Thennoor	6.14	5.106	7.69	-0.13	Normal
TVM OW25:Karavaram	6.87	6.456	8.34	-0.05	Normal
TVM OW26:Madavoor	6.83	6.133	8.47	-0.08	Normal
TVM OW28 :Veiloor-Murukkumpuzha	15.39	13.634	16.48	-0.11	Normal
TVM OW29:Parassala	7.61	11.485	18.7	0.21	Normal
TVM OW30:Malayinkeezhu	10.89	10.437	13.56	-0.03	Normal
TVM OW31:Kadakampally	7.95	6.394	7.95	-0.20	Mild

The categorization and interpolation clearly syncs with the actual field conditions observed during field visits for various assignments. The drought conditions predicted block wise based on the above categorization for both the months are listed below.

Groundwater deficit class	Blocks based on the data for the month of January 2024	Blocks based on the data for the month of February 2024
Normal	Kilimanoor, Varkala, Chirayinkeezhu, Pothencode, Nedumangad, Nemom, Athiyannoor and Parassala Block.	Kilimanoor, Varkala, Pothencode, Perumkadavila and Athiyannoor blocks
Mild	South East Portion Of Vamanapuram block (Nanniyode and Peringamala Grama Panchayats), Vellanad Block (Vithura,Tholicode, Uzhamalakkal and	Vellanadu block, Eastern Portion of Vamanapuram block, Southern part of Nedumangad block, Western part of Chirayinkeezhu block, North Eastern

	Aryanad Grama Panchayath, Some parts of Vellanad Grama Panchayat), Some parts of the West and South West of Thiruvananthapuram Corporation.	Parts of Athiyannoor, South West portion of Nemom block, Western portion of Parassala block, South western portion of Athiyannoor block, Some areas in West and South portion of Thiruvananthapuram Corporation.
Moderate	Aryanad Grama panchayat	Aryanad Grama Panchayat
Severe	Nil	Southern parts of Aryanad Grama Panchayat, Aruvikkara Grama Panchayat
Extreme	Nil	Eastern part of Aruvikkara Grama Panchayat

Based on the drought indices analysis of the data for the months of January and february 2024, ground water status near to the greenfield stadium is normal.



SANTY. S. R
HYDROGEOLOGIST
DISTRICT OFFICE
GROUND WATER
DEPARTMENT
THIRUVANANTHAPURAM

State	KERALA									
District	THIRUVANANTHAPURAM									
Assessment Year	2022									
Sl. No.	Assessment Unit/ District	Command / Non-Command	Recharge from rainfall during monsoon season	Recharge from other sources during monsoon season	Recharge from rainfall during non-monsoon season	Recharge from other sources during non-monsoon season	Total Annual Ground Water Recharge [(4)+(5)+(6)+(7)]	Total Natural Discharges	Annual Extractable Ground Water Resources [(8)-(9)]	
1	2	3	4	5	6	7	8	9	10	
1	Athiyannur	Non-command	955.83	19.44	333.25	107.97	1416.49	141.65	1274.84	
2	Chirayinkil	Non-command	1197.97	81.46	348.06	252	1879.49	187.95	1691.54	
3	Kilimanoor	Non-command	2007.57	42.22	474.09	438.88	2962.76	296.28	2666.48	
4	Nedumangad	Non-command	1407.29	38.84	384.54	152.28	1982.95	99.15	1883.8	
5	Nemom	Non-command	4143.86	32.27	1203.96	137.51	5517.6	551.76	4965.84	
6	Parassala	Non-command	1196.14	36.36	347.53	184.09	1764.12	176.41	1587.71	
7	Perumkadavila	Non-command	1869.19	200.59	675.68	523.55	3269.01	326.9	2942.11	
8	Pothencode	Non-command	1096.09	14.86	260	255.24	1626.19	162.62	1463.57	
9	Vamanapuram	Non-command	2511.62	109.26	570.24	302.64	3493.76	349.38	3144.38	
10	Varkala	Non-command	1287.33	17.85	374.02	165.35	1844.55	184.46	1660.09	
11	Vellanad	Non-command	2487.2	17.98	1083.95	198.29	3787.42	378.74	3408.68	
	TOTAL (ha.m)	Non-command	20160.09	611.13	6055.32	2717.80	29544.34	2855.30	26689.04	
	TOTAL (MCM)	Non-command	201.60	6.11	60.55	27.18	295.44	28.55	266.89	

State		KERALA									
District		THIRUVANANTHA PURAM									
Assessment Year		2022									
Sl. No.	Assessment Unit/Block	Command / Non-Command	Annual Extractable Ground Water Resources (Ham)	Current Annual Ground Water Extraction (Ham)			Annual Groundwater Allocation for Domestic use as on 2025	Net Ground Water Availability for future use (4-5-6-9)	Stage of Ground Water Extraction (%) (8/4)*10		
				Irrigation Use	Industrial Use	Domestic Use				Total Extraction (5+6+7)	
1	2	3	4	5	6	7	8	9	10	11	
1	Athiyannur	Non-command	1274.84	339.75	0.06	803.31	1143.12	883.30	51.73	89.67	
2	Chirayinkil	Non-command	1691.54	333.07	0.10	1014.78	1347.95	1115.83	242.54	79.69	
3	Kilimanoor	Non-command	2666.48	450.18	0.00	1121.68	1571.85	1233.36	982.95	58.95	
4	Nedumangad	Non-command	1883.80	444.98	0.00	1107.14	1552.12	1217.38	221.44	82.39	
5	Nemom	Non-command	4965.84	484.78	1.66	2895.25	3381.70	3183.54	1295.85	68.10	
6	Parassala	Non-command	1587.71	591.53	0.41	681.88	1273.83	749.78	245.98	80.33	
7	Perumkadavila	Non-command	2942.11	521.70	0.32	1058.13	1580.15	1163.49	1256.60	53.70	
8	Pothencode	Non-command	1463.57	580.00	2.17	676.67	1258.84	744.05	137.35	86.00	
9	Vamanapuram	Non-command	3144.38	486.50	1.64	1011.61	1499.76	1112.35	1543.88	47.70	
10	Varkala	Non-command	1660.09	273.66	0.00	887.44	1161.10	975.80	410.63	69.94	
11	Vellanad	Non-command	3408.68	561.96	0.00	1081.75	1643.71	1189.47	1657.25	48.22	
TOTAL (ha.m)			26689.04	5068.11	6.36	12339.65	17414.13	13568.35	8046.20	65.25	
TOTAL (MCM)			266.89	50.68	0.06	123.40	174.14	135.68	80.46		

1284

33

State		KERALA			
District		THIRUVANANTHAPURAM			
Assessment Year		2022			
Sl. No.	Assessment Unit	Total Geographical Area of Block (Ha)	Ground water recharge Worthy area (Ha)	Stage of Ground Water Extraction (%)	Category (Safe/ Semi-critical/ Critical/ Over-exploited)
1	2	3	4	5	6
1	Athiyannur	7629	7629	89.67	Semi-critical
2	Chirayinkil	10151	10151	79.69	Semi-critical
3	Kilimanoor	17977	17977	58.95	Safe
4	Nedumangad	15603	15603	82.39	Semi-critical
5	Nemom	33727	33727	68.10	Safe
6	Parassala	8221	8221	80.23	Semi-critical
7	Perumkadavila	28538	27038	53.71	Safe
8	Pothencode	7415	7415	86.01	Semi-critical
9	Vamanapuram	42115	27115	47.70	Safe
10	Varkala	10209	10209	69.94	Safe
11	Vellanad	37212	29212	48.22	Safe
	District	218797	194297	65.25	Safe