BEFORE THE NATIONAL GREEN TRIBUNAL (SZ) CHENNAI

Application No.54 of 2023 (SZ)

Mr. Shanmugam,
S/o.Subburayalu,
1/122, Perumal Koil Street,
Rampakkam, Villupuram,
Tamil Nadu 605 105 and 15 others ..... Applicants

Vs.

1. The Government of Puducherry,
   Represented by the Chief Secretary,
   Puducherry- 605 001.

2. The Superintending Engineer,
   Project Director, AFD Project Unit,
   PWD, Puducherry -605 001.

3. The Secretary,
   PuducherryGround Water Authority,
   No.2, 5th Cross, Mariamman Nagar,
   Karamanikuppam, Mudaliarpet,
   Puducherry -605 004.

4. The Secretary,
   Water Resources Department,
   Government of Tamil Nadu,
   Fort St George,
   Chennai -605 009. ..... Respondents

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Fort St George,
Chennai -605 009. ..... Respondents

REPLY STATEMENT FILED BY THE EXECUTIVE ENGINEER OF THE SECOND RESPONDENT ON BEHALF OF THE RESPONDENTS

1. The address for service of all notices and processes in the Respondent is that of the Counsel, Thiru S. Raveekumar, Government Pleader for Puducherry at High Court, Madras.

R. Sundaramoorthy
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AFD Project Unit
P.W.D., Puducherry

2. The Respondents submit that the entire case of the Applicants revolves around the Project of Augmentation of Water Supply Source and Rehabilitation of System in Urban Area of Pondicherry District, Puducherry (Phase I). The project aims at providing good drinking water to the people in the urban areas of Puducherry region by erecting tubewells in the villages, namely, Kaduvanur, Karayambuthur, Panayadikuppam and Manamedu in collaboration with AFD Funding Agency (Agence Francaise De Developpement) for an amount of Rs.534 Crores.

3. The Respondents submit that this Union territory Government is under an obligation to distribute potable water to all its people of both urban and rural areas. This system has to be managed well but in the recent times, owing to intrusion of sea water into the urban areas, the water has become salty and become unusable for the public residing in the urban areas. The Respondents further submit that it is on that account that it has become inevitable for the Government of this Union territory to take effective steps by way of aforesaid project.

4. The Respondents submit that the above action of the Respondents herein is impugned in this Original Application. It is further submitted that all the contentions, allegations and averments of the Applicants in this O.A are bereft of any evidentiary material and are basically incorrect and vehemently denied save those that are specifically admitted hereunder. The applicant has failed to place all the materials referred by him before this Hon'ble Tribunal.

5. The Respondents submit that the main allegation of the Applicants is that due to extraction of water through existing borewells, water level has reduced from 40 feet to 200 feet. The said allegation of the Applicants is basically incorrect and vehemently denied in as much as: -

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(a) The Central Ground Water Authority, Chennai conducted a detailed study on the availability of water in the Vellar basin situated between Vellar and Pennaiyar and submitted a report in 2014 which would speak for itself the fact that the maximum permissible ground water withdrawal is 550 million cubic metre per year. Four layers of aquifers in the said basin get recharged by natural process. The report states that first 2 layers shall be fit for agricultural usage and remaining 2 layers beneath shall be best suited for domestic purpose. The present proposal is only to draw water from 4th layer of the aquifer which has got high potential of ground water to an allowable extent of 550 million cubic metre in terms of the report of the Government of India, Ministry of Water Resources, River Development and Ganga Rejuvenation, Central Ground Water Board.

(b) From the available 550 million cubic metre in the 4th layer of the aquifer, currently 12.79 million cubic metre is being extracted by Chennai Metro Water for domestic purpose during shortfalls in Veeranam Scheme.

(c) The present proposal being only extraction of ground water from the 4th layer of aquifer to an extent of 28 million cubic metre per year, there shall absolutely be no short fall in the ground water level to the detriment of the Applicant.

6. The Respondents submit that the said project is supposed to have been taken up in 2017 it self and completed in 2022. But due to various administrative reasons, the same could not be taken up by Government and the present endeavour of the Respondents herein is impugned in this Original Application. It is further submitted that as per the National Water Policy as well; the Government's first priority should be to provide potable water to all its subjects. The endeavour of the Government is only in compliance of the said policy and none other.

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7. The Respondents submit that as a first step towards this endeavour, the Public Works Department duly sought permission of Ground water Authority, Puducherry for setting up deep borewells in the said villages and the same has been accorded. It is submitted that the Respondents are taking up this project only after ensuring availability of potable water to the aforesaid villages. However, the applicants herein raise various allegations merely based on assumption that they would be deprived of water for consumption as well as for agriculture, if the said project is implemented.

8. The Respondents further deny that the contention of the Applicants herein, that 84 borewells are proposed to be erected in their villages draining 12.5 lakh litre of water per borewell per day. It is submitted that the above allegation is basically incorrect and denied in as much as only 40 - 45 borewells are presently proposed to be erected, duly taking precautionary measures, which is likely to result in drawing of water only to an extent of about 10 lakh litres per borewell per day.

9. The Respondents respectfully submit that all the four villages are situate alongside the South Pennaiyar. And that in so far as Kaduvanur is concerned, water to an extent of about 6.4 million cubic feet is being stored in Kaduvanur Tank and Ottanthangal. Likewise, Karayambuthur comprises of Karayambuthur Odapperi with storage capacity of 19 million cubic feet and Karayambuthur Vannan Eri with storage capacity of 6.5 million cubic feet. As regards Panayadikuppam, it comprises of two tanks namely, Panayadikuppam Sitheri Tank with holding capacity of 2.5 million cubic feet and Panayadikuppam Periya Eri with capacity of 16 million cubic feet. Fourthly, Manamedu has one Tank called Manamedu Tank which has storage capacity of 10.80 million cubic feet. All the four villages have tanks with the above storage capacities, and therefore the allegation of the Applicants that the water available to them would completely get drained by the action of the Respondents is basically incorrect and vehemently denied.

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10. The Respondents respectfully further submit that these apart, the South Pennaiyar has got bed dams/ anicut in the following two locations namely, (i) Komandanmedu bed dams/ and (ii) Sitheri Anicut. It is further submitted that Komandanmedu bed dam was constructed in 2009, has a storage capacity of 8.34 million cubic feet and Sitheri anicut has storage capacity of 11.13 million cubic feet. These two anicut /check dams are situated in the Union territory of Puducherry and are thus maintained by the Irrigation Division of the Public Works Department, Puducherry.

11. The Respondents further respectfully submit that these apart, there is yet another anicut in the South Pennaiyar by name Sornavur anicut which is situated in Tamil Nadu and however maintained by the Irrigation Division of the Public Works Department, Puducherry. The Respondents further submit that two more check dams are proposed to be constructed, one at Manamedu and another at Soriankuppam.

12. The Respondents further respectfully submit that the Central Ground Water Authority, Chennai conducted a detailed study on the availability of water in the Vellar basin situate between Vellar and Pennaiyar and submitted a report in 2014 which would speak for itself the fact that the maximum permissible ground water withdrawal is 550 million cubic metre per year. Four layers of aquifers in the said basin get recharged by natural process. The report states that first 2 layers shall be fit for agricultural usage and remaining 2 layers beneath shall be best suited for domestic purpose. The Respondents further submit that the aforesaid four villages are situated in the said location and the aquifers available therein shall set at equilibrium the water that may be extracted from the aforesaid villages.

13. The Respondents further respectfully submit that the AFD Funding Agency conducted a supervision mission for Puducherry Water Supply Project on 3rd and 4th April 2023 at which time it has expressed that it would

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support the development of alternative resources and of aquifer recharge measures, provided they are sustainable and cost effective. Even much before this, it had in its procurement- plan dated 10.07.2019 allotted an amount of Rs.21.27 crores for implementation of groundwater recharge measures under package 26 which would speak for itself the fact that recharging of water will be ensured for recouping of water levels. Thus, the allegations and averments contained in the OA are highly imaginary and are unsustainable both in law and on facts.

14. The Respondents further submit that the Applicants seem to have filed this OA under an apprehension that implementation of the project would not only be detrimental to them but also to the adjacent villages in Tamil Nadu, namely Soranavur melpadi, Sornavur kelpadi, Rambakkam, Kongampathu, Sorapur, Veeranam, Andarasipalayam, Krishnapuram, Agaram, Perichampakkam and Kalinjikuppam of Villupuram District and Vanpakkam and Melpattambakam within Cuddalore District. The Respondents submit the former set of villages in Villupuram District are to the north of South Pennaiyar, while the latter which are situated in Cuddalore District are to the South of South Pennaiyar. The Respondents submit that precautionary steps of recharge of water are being taken alongside the extraction of water from the aforesaid four villages and it shall be ensured that the Applicants shall not be put to any sort of risk either to their agricultural or domestic usage.

15. The Respondents further submit that some of the well-known ways of recharging water are construction of rain water harvesting structures, recharge wells in river, tanks, channels, construction of bed dams/ check dams/ anicut across river and desilting of feeder canals. It is submitted that 84 tanks are maintained by Government of Puducherry, Irrigation Division of Public Works Department. As a matter of fact, all the said tanks are maintained by the Irrigation Division of the Public Works Department. The said tanks are being desilted as and when necessary, by the said

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Division, thus ensuring prompt rejuvenation. It is therefore submitted that the said action of the Respondent Department not only helps improving the holding capacity of the tanks but also helps in preventing the wastage of excess water draining into the sea. Similarly, the rain water harvesting system is mandatory for all new constructions and the scheme is being implemented to improve the ground water level.

16. The Respondents further submit that likewise, feeder canals are desilted every year regularly by the Division. Bangaru Main Channel is the feeder canal to Bahour Tank. In Karayambuthur, Karayambuthur Odaperi and Karayambuthur Vannan eri are feeder canals. In Panayadikuppam, Panayadikuppam siteri and Panayadikuppam periya eri are feeder canals. The said process enriches the feeder canals, which are of utmost use to Agriculture.

17. It is further respectfully submitted that the Agricultural Secretariat, Puducherry in its G.O. dated 12.04.2023 notified that rural and urban drinking water supply schemes are exempt from obtaining permit of Puducherry Ground Water Authority for sinking of tubewells and for groundwater extraction. The challenge to the portion of the said Government Order was turned down by the Hon'ble Madras High Court by order dated 20.06.2023 in W.P 15161 of 2023.

18. Moreover, the Respondents respectfully submit that under the project impugned, of the maximum permissible ground water withdrawal of 550 million cubic metre in the 4th aquifer layer, only 5%of water is likely to be extracted. However, even the same is extracted only duly adopting precautionary measures making provision for water recharge.

19. The Respondents further submit that the project as such is comprehensive and encompasses all safety measures to ensure replenishment of the water that is likely to be extracted, on leave of this

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Hon'ble Tribunal. In view of the fact that the project director has superannuated, the present reply statement is filed by the Executive Engineer and the same may kindly be taken on record.

20. It is therefore respectfully submitted that there shall be no deprivation of water as alleged by the Applicants due to implementation of the project impugned in this O.A.

21. In view of the submissions made in the foregoing paragraphs, it is submitted that the O.A. is bereft of merits and is unsustainable both in law and on facts and is liable to be dismissed in limine.

It is therefore prayed that this Hon'ble Tribunal may be pleased to dismiss the O.A. with costs and thus render justice in the interest of justice.

Dated at Puducherry on this the 22nd day of July 2023.

COUNSEL FOR RESPONDENTS

RESPONDENT
R. Sundaramoorthy
Executive Engineer
AFD Project Unit
P.W.D., Puducherry

VERIFICATION

I, R. Sundaramoorthy S/o. Rathinavel, Hindu, aged about 57 years residing at No.20, II Cross, Engineer's Colony, Velrampet, Puducherry-4 working as the Executive Engineer in the second Respondent's Unit, Public Works Department Puducherry being the Executive Engineer in charge of the AFD Project Unit, Public Works Department submit that, I am conversant with the facts of the case from the available records and that all that is stated in paragraph 2 to 20 are true to the best of my knowledge, informed and belief and I have not suppressed any material fact and that I am authorized to file this reply statement.

Dated at Puducherry, on this the 22nd day of July, 2023.

RESPONDENT

R. Sundaramoorthy
Executive Engineer
AFD Project Unit
P.W.D., Puducherry

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GROUNDWATER LAW IN INDIA

Towards a Framework Ensuring Equitable Access and Aquifer Protection

Philippe Cullet

This is a pre-publication version of: P. Cullet, 'Groundwater Law in India – Towards a Framework Ensuring Equitable Access and Aquifer Protection', 26/1 *Journal of Environmental Law* (2014), p. 55-81.

http://jel.oxfordjournals.org/content/26/1/55

INTRODUCTION

Groundwater use in India has dramatically increased over the last few decades and it is now the backbone of India's food security and drinking water security. Since 1970, an overwhelming majority (80 percent) of the total addition to the net irrigated area has come from groundwater, ensuring that it accounts by now for around 60 percent of irrigation water use and is the only source of irrigation for the poorest farmers.[1] Groundwater is also the source of about 80 percent of drinking water needs.[2] As a result, India has become the world's biggest user of groundwater.[3]

The rapidly growing number of groundwater extraction structures (estimated at 30 million) coupled with their increasing abstraction power has created a situation where groundwater is exploited beyond dynamic resource availability.[4] In addition to quantitative depletion, many parts of India report severe water quality problems, causing drinking water vulnerability. Critical issues include arsenic contamination in the Ganga basin, higher levels of fluoride in many states and salinity in coastal states.[5] Overall, nearly 60 percent of all districts in India have problems related either to quantitative availability or to quality of groundwater or both.[6]

Existing groundwater regulation is focused mostly on allocation. Further, the rules concerning allocation are linked to land, thus giving groundwater law a strong property focus. This has become problematic in the context of the increasing use and growing importance of

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1 PS Vijay Shankar, Himanshu Kulkarni & Sunderrajan Krishnan, 'India's Groundwater Challenge and the Way Forward' (2011) 46/2 Economic & Political Weekly 37 and Aditi Mukherji, Stuti Rawat & Tushaar Shah, 'Major Insights from India's Minor Irrigation Censuses: 1986-87 to 2006-07' (2013) 48/26-27 Economic & Political Weekly 115.

2 Planning Commission, *Twelfth Five Year Plan (2012–2017) – Faster, More Inclusive and Sustainable Growth – Volume 1* (Government of India 2012) 145. This can be compared with the United States where groundwater only accounts for 20 percent of water use. Joan Kenny and others, *Estimated Use of Water in the United States in 2005* (US Geological Survey 2009) 4.

3 eg World Water Assessment Programme, *The United Nations World Water Development Report 4: Managing Water Under Uncertainty and Risk* (UNESCO 2012) 85.

4 ibid 154 and Tushaar Shah, *Taming the Anarchy – Groundwater Governance in South Asia* (Routledge 2010) 127.

5 Shankar, Kulkarni & Krishnan (n 1) 40.

6 Planning Commission (n 2) para 5.46.

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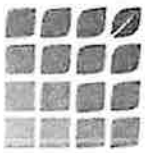

International Environmental
Law Research Centre

GROUNDWATER LAW IN INDIA

TOWARDS A FRAMEWORK ENSURING EQUITABLE ACCESS AND AQUIFER PROTECTION

Philippe Cullet

This is a pre-publication version of: P. Cullet, 'Groundwater Law in India – Towards a Framework Ensuring Equitable Access and Aquifer Protection', 26/1 Journal of Environmental Law (2014), p. 55-81, available at http://jel.oxfordjournals.org/content/26/1/55

two basic structural reasons. Firstly, community bodies that are not linked to the panchayat tend to suffer from a democratic deficit. This is, for instance, the case with regard to WUAs whose membership only includes landowners,[81] and that fail to include reservation, for instance for women.[82] Secondly, regulation by a variety of bodies that have no common basis begs the question of coordination. This is true within the water sector, as well as between water and other sectors. Theoretically, the management of surface irrigation by a body completely distinct from the one managing the aquifers found in the area may seem to make sense. Yet, the need for joint management of all water and all water uses implies that 'a' body must take responsibility. Panchayats/municipalities may not always be demarcated in an ideal manner from the point of view of water resources but they have the advantage of being clearly demarcated in law and have the power to regulate all natural resources together, including in particular land and water. In addition, they have the advantage of being democratically elected and permanent,[83] something that project-based institutions cannot achieve. The need to move away from such arrangements is clearly established by the Andhra Pradesh Farmer Managed Groundwater Systems project whose institutional structure was found to be 'withering' only a few years after the end of the project.[84]

C. Groundwater as the Primary Source of Drinking Water – Realising the Human Right to Water

The human right to water has been repeatedly recognised by the higher judiciary in India for more than two decades. The confirmation of the right at the national level thus predates its international formalisation and the domestic fundamental right does not, as such, borrow from international developments. The Supreme Court asserted already in 1991 that the '[r]ight to live is a fundamental right under Article 21 of the Constitution and it includes the right of enjoyment of pollution free water and air for full enjoyment of life'.[85] The right has been further specified in certain cases. In a groundwater-related case, the government was sued for not taking appropriate precautions to ensure that the drinking water supplied through handpumps in Mandla District (Madhya Pradesh) was free from excessive fluoride.[86] The High Court ruled that under Article 47 of the Constitution, the State has the responsibility to improve the health of the public by providing unpolluted drinking water.[87] Courts have gone even further in specifying the duties of the state and provided that it 'is bound to provide drinking water to the public' and that this should be the foremost duty of the government.[88] In this case, the judges ruled that the failure of the state to 'provide safe drinking water' to citizens amounted to a violation of the right to life.[89]

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81 ibid s 2(1)w.

82 An exception is Chhattisgarh sinchai prabandhan me krishkon ki bhagidari adhiniyam 2006, s 5.

83 Constitution of India, art 243C(2) provides that all seats in a Panchayat are filled by direct election while art 243R(1) provides the same for municipalities.

84 Shilp Verma and others, *Andhra Pradesh Farmer Managed Groundwater Systems (APFAMGS) – A Reality Check* (IWMI-Tata 37 Water Policy Research Highlight 2012) 6.

85 *Subhash Kumar v State of Bihar* AIR 1991 SC 420 (Supreme Court of India, 1991) para 7.

86 *Hamid Khan v State of Madhya Pradesh* AIR 1997 MP 191 (Madhya Pradesh High Court, 1996).

87 ibid para 6.

88 *Vishala Kochi Kudivella Samarkshana Samithi v State of Kerala* 2006(1) KLT 919 (High Court of Kerala, 2006) para 3. Similarly, in *Lucknow Grih Swami Parishad v State of Uttar Pradesh* 2000(3) AWC 2139 (High Court of Allahabad (Lucknow Bench), 2000) para 4, the Court ruled that 'it is the bounden duty of the State to assure the supply of sufficient amount of qualitative drinking water to its people'.

89 *Vishala Kochi Kudivella Samarkshana Samithi* (n 88) para 3.

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The human right to water developed in the case law remains at the level of a general framework. Judicial decisions do not provide the specific means by which the right can be realised. While this is not supposed to be the function of the courts, there is no water legislation that provides the missing content.[90] Thus, there is no drinking water legislation that sets out the content of the right. As a result, there are, for instance, no binding drinking water quality standards in the country. This does not imply that there are no points of reference concerning the content of the right to water in India. Indeed, there have been drinking water quality standards as reference point for some time,[91] and the government set out already in the 1970s a minimum quantity of water that can be seen as equivalent to the minimum level of realisation of the human right to water.[92] While these are all important markers of a policy framework, they do not constitute a binding legal framework for the realisation of the human right to water, something that has been confirmed in recent years with the relatively frequent adoption of new administrative directions.[93]

While there is a general legislative gap concerning the human right to water that needs to be filled, the most important component concerns groundwater since it is the source of most drinking water needs for the overwhelming majority of the population. Groundwater legislation can thus contribute to fill several gaps in this area, including the introduction of binding standards for the provision of basic water and binding drinking water quality norms.

D. The Water and Environment Dimension – Ensuring Aquifer Protection in a Unitary Framework

One of the biggest challenges in terms of reforming groundwater law concerns its environmental aspects. Indeed, in existing groundwater rules, the environmental dimension is virtually absent. This can be ascribed to the fact that groundwater rights were developed before conservation and protection concerns arose.[94] At the same time, this does not explain why more recent restatements of the Groundwater Model Bill 1970/2005 have not integrated the very significant developments that have taken place since the 1970s with regard to environmental conservation and protection.[95]

The Indian environmental law framework includes a number of elements that provide a basis for developing groundwater legislation with a strong conservation focus. Firstly, there is a well-established human right to environmental protection in India.[96] Its specific content is not well defined,[97] but its recognition confirms that any comprehensive groundwater legislation must be based equally on the human right to water and on the human right to environmental protection.

Secondly, water protection has already been addressed in part in environmental legislation. These include acts whose specific focus is water, as in the case of the Water (Prevention and

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90 eg Philippe Cullet, 'Right to Water in India – Plugging Conceptual and Practical Gaps' (2013) 17 Intl J Human Rights 56.

91 Bureau of Indian Standards, *Drinking Water – Specification* (Second Revision, IS 10500) 2012.

92 The Accelerated Rural Water Supply Programme of the Government of India was introduced in 1972..

93 eg Government of India, National Rural Drinking Water Programme 2010.

94 Even in the United States where groundwater rules have been the subject of much attention in a number of states, conservation 'has been a late bloomer'. Dellapenna (n 21) 317.

95 see generally PB Sahasranaman, *Handbook of Environmental Law* (2nd edn, OUP 2012).

96 eg *Subhash Kumar v State of Bihar* AIR 1991 SC 420 (Supreme Court of India, 1991).

97 eg Lavanya Rajamani, 'The Right to Environmental Protection in India: Many a Slip between the Cup and the Lip?' (2007) 16 Rev Eur Community & Intl Environmental L 274.

भारत सरकार

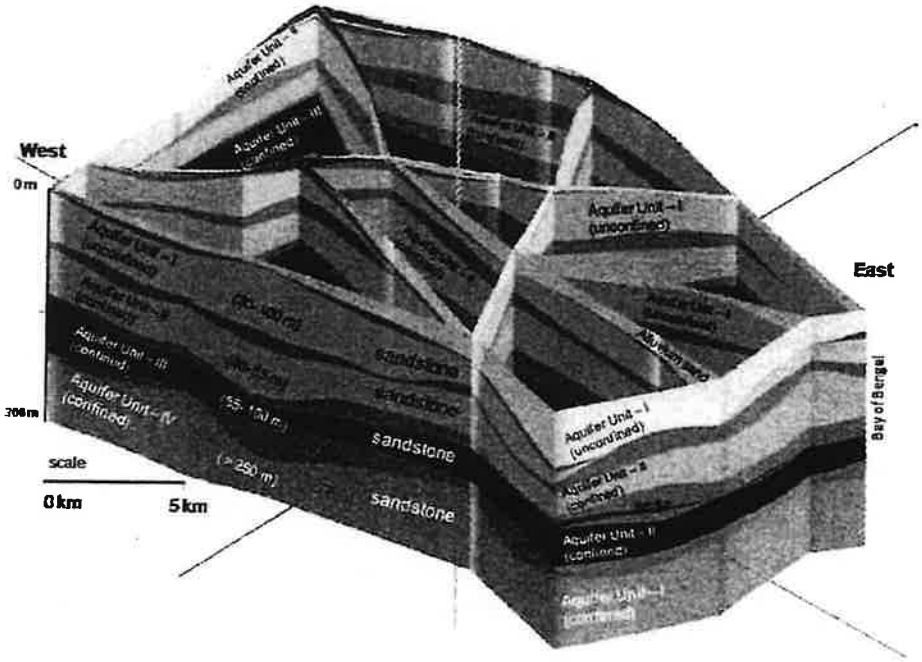
जल संसाधन, नदी विकास और गंगा संरक्षण मंत्रालय

केंद्रीय भूमि जल बोर्ड

Government of India

Ministry of Water Resources, River Development and Ganga Rejuvenation

CENTRAL GROUND WATER BOARD



प्रायोगिक जलभृतमानचित्रण परियोजना का प्रतिवेदन

लोअर वेल्लार वाटरशेड, कडालूर, जिला, तमिलनाडू

Pilot Project Report on Aquifer mapping in Lower Vellar watershed, Cuddalore district, Tamilnadu

दक्षिण पूर्वी तटीय क्षेत्र,चेन्नई SOUTH EASTERN COASTAL REGION, CHENNAI

दिसंबर -2015 December-2015

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K. B. Biswas
Chairman

केन्द्रीय भूमि जल बोर्ड
जल संसाधन, नदी विकास
एवं गंगा संरक्षण मंत्रालय
भारत सरकार
नई दिल्ली

Central Ground Water Board
Ministry of Water Resources,
River Development and Ganga Rejuvenation
Government of India
New Delhi

FOREWORD

Increasing development of ground water to meet the requirements of various segments has resulted in the over-exploitation of this vital natural resource in parts of the country and consequent adverse environmental impacts include, deepening water levels and drying up of shallow wells, reduction in sustainability of wells and seawater ingress in coastal freshwater aquifers. Contamination of ground water due to natural and anthropogenic causes has also increased substantially in the recent decades. The anticipated impact of global warming and climate change are also considered to add to further complicate the issues plaguing the water resources sector in India in the not so distant future. Sustainable development of ground water through judicious management interventions becomes very important to ensure the water security of the future generations.

It is in this context that the Central Ground Water Board, Ministry of Water Resources, River Development and Ganga Rejuvenation, Government of India decided to take up the National Aquifer Mapping and Management (NAQUIM) Programme, aimed at detailed and systematic study of the major aquifer systems in the country and formulation of management plans for sustainable development of their ground water resources. The Programme envisaged various activities such as compilation of all available data, analysis of data gaps and generation of additional data to fill them, preparation of detailed aquifer maps and formulation of management plans. Various conventional and modern techniques of field data generation, data processing and analysis including integration of data on a GIS platform and numerical groundwater modelling were expected to be used for the programme.

With a view to understand the applicability and efficacy of the above-mentioned techniques in different hydrogeological settings, pilot projects on aquifer mapping were taken up in Six different Hydrogeological terrains in the states of Bihar, Rajasthan, Maharashtra, Karnataka and Tamil Nadu.CSIR NGRI was engaged as a consultant by CGWB to facilitate use of advanced geophysical techniques in the programme. During the course of the study, groundwater issues have been identified by CGWB specific to the area. With inputs from aquifer mapping studies, aquifer response models have been formulated and various strategies have been tested to arrive at optimal aquifer management plan for sustainable management of precious resources.

This is one among the six reports being brought out based on the studies taken up in the pilot projects. The findings are brought out in the report very coherently and I would like to place on record my appreciation for the excellent work done by the team. I fondly hope that this report will serve as a valuable guide for sustainable development of ground water in the area.

K.B.Biswas
Chairman

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भारत सरकार
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सरक्षण मंत्रालय
केंद्रीय भूजल बोर्ड
दक्षिण पूर्वी तटीय क्षेत्र
ई-1, सी - ब्लॉक, राजाजी भवन
बेसेंट नगर, चेन्नई-600 090.

GOVERNMENT OF INDIA
MINISTRY OF WATER RESOURCES,
RIVER DEVELOPMENT AND GANGA REJUVENATION
Central Ground Water Board
South Eastern Coastal Region
E-1, C – Block, Rajaji Bhavan
Besant Nagar, Chennai – 600 090

PREFACE

Aquifer mapping studies has been carried out in the parts of Lower Vellar Water Shed, Cuddalore district, Tamilnadu under Pilot Project with an objective to decipher the vertical and lateral extent of the aquifer down to the depth of 300 meters and to develop a numerical model so as to bring out the aquifer management plan for effective management of the groundwater resources. This study was carried out under the guidance of Chairman and overall supervision of Central Head Quarters, CGWB.

This report eloborates the outcome of the aquifer mapping study, in particular, the vertical and lateral extent of the aquifer units, its characteristics and the response of the aquifer units to different stress conditions. Further, the groundwater management plan of the cuddalore coastal aqufier system that included the part of lower vellar water shed has been described eloborately.

I appreciate the sincere and untiring efforts by Dr. D. Gnanasundar, Scientist – C (Sr.HG) & Nodal Officer of the Project, Shri. N. Rameshkumar, AHG and Dr. M. Senthilkumar, Scientist-C (Jr.HG) and officers/staffs of South Eastern Coastal Region, CGWB in completion of Pilot project and the report on "Aquifer mapping in Lower Vellar Water Shed, Cuddalore district, Tamilnadu".

The report shall be of immense use amongst water managers & planners, hydrogeologists, engineers, profesionals and academicians working in the field of groundwater resources management.

A. SUBBURAJ
Head of Office

Figure 6.4 Regional Geology and boundary limit of the Cuddalore aquifer system.

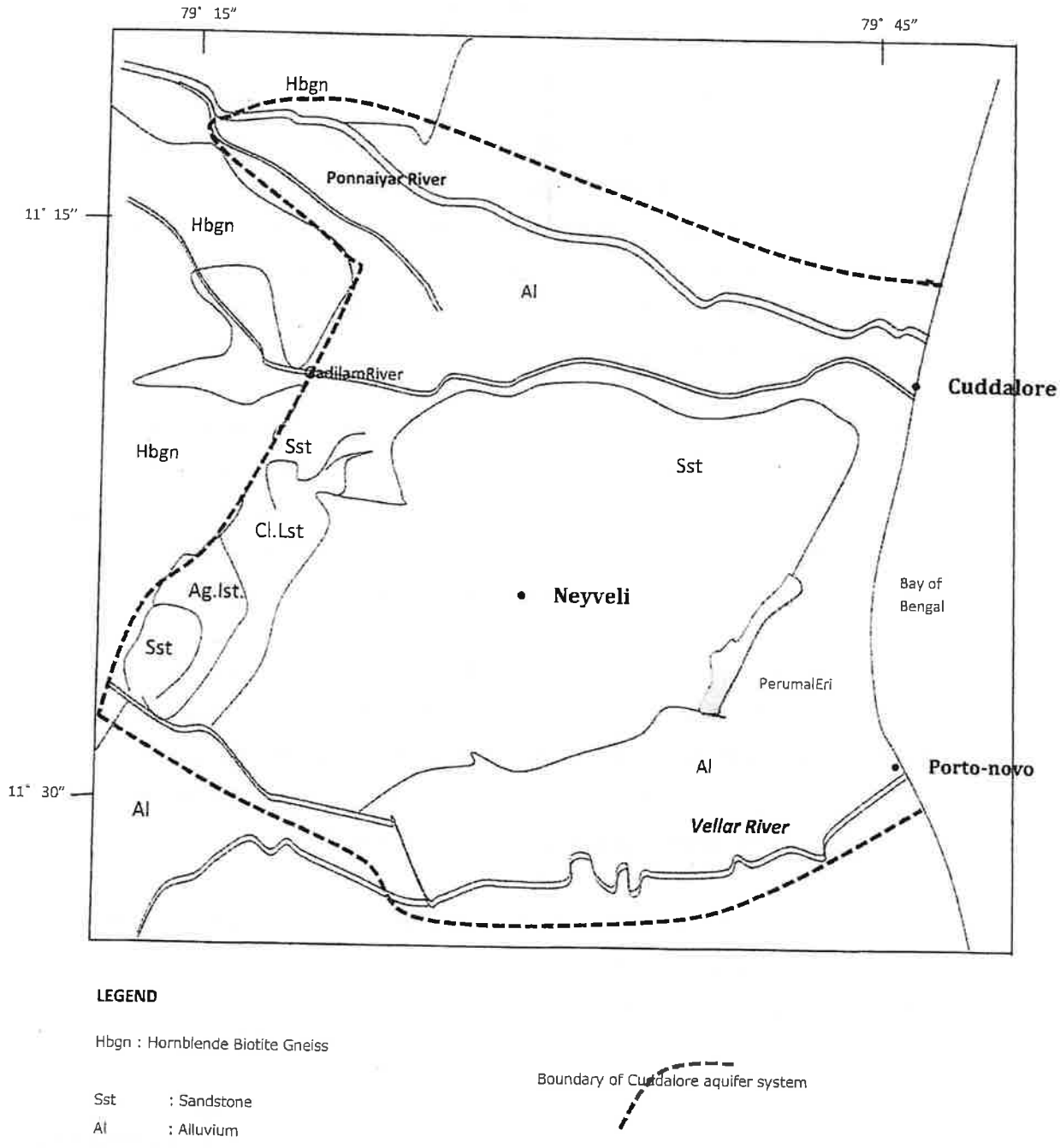

Table.6.9 The groundwater withdrawal from the Cuddalore aquifer by Hydrogeological unit wise.

Aquifer	Hydrogeologic Unit		Irrigation	Industrial	Domestic
				(mcm/year)	
Sand/sandstone	**Aquifer - I**		393.0	0.8	30.0
Sandstone	**Aquifer -II**	confined		611.65	1.2
Sandstone	**Aquifer-III**			31.0	133.10
Sandstone	**Aquifer-IV**				12.79*
Sandstone	(Aquifer – V)		(no groundwater withdrawal exists)		
Total			1035.69	135.10	42.79

*Groundwater withdrawal for drinking water supply to Chennai city during lean periods.

Within the model domain, 42 observation wells exists *(representing all 4 aquifer units modelled)* and the hydraulic heads of these observation wells have used for calibration. The observation wells are screened in more than one aquifer were not considered for calibration process, since, the screens of these wells tap more than one aquifer units. The number of the observation wells and their water level observations in each hydrogeological unit *(aquifer units)* that were used in the calibration is given as table 11.

Table 7.2 Table showing the permissible water level/peizometric head of Individual aquifer units of the Cuddalore coastal aquifer system.

Aquifer Units	Present Water Level/Piezometric head (m w.r.t msl)	Present groundwater withdrawal (mcm/yr)	Maximum permissible water level/peizometric head (m w.r.t msl)	Maximum permissible groundwater withdrawal (mcm/yr)	Suggestions for Aquifer management
Aquifer – I (unconfined)	1 to 65	423.8	1 to 2 (0 – 10 km from coast) or above msl	525	Vulnerable to sea water intrusion. Total GW withdrawal not to exceed by 700 mcm annually.
Aquifer – II (Confined)	14 to - 27	612.85	- 40	700	Vulnerable to sea water intrusion. Total withdrawal exceeds not to exceed by 900 mcm annually.
Aquifer – III (confined)	05 to - 47	164.1	- 60	500	Groundwater withdrawal not to exceed by 750 mcm annually.
Aquifer – IV (Confined)	-10 to - 48	12.79	- 70	550	Groundwater withdrawal not to exceed by 750 mcm annually.

CREDIT FACILITY AGREEMENT CIN 1078 01 X

Puducherry Water Supply Project

dated as of 30th June 2017

between

AGENCE FRANÇAISE DE DEVELOPPEMENT

The Lender

and

The PRESIDENT OF INDIA, represented by the Department of Economic Affairs

The Borrower

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CREDIT FACILITY AGREEMENT

This Agreement (the "Agreement") is made and executed on the 30th day of June, 2017 at New Delhi, the National Capital Territory of Delhi.

BY AND AMONGST:

THE PRESIDENT OF INDIA, represented and acted by Mr. S. SELVAKUMAR, in his capacity as the Joint Secretary to the Government of India, Department of Economic Affairs, Ministry of Finance, who is duly authorised to sign this Agreement (herein after referred to as the "Borrower")

AND

(1) **AGENCE FRANCAISE DE DEVELOPPEMENT**, a French public entity governed by French law, with registered office at 5, Rue Roland Barthes, 75598 Paris Cedex 12, France, registered with the Trade and Companies Register of Paris under number 775 665 599, represented by Mr. Hervé DUBREUIL, in his capacity as Country Director a.i for India, duly authorised to sign this Agreement (herein after referred to as the "AFD" or the "Lender")

("**AFD**" or the "**Lender**");

Hereinafter jointly referred to as the "**Parties**" and individually referred to as a "**Party**");

WHEREAS:

(A) The Borrower intends to improving the management of the water resources while ensuring on the long term the inclusive, universal and continuous access to drinking water and improving sanitation to the district of Puducherry and its outskirts (the "**Project**"), as described further in Schedule 2 (*Project Description*).

(B) The Borrower has requested that the Lender makes a facility available for the purposes of financing the Project in part.

(C) Pursuant to a resolution n° C20150513 of the Board of AFD dated December 17th, 2015, as modified by the resolution n° C20170219 of the Board of AFD dated May 18th, 2017; the Lender has agreed to make the Facility available to the Borrower pursuant to the terms and conditions of this Agreement.

IN WITNESS WHEREOF, the parties have entered into this Agreement, on the day and year first above written.

Executed in two (2) originals, in New Delhi, on June 30th 2017.

BORROWER
REPUBLIC OF INDIA

Represented by:
Name: Mr. S. SELVAKUMAR
Capacity: Joint Secretary, DEA

LENDER
AGENCE FRANÇAISE DE DÉVELOPPEMENT

Represented by:
Name: Mr. Hervé DUBREUIL
Capacity: Director a.i for India

Cosigner, His Excellency Mr Alexandre ZIEGLER, Ambassador of France, Embassy of France

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	approval and consent given by the Borrower's creditors.
Authority(ies)	means any government or statutory entity, department or commission exercising a public prerogative, or any administration, court, agency or State or any governmental, administrative, tax or judicial entity.
Availability Period	means the period from and including the Signing Date up to the Deadline for Drawdown.
Available Credit	means, at any given time, the maximum principal amount specified in Clause 2.1 (*Facility*) less: (i) the aggregate amount of any Drawdowns drawn by the Borrower; (ii) the amount of any Drawdown to be made pursuant to any pending Drawdown Request; and (iii) any portion of the Facility which has been cancelled pursuant to Clauses 8.3 (*Cancellation by the Borrower*) and/or 8.4 (*Cancellation by the Lender*).
Business Day	means a day (other than Saturday or Sunday) on which banks are open for the entire day for general business in Paris, and which is a TARGET Day in the event that a Drawdown has to be done on such day.
Certified	means for any copy, photocopy or other duplicate of an original document, the certification by any duly authorised person, as to the conformity of the copy, photocopy or duplicate with the original document.
Contractor(s)	means third party contractor(s) in charge of implementing all or part of the Project pursuant to Project Documents.
Contractor's Guarantee(s)	means any guarantee provided to the Final Beneficiary directly or indirectly by any Contractor in charge of the completion of the Project or any part thereof, such as, for example, the completion guarantee or the advance payment guarantee.
Deadline for Drawdown	means 30st June 2022, date after which no further Drawdown may occur.
Drawdown	means a drawdown of all or part of the Facility made, or to be made, available by the Lender to the Borrower pursuant to the terms and conditions set out in Clause 3 (*Drawdown of Funds*) or the principal amount outstanding of such Drawdown which remains due and payable at a given time.
Drawdown Date	means the date on which a Drawdown is made available by the Lender.

SCHEDULE 3 – TENTATIVE FINANCING PLAN

PART I – TENTATIVE FINANCING PLAN:

Total project cost°: INR 5340 Million (EUR 76.285 Million @ 1 EUR=70 INR)

Source of funding	%	INR (Millions)	Million Euros
Capital, UT of Puducherry	14.8	790	11.285
AFD Loan	85.2	4550	65.00
Total financing	100	5340	76.285

° Component-wise Abstract of Cost:

Component	Scheme details	Cost in millions-INR
1. and 2.	Augmentation of Water Supply sources and Rehabilitation of system in urban area of Pondicherry District, Puducherry	5030
4.	Long-Term Technical Assistance to Public Works Department (PWD) through a specialized agency and Tools of Management (For all the phases)	310
	Total	5340 Million INR or (INR-534 crores)

PART II - ELIGIBLE EXPENSES

The eligible expenses are costs that meet all the following criteria:

a) they are necessary for carrying out the Project, directly attributable to it, arising as a direct consequence of its implementation and charged in proportion to the actual use;

b) they are incurred in accordance with the provisions of this Agreement.

c) they are actually incurred by the Final Beneficiary, i.e. they represent real expenditure definitely and genuinely borne by the Final Beneficiary;

d) they are reasonable, justified, comply with the principle of Sound Financial Management and are in line with the usual practices of the Final Beneficiary regardless of their source of funding;

e) they are incurred before the Deadline for the Use of Funds;

f) they are identifiable and backed by supporting documents, in particular determined and recorded in accordance with the accounting practices of the Final Beneficiary;

g) they are covered by one of the activities described in Schedule 2;

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h) they comply with the applicable tax and social legislation taking into account the Final Beneficiary's privileges and immunities.

PART III - NON-ELIGIBLE EXPENSES

The following expenses are ineligible:

a) bonuses, provisions, reserves or non-remuneration related costs. Employers' contributions to pension or other insurance funds run by the Final Beneficiary may only be eligible to the extent they do not exceed the actual payments made by these schemes and that the amount provisioned does not exceed the contribution that could have been made to an external fund:

b) duties, taxes and charges, including VAT;

c) return of capital;

d) debts and debt service charges;

e) provision for losses, debts or potential future liabilities;

f) costs declared by the Final Beneficiary under another agreement financed by AFD;

g) costs of purchase of land or buildings.

AFD
AGENCE FRANÇAISE
DE DÉVELOPPEMENT

2019/IND/CVB/AT n° 417

New Delhi, July 10, 2019

Mr. S. Mahalingam
Chief Engineer
Public Works Department
Government of Puducherry

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Subject: AFD's NOC for the Procurement Plan under CIN 1078

Reference: Email dated 02nd July 2019, request for NOC for the procurement plan

Dear Mr. Mahalingam,

With regard to the NOC request submitted by the PWD via mail dated 2019/07/02, **AFD confirms it has no objection to the proposed procurement plan** for the work of "Augmentation of water supply sources and rehabilitation of system in urban area in Pondicherry district, Puducherry (Phase-I)" **under the provision that packages Nr 9 (SCADA System), 12 & 13 (OHT Works) are processed under international competitive bidding (ICB) procedure.**

Given the relative complexity of the procurement process, AFD's NOC and stringent project timelines, AFD strongly encourages the PWD-PMU to continue considering clubbing work packages, in order to decrease the number of tenders.

Additionally, the Procurement Plan is a living project management document and we therefore encourage your team to update it six-monthly/annually to reflect the project realities. AFD NOC will be required at each revision.

Should you need any further clarification, please do not hesitate to revert to AFD at any time.

Yours sincerely,

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Clemence VIDAL DE LA BLACHE
AFD Country Director a.i.

PROCUREMENT PLAN (Approved by AFD Lr.no. 2019/IND/CVB/AT/AT n° 417, dt: 10/07/2019

Name of Work: "Augmentation of water supply sources and Rehabilitation of system in urban areas of Puducherry District, Puducherry (Phase-I)".

Contract Name	Estimated Contract Amount and Currency (Inclusive of tax) in Lakhs	Type of contract	Type of competition	Procurement procedure	Selection Method	Review by AFD	Estimated specific procurement Notice publication date	Estimated bid or proposal opening date	Estimate contract signing date	Estimated contract completion date
Package 1:- Selection of Consultant for Social Impact Assessment study and preparation of Social Management Plan	24.00	C	NPC	RFP	QCBS	PRIOR	26.04.2019	07.05.2019	05.07.2019	23.08.2019
Package 2:- Appointment of Project Management cum Procurement Consultant required for few package included in the Project	12.00	C	NPC	RFP	DC	PRIOR	15.07.2019	-	15.08.2019	18.05.2020
Package 3:- Detailed engineering activities required for each work package included in the Component 1 of the CFA.	150.00	C	NPC	REOI	QCBS	PRIOR	30.07.2019	14.10.2019	15.12.2019	14.12.2020
Package 4:- Long term Technical Assistance to the PWD and to the Project Management Unit.	2100.00	C	IPC	REOI	QCBS	PRIOR	15.08.2019	14.10.2019	15.12.2019	30.06.2022
Package 5:- Appointment of third party quality control agency required for work supervision, training and certification for all work package included in the Project	400.000	C	IPC	REOI	QCBS	PRIOR	01.10.2019	15.12.2019	14.02.2020	30.06.2022
Package 6:- Sinking 84 Nos. of deep tubewells and its allied works for source augmentation at Sembiyapalayam, Mangalam, Melsathamangalam, Sivaranthagam, Keezhur, Nathamedu, Pudhukuppam, Embalam, Kambalikarankuppam, Karikalampakkam, Korkadu and Thanikuppam village in Puducherry.	3154.540	W	NPC	PQL+IB	LCS	PRIOR	30.09.2019	15.12.2019	14.02.2020	13.11.2020
Package 7:- Construction of Collection well, pumphouse, erection of pumpset, genset, eletrification at Sivaranthagam, Melsathamangalam, Korkadu, Nathamedu Erikarai and Mangalam village and pumping main, conveyance main from collection well at 5 locations to Thirukanji Head works and construction of pumphouse, erection of pumpset, genset, eletrification at tubewells site in Puducherry.	12673.480	W	IPC	PQL+IB	LCS	PRIOR	15.01.2020	31.03.2020	31.05.2020	30.05.2022

l. o	Contract Name	Estimated Contract Amount and Currency (Inclusive of tax) in Lakhs	Type of contract	Type of competition	Procurement procedure	Selection Method	Review by AFD	Estimated specific procurement Notice publication date	Estimated bid or proposal opening date	Estimate contract signing date	Estimated contract completion date
3	**Package 8:-** Construction of Master collection well, pumphouse, erection of pumpset, genset,piping inside the campus and other allied works at Thirukanji Head works including providing and fixing level/pressure/flow meter of the 50 OHT in urban area of Puducherry.	800.770	W	NPC	PQL+IB	LCS	PRIOR	15.01.2020	31.03.2020	31.05.2020	30.05.2021
9	**Package 9:-** Providing and Commissioning of instrumentation works for automation SCADA system for the source augumentation project from village to Thirukanji head works and Thirukanji head works to OHT location(50Nos) at Puducherry Urban area, Puducherry.	2630.970	W	NPC	PQL+IB	LCS	PRIOR	15.01.2020	31.03.2020	31.05.2020	30.05.2022
0	**Package 10:-** Annual audit of the project account by an independent auditing firm	100.000	C	NPC	REOI	QCBS	PRIOR	15.11.2019	01.02.2020	01.04.2020	30.06.2022
1	**Package 11:-** OHT, Sump, Distribution Grid, Pumping Main and Road Restoration for Villianur (Zone-12) and Sulthanpet (Zone-16).	4616.890	W	IPC	PQL+IB	LCS	PRIOR	15.02.2020	01.05.2020	01.07.2020	31.12.2021
2	**Package 12:-** OHT, Sump, Distribution Grid, Pumping Main and Road Restoration for Uthiravaginipet and Kanuvapet village in Villianur Commune, Puducherry(Zone-13).	2497.993	W	NPC	PQL+IB	LCS	PRIOR	15.02.2020	01.05.2020	01.07.2020	31.12.2021
3	**Package 13:-** Distribution Grid, Pumping Main and Road Restoration for Sudhana Nagar (Zone-10) and Distribution Grid, Road Restoration for Dr.Radhakrishnan Nagar (Zone-8 Extn) in Puducherry.	3862.740	W	NPC	PQL+IB	LCS	PRIOR	15.02.2020	01.05.2020	01.07.2020	30.06.2021
4	**Package 14:-** Providing and laying distribution line from Thirukanji Head Works to Viswanathan Nagar OHT and Thirukanji - Manaveli Junction near Gas Company to Kattamanikuppam OHT at Muthialpet in Puducherry.	10166.968	W	IPC	PQL+IB	LCS	PRIOR	15.01.2020	31.03.2020	31.05.2020	30.05.2022

Contract Name	Estimated Contract Amount and Currency (Inclusive of tax) in Lakhs	Type of contract	Type of competition	Procurement procedure	Selection Method	Review by AFD	Estimated specific procurement Notice publication date	Estimated bid or proposal opening date	Estimate contract signing date	Estimated contract completion date
Package 15:- Providing and installation of smart water meter in Puducherry Urban area, Puducherry.	6476.410	W	IPC	PQL+IB	LCS	PRIOR	15.04.2020	01.07.2020	01.09.2020	31.03.2022
Package 16:- Converting the existing water supply distribution grid in ABD area of smartcity of Puducherry to 24 x 7.	960.000	W	NPC	PQL+IB	LCS	PRIOR	15.08.2020	01.11.2020	01.01.2021	30.06.2022
Package 17:- Preparation of a Feasibility study and Detailed Project Report for the sewerage system.	350.00	C	IPC	REOI	QCBS	PRIOR	01.03.2020	15.06.2020	15.08.2020	14.08.2021
Package 18 :- Providing, installation and commissioning of RO plant of 5 MLD each at three locations in Puducherry.										
Package 19:- Providing, installation and commissioning of 4 Nos of Iron Removal Plant.			**As suggested by AFD during the mission held on 24.10.2018, these four Items should be removed at this stage**							
Package 20 :- Providing, installation and Commissioning of 24000 litres/day capacity RO based community treatment.										
Package 21 :- Construction of 5MLD Conventional treatment plant at Thirukanji including Intake structure at sankarabarani river, Puducherry.										
Package 22:- Setting up of office for AFD project Uint, PWD, Puducherry in the 1st floor of Circle I office building and 2nd floor of Architect office building, the cost includes civil works, furnitures, re-arranging internal electrification and providing conferencing system.	42.50	W	NPC	IB	LCS	Expost	31.07.2019	20.08.2019	20.9.2019	19.12.2019
Package 23:- Purchase & maintenance of Computers, Printers, Xerox machine, Air conditioner units and Stationary etc., upto June2022 for AFD Project Unit, PWD, Puducherry	51.44	W	NPC	GeM	LCS	Expost	15.08.2019	06.09.2019	05.10.2019	30.06.2022

l. o	Contract Name	Estimated Contract Amount and Currency (Inclusive of tax) in Lakhs	Type of contract	Type of competition	Procurement procedure	Selection Method	Review by AFD	Estimated specific procurement Notice publication date	Estimated bid or proposal opening date	Estimate contract signing date	Estimated contract completion date
4	**Package 24:-** Purchase & maintenance of office Vehicle (3nos.of four wheeler) for AFD Project Unit, PWD, Puducherry upto June 2022	44.75	W	NPC	GeM	LCS	Expost	15.08.2019	06.09.2019	05.10.2019	30.06.2022
5	**Package 25:-** Purchase of softwares like Water Gem, Sewer Gem, Water Hammer, Arc GIS, Progress Reporter, Primavera Auto CAD with civil 3D etc.,	96.75	W	NPC	Software developer	LCS	Expost	15.01.2020	06.02.2020	05.03.2020	04.05.2020
6	**Package 26:-** Implementation of ground water recharge measures	2127.80									
7	**Package 27:-** Customer management for water supply and sewerage system, developing the billing software and provide all infrastructure required to implement the above activities	60.00		**As suggested by AFD during the mission held on 13th to 15th June 2019, these two items will be provided from tender savings & currency fluctuation and review in next mission.**							
		53400.00									

Legend:-

1	W	=	Works
2	C	=	Consultant
3	NPC	=	National procurement competition
4	IPC	=	International procurement competition
5	PQL+IB	=	Prequalification and Inivitation for Bids
6	REOI	=	Request for Expression of Interest
7	LCS	=	Least Cost Based Selection
8	QCBS	=	Quality and Cost Based Selection
9	PRIOR	=	Post reviews requires AFD's prior approval
0	DC	=	Direct Contracting
1	RFP	=	Requestc for Proposal to limited Consultants

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Junior Engineer
AFD Project Unit
P.W.D., Puducherry

S.Chandirakumar
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AFD
AGENCE FRANÇAISE
DE DÉVELOPPEMENT

2019/IND/BB/AT n°528

New Delhi, Sept. 18th, 2019

Mr. S. Mahalingam
Chief Engineer
Public Works Department
Government of Puducherry

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Subject: AFD's NOC for GW Report under CIN 1078

Reference: PWD email dated 03rd July submission of GW report, followed by subsequent mail dated 26th August 2019 with endorsement letter from Puducherry Ground Water Authority.

Dear Mr. Mahalingam,

On the 3rd of July 2019, the AFD Project Unit, PWD in the person of Mr N.Kanniappan, Executive Engineer, has submitted via mail a PWD Report on Ground Water sustainability in Puducherry Region (GWSR), dated May 2019, for NOC request.

The GWSR shall be included in the set of documents forming part of the Environmental and Social Impact Assessment and Management Plan (ESIA/ESMP) of the project. Even though it cannot be considered as an independent study, the GWSR prepared by AFD project team unit appears robust and professional.

This report has subsequently been submitted for comments to:

- The Central Ground Water Board, South Eastern Coastal Region, Department of water resources from the Ministry of Jal Shakti, Government of India (CGWB).
- The State Ground Water Authority, Union Territory of Puducherry (SGWA)

The GWSR received full endorsement by SGWA and CGWB, which provided relevant recommendations. Those recommendations have been submitted to AFD, which highlights the following for specific attention:

- The CGWB considers that the comparison between Velar – Paravanu Basin and the Cuddalore coastal aquifer system does not allow any extrapolation from the first one to the second one, as every basin has its own hydrological dynamics.
- The CGWB considers that the "Zone-II Aquifer" is already in stressed conditions, which does not allow further extraction.

Thus the CGWB suggests to withdraw water only from the "Zone IV Aquifer", on certain conditions, notably :

- The "distance between proposed tube wells should be maintained". We strongly encourage the PWD team to take this recommendation into account when finalizing the tube well location.
- Quantum of ground water is to be monitored through digital recorder, which is aligned with the AFD-funded Project (proposal for SCADA technology)

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- Overall water level of the zone-IV aquifer should not exceed 42 m bgl.
- State Government should ensure recharging and harvesting measures are implemented within the timeframe of the project.

In light of the above, **AFD confirms its NOC on the GW report with the condition that:**

1. **CGWB recommendations be integrated in the EMP**
2. **A detailed feasibility study guiding the location and depth of tube-wells, GW recharging, and other comments of the CGWB and SGWB will be conducted by a third-party during the execution of the project.** Such study could be carried out within the scope of the LTTA component of the project.

Furthermore, we would like to highlight the following points of attention.

1. **Recharging measures proposed by the PWD mentioned within the Groundwater Report**

There are currently 13 existing irrigation tanks equipped with 104 recharging borewell (Table 5.1). Table 8.1 , and Table 8.2 indicate that the recharging measures proposed include:

- The desilting of 36 existing irrigation tanks, in which 399 new recharge wells would be created.
- The desilting of 36 ponds, in which 36 new recharge wells would be created.
- The creation of 55 new recharge within 9 existing check dams.

This will lead to a significant change in the management of surface water bodies in the Project zone. Thus we recommend taking advantage of the LTTA to assess whether these changes will produce negative impacts for the local populations.

Besides, within the table 9.1, it is assumed that 90% of the water contained in the tanks can be infiltrated. Could you please indicate on what basis is this assumption done? What are the corresponding figures for the existing irrigation tanks already equipped with recharging bore wells?

2. **Domestic water demand**

Domestic water demand (Table 4.1) is substantially different from the water demand estimated in the DPR of the AFD-funded project. For instance, domestic water demand is estimated at 126 MLD in 2018 in the DPR, whereas it is estimated at 158 MLD in 2019 in the Table 4.1 of the report. Could you please indicate the reason of this deviation, preferably ahead of the next supervision Mission?

Should you need any further clarification, please do not hesitate to revert to AFD at any time.

Yours sincerely,

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Bosle Bruno
AFD India Country Director

Table 3.3. LIST OF IRRIGATION TANKS IN PUDUCHERRY REGION

Sl. No.	*Tank No.*	*Name of Tank*	*System / Non-System*	*Ayacut Area (Ha)*	*Water Spread Area (Ha)*	*Capactiy of tank (Mcft)*
1	46	Abishegapakkam Tank	S	308.90	42.43	53.00
2	75	Adingapet Tank	S	36.60	2.00	26.00
3	1	Alankuppam Tank	NS	20.64	8.57	2.15
4	85	Arachikuppam Tank	S	22.73	5.13	6.00
5	73	Aranganur Tank	S	20.44	2.96	26.00
6	40	Ariyur Tank	NS	21.40	7.90	0.54
7	89	Bahour Sitheri	S	23.48	5.65	1.20
8	72	Bahour Tank	S	728.98	321.55	193.50
9	22	Chettipet Tank	S	26.48	6.89	12.30
10	53	Embalam Sitheri	S	48.09	1.52	8.47
11	52	Embalam Vakraneri	S	81.69	14.97	16.00
12	56	Embalam Vannaneri Tank	S	43.59	13.89	9.00
13	61	Eripakkam Tank	NS	26.67	5.90	2.20
14	87	Irulansandai Tank	S	135.13	5.70	27.50
15	8	Kadaperi Tank	NS	34.98	15.66	5.65
16	70	Kaduvanur Tank	S	8.73	19.55	5.40
17	20	Kaikalapet Tank	S	11.34	3.42	2.00
18	90	Kalitheerthalkuppam Tank	NS	39.91	10.68	1.98
19	67	Karaiyambuthur Odaperi	S	89.47	91.44	19.00
20	68	Karaiyambuthur Vannaneri	S	31.70	18.58	6.50
21	10	Karassur Tank	NS	23.46	16.76	12.00
22	63	Kariamanikkam Tank	NS	46.81	12.43	5.63
23	48	Karikalampakkam Tank	S	82.95	4.33	12.50

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Sl. No.	Tank No.	Name of Tank	System / Non-System	Ayacut Area (Ha)	Water Spread Area (Ha)	Capactiy of tank (Mcft)
24	14	Katteri Pazhathangal	S	17.71	3.42	6.00
25	13	Katteri Puduthangal	S	40.99	4.10	4.38
26	16	Katterikuppam Tank	S	94.97	49.80	6.50
27	83	Keelparikalpet Tank	S	69.49	8.05	18.30
28	55	Keezhsathamangalam Tank	S	88.34	25.50	6.80
29	45	Kilagraharam Tank	S	21.88	1.11	3.00
30	58	Kilur Tank	NS	5.17	1.94	0.40
31	77	Kirumambakkam Tank	S	203.39	65.25	43.00
32	21	Kodathur Tank	S	28.72	5.60	6.00
33	24	Koonichampet Pudueri	S	84.64	15.02	5.00
34	51	Korkadu Tank	S	202.97	65.26	48.20
35	80/ 79	Kudiyirupupalayam & Piriyupalayam Tank	S	17.63	2.41	9.00
36	25	Kunichampet Pazhaeri	S	32.07	16.12	4.60
37	15	Kuppam Tank	NS	47.34	3.75	6.85
38	86	Kuruvinatham Tank	S	13.69	9.58	15.00
39	38	Madagadipet Tank	S	87.89	20.93	6.50
40	64	Maducarai Tank	S	88.63	15.67	14.50
41	23	Manalipet Tank	NS	7.82	4.30	0.78
42	69	Manamedu Tank	S	69.31	7.63	10.80
43	81	Manapet Tank	S	79.54	22.67	7.42
44	42	Mangalam Tank	NS	30.59	2.93	6.50
45	26	Mannadipet Tank	S	11.69	4.17	2.00
46	47	Mannapanthangal	S	11.78	1.10	1.50

Sl. No.	Tank No.	Name of Tank	System / Non-System	Ayacut Area (Ha)	Water Spread Area (Ha)	Capactiy of tank (Mcft)
47	84	Melparikalpet Tank	S	39.86	6.60	9.50
48	54	Melsathamangalam Tank	S	88.34	25.50	9.30
49	39	Nallur Tank	S	51.31	25.54	3.50
50	60	Nettapakkam Tank	S	61.71	29.87	12.00
51	71	Ottanthangal Tank	S	19.92	-	1.00
52	6	Ousteri Tank	S	1537.64	802.80	540.00
53	66	Panayadikuppam Perieri Tank	S	80.06	65.91	16.00
54	65	Panayadikuppam Sitheri Tank	S	12.67	0.76	2.50
55	59	Pandacholanallur Tank	S	125.61	24.06	8.90
56	41	Pangur Tank	NS	31.05	6.27	1.20
57	50	Perungalour Chinneri	NS	14.51	2.85	2.04
58	49	Perungalour Perieri	NS	14.50	3.47	0.54
59	35	Pidarikuppam Tank	S	5.06	4.10	0.75
60	76	Pinnatchilkuppam Tank	S	27.47	1.15	9.00
61	34	Sanyasikuppam Tank	S	5.06	4.10	0.70
62	11	Sedrapet Perieri	NS	37.12	18.62	15.00
63	12	Sedrapet Sitheri	NS	10.95	5.98	4.50
64	74	Seliamedu Tank	S	27.56	4.59	9.00
65	57	Sivaranthagam Tank	S	46.35	8.07	10.30
66	29	Sompet Tank	S	25.92	22.95	13.50
67	31	Sorapet Perieri	NS	87.00	20.82	23.90
68	32	Sorapet Pudueri	NS	9.31	5.20	3.85
69	62	Suramangalam Tank	NS	15.63	8.03	3.00
70	17	Suthukeny Otteri	NS	75.36	7.59	15.80

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Sl. No.	Tank No.	Name of Tank	System / Non-System	Ayacut Area (Ha)	Water Spread Area (Ha)	Capactiy of tank (Mcft)
71	19	Suthukeny Perieri	NS	94.74	25.80	19.00
72	18	Thethampakkam Tank	S	13.49	8.90	10.25
73	37	Thirubuvanai Tank	S	31.08	6.02	3.50
74	44	Thirukanji Tank	S	15.45	3.49	6.00
75	28	Thirukkanur Chinneri	S	20.20	18.32	3.50
76	27	Thirukkanur Perieri	S	63.77	18.43	13.00
77	36	Thiruvandarkoil Tank	S	75.32	16.45	2.20
78	7	Thondamanatham Vellaveri	S	51.07	35.79	12.00
79	9	Thuthipet Tank	NS	17.48	9.44	9.50
80	43	Uruvaiyar Tank	NS	33.45	3.08	7.00
81	82	Utchimedu Tank	S	26.37	5.10	15.00
82	30	Vadhanur Tank	S	164.73	106.37	28.00
83	33	Vambupet	NS	39.31	11.07	10.27
Total Ayacuts of 84 tanks in Pondicherry Region = 6278.46 Ha						

Table 3.4. LIST OF PONDS IN PUDUCHERRY REGION

I.D	Name	Village	Survey No.	Area_ha
1	Uthu_Kulam	Kunichampet	130	0.152
2	Cheri_Kulam	Kunichampet	143	0.039
3	Govt. Fish Farm	Kunichampet	191	0.240
4	Velan_Kulam_Kuttai	Kunichampet	166	0.172
5	Thamarai Kulam	Kunichampet	166	0.504
6	Ayyanar_Kovil_Kulam	Kunichampet	112	0.156
7	Kanagan_Kuttai	Kunichampet	51	0.086
8	Kattan_Kulam	Kunichampet	181	0.021
9	Mullu_Kuttai	Kunichampet	214	0.047

GOVERNMENT OF PUDUCHERRY
AFD PROJECT UNIT
Subash Chandrabose Street, 1st Floor (Computer Design Centre)
P.W.D., PUDUCHERRY.

No. 679/PW/AFD-PU/F.No.21/2021 Puducherry, the 25.11.2021

To

(1) The Secretary (Works), Chief Secretariat, Puducherry.
(2) The Chief Engineer, Public Works Department, Puducherry
(3) The Regional Director, in-charge CGWB, Chennai
(4) The OSD to Hon'ble Chief Minister, Puducherry
(5) The Private Secretary to Hon'ble Chief Minister, Puducherry.
(6) The Private Secretary to Hon'ble Speaker, Puducherry.
(7) The Private Secretary to Hon'ble Minister, (Pubic Works), Puducherry.
(8) The Hydrologist, Agriculture Department, Puducherry.
(9) The Member Secretary, Pondicherry Ground Water Authority, Puducherry.

Sir,

Sub: PW – AFD-PU Meeting held in the chamber of the Hon'ble Chief Minister to discuss about the selection of scenario under AFD scheme Minutes communicated – Reg.

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Copy of the approved Minutes of the meeting held in the chamber of Hon'ble Chief Minister on 16.11.2021 to discuss about the selection of scenario under AFD scheme is communicated herewith for perusal.

Yours faithfully,

EXECUTIVE ENGINEER
AFD PROJECT UNIT, PWD
PUDUCHERRY

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MINUTES OF THE MEETING HELD IN THE CHAMBER OF THE HON'BLE CHIEF MINISTER TO DISCUSS ABOUT THE SELECTION OF SCENARIO UNDER AFD SCHEME.

As decided by the Hon'ble Chief Minister a meeting was conducted under the Chairmanship of Hon'ble Chief Minister on 16.11.2021 at 12.00 noon to discuss the various factors for supplying good drinking water to the urban areas in Puducherry region and also to finalise the scenario to kick start the AFD Scheme.

2. The following were present:

(1) The Hon'ble Chief Minister
(2) The Hon'ble Speaker,
(3) The Hon'ble Minister, (Pubic Works)
(4) The Secretary (Works)
(5) The Chief Engineer, PWD
(6) The Regional Director, in-charge CGWB, Chennai
(7) The Technical Secretary to Regional Director, CGWB, Chennai
(8) The OSD to Hon'ble Chief Minister
(9) The Hydrologist, Agriculture Department
(10) The Member Secretary, Pondicherry Ground Water Authority
(11) The Executive Engineer, P.H.D., P.W.D.

3. At the outset the Chief Engineer explained the Hon'ble Chief Minister regarding the shortcoming in taking up the water supply scheme under AFD. The Chief Engineer stated that even though the AFD Scheme was about to be closed by June 2022 without taking any action, based on the recommendation letter by the Hon'ble Chief Minister to the Hon'ble Union Minister (Finance) the AFD has accepted to extend the scheme upto 2025. It is now on the part of the Department to finalise the scenario under which, the Scheme is going to be taken up and communicate to the A.F.D. for further action.

4. The Hon'ble Chief Minister expressed his displeasure in the suspension of the Oussudu lake project which has been sanctioned for 47 crores but has not been implemented due to the NGT issue. The Hon'ble Chief Minister directed the

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Chief Engineer to take up this matter again with the NGT and reopen the case giving details to the NGT about the salinity of water in the urban areas and the utmost and urgent necessity in providing good drinking water to the people of Puducherry urban areas. In addition to this the Hon'ble Chief Minister also suggested to utilize the abundant quantity of surface water from Bahour lake Korkadu lake, Abishekapakkam lake and Velrampet lake for providing good drinking water to the people of urban areas.

5. The Hon'ble Minister (Public Works) explained that in the AFD Scheme 84 numbers of borewell are to be sunk in the river bed of Pennaiyar, Malatar and Guduvaiyar. These borewells will be connected through various collection wells and will be directed to the Thirukanji Head work through one common trunk pipeline, from where these water will be distributed to the various OHTs in the urban areas. The Hon'ble Minister also explained that on completion of the project nearly 100 borewells in the urban areas which are exhibiting high TDS will be closed. The Minister also added that instead of abandoning these borewells the same could be used as recharge borewells.

6. For this suggestion the Hon'ble Chief Minister did not agree to this proposal for the reason that by recharging the rain water stagnating on the land into the borewells, it will only spoil the underground water and hence these borewells can be kept closed. The Hon'ble Chief Minister also suggested to think of the methods to preserve the rain water without letting it going to the sea as a waste.

7. The Secretary (Works) explained the Hon'ble Chief Minister that the main aim for continuing the project is to utilise the funds already released by the AFD. Out of the sanctioned project cost of ₹534 crores, the AFD has already released ₹49.61 crores which is lying idle with the project account unutilized. In addition to this a sum of ₹2.47 crores has been accrued as interest. As such, as of now, the total amount ₹52.08 crores is lying with the AFD Unit unutilized. The AFD is extending the funds at a very meager rate of interest. As a result of the various actions taken by various officials, the AFD has accepted to extend the project. In the social impact assessment report it was mentioned that the farmers did not accept for sinking the borewells in the land areas. For this

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reason now it has been proposed to sink 84 numbers of borewells in the river beds and the water can be tapped through pipelines to the common collection well. In this regard, at the first instance 40 borewells can be taken up immediately. Department shall explore the feasibility to use surface water from Bahour lake, Abishekapakkam lake, Velrampet lake and Korkadu lake for providing drinking water. The route of the trunk supply line is planned in such a way that even the treated surface water from the above lakes can be linked to the trunk pipeline at appropriate points. As such even though the surface water treatment and supply can be taken up at a later date, laying of pipe line is utmost essential. In addition to this under the AFD Scheme it was also proposed to construct check dams and infiltration wells for recharging the ground water. In fact, in Puducherry region most of the water is being tapped for agriculture purpose only. Statistics says that there are nearly 6900 borewells sunk for irrigation purposes, but for supply of drinking water to the public there was only 400 borewells. But now the agricultural activities has declined and for this reason not much of the ground water is utilised for agricultural purposes which can be used for drinking purposes in urban areas.

8. The Secretary also added that as far as AFD is concerned, the scope of the project is not altered. As per the original scope now also water will be taken from the borewells only but the difference is that previously the borewells were sunk in the land but now the borewells are sunk in the river beds. The AFD also accepted for this proposal during the meeting of the last mission.

9. The Regional Director, CGWB stated that in the areas where it is proposed to sink the borewells in the river beds, two layers of aquifers are available namely upper Cuddalore sandstone and lower Cuddalore sandstone. Through AFD project the borewells will be sunk only upto the lower Cuddalore sandstone leaving the upper Cuddalore sandstone undisturbed. The farmers are actually drawing their water only from the upper Cuddalore sandstone aquifers. As such the livelihood of the farmers will not be affected through the implementation of this scheme. The Regional Director also stated that the water level in the urban areas are going down more than 15 mtrs. than sea level. As

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such for this reason the intrusion of sea water into land will be rapid. Therefore, the Regional Director added to construct bed dams and artificial recharging wells to compensate the extracted water. The Regional Director also suggested to conduct a detailed study on the ground water conditions prevailing in Puducherry region based on which a second phase of project can be taken up. The Regional Director also added that the possibilities of providing treated surface water and desalination plant can be explored. Also the viability for providing tertiary treated water can also be explored so that during seasonal/ monsoon times the surface water can be utilised, during non monsoon period the borewell water can be utilised. Decentralised desalination plants can be installed at various points to meet out the drinking water.

10. The Secretary insisted that this is the time to work out for a positive water balance. The OSD suggested to appeal NGT to go further with the Ossudu lake project mentioning the drastic condition of salinity in the urban areas. The OSD also added that since Pennaiyar is very close to the salinity contour it is better to sink borewells deep into the west Pennaiyar like Kaduvanur, Manamedu and Karayambuthur.

11. The Secretary mentioned that action will be taken by the P.W.D. to co-ordinate with the National Institute of Ocean Technology (NIOT) for providing decentralized desalination plant by low temperature thermal desalination technology.

12. The OSD suggested that since already a check dam is available at Chunnambar near Boat house another check dam can be created on the western side near Uruvaiyar so as to create a lake like structure which will help in the rapid infiltration of water into the ground. The OSD also suggested that possibilities of sinking of borewells on the deep western side of Puducherry coastal region should be explored since sea water intrusion is rapidly entering into the ground and there are possibilities of getting the ground water saline in a very few years. It will be a utter waste that spending of so many crores of rupees on water supply, if ground water turns to be saline

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very soon. The OSD also suggested that AMRUT 2.0 is providing funds totally on grant without any interest and hence schemes like desalination plant and surface water treatment plant can be taken up under AMRUT schemes. A Consultant in this regard may be appointed by PWD to co-ordinate with both AMRUT and AFD and to prepare a total comprehensive water supply project which will cater to the needs of drinking water to the people of Puducherry region for the next 30 years.

13. Finally it was suggested and recommended that:

(i) Instead of 84 borewells only 40 to 45 borewells should be sunk in a scattered manner in all the 3 rivers.

(ii) Water recharging structures such as Check dams, recharging tubewells desilting and deepening of lakes etc. will be erected to improve the status of ground water.

(iii) The borewells should be sunk as far as possible on the western side of Puducherry for ensuring sustainability.

(iv) The existing borewells lying en-route the pipelines can be used for the drinking water purpose if found necessary.

(v) A Consultant should be appointed by the P.W.D. to prepare a total comprehensive project for drinking water in Puducherry region and to co-ordinate with AMRUT.

(vi) The possibilities of providing surface water treatment plant at Ossudu lake, Bahour lake and Korkadu lake should be explored.

(vii) The scheme like surface water treatment plant, desalination plant can be taken up under AMRUT Scheme.

(viii) PWD should move with the Hon'ble NGT to reopen the case of Ossudu lake and proceed further to implement the scheme.

The meeting is ended with vote of thank to the Chair.

EXECUTIVE ENGINEER
AFD PROJECT UNIT, PWD
PUDUCHERRY

Gen Paper

No.3/PGWA/Permit/NTW -Drinking/2022 - 23
PONDICHERRY GROUNDWATER AUTHORITY
No.15, III CROSS (Extn), MARIAMMAN NAGAR,
KARAMANIKUPPAM, PONDICHERRY - 605 004.
****

Date: 16.05.2022

To

The Executive Engineer,
A.F.D. Project Unit,
Public Works Department,
Puducherry.

Sir,

Sub: PGWA–Permit to sink a new tubewell in R.S.No. 83, Vannan Eri, Karaiyamputhur Revenue Village, Bahour Commune, Puducherry for drinking water purpose– Accorded–Reg.

Ref: (i) Your letter No. 708/PW/AFD-PU/2022 dated 28.04.2022 with Form–I application.
(ii) This office letter No. 28/PGWA/Permit/NTW -Drinking/2021 - 22 dated 13.05.2022.
(iii) This office receipt No.7088 dated 16.05.2022.

With reference to the subject cited above, permit is hereby accorded to sink a new tubewell in R.S.No. 83, Vannan Eri, Karaiyamputhur Revenue Village, Bahour Commune, Puducherry under the schme of AFD Project, subject to the following conditions:-

(i) The tubewell should be sunk to a depth of 160mts with 250mm dia UPVC casing pipe tapping Cuddalore Sandstone aquifer.

(ii) Eiectrical Logging should be conducted to delineate the saline water – fresh water interface, so that it is possible to decipher fresh water bearing aquifer zone before lowering the casing pipes.

(iii) Proper clay ball packing must be provided for considerable thickness just above the slotted portion of the casing pipe, during pipe errection to avoid vertical leakage of salt water from the overlying strata, if any.

(iv) The tubewell should be sunk through the authorized person/firm/ Corporations/Government Departments having valid license for the drilling machinery issued by this Authority. However, the permit holder may prefer the drilling machineries of Puducherry Government Departments/undertaking [i.e. State Groundwater Unit & Soil Conservation of Agriculture Department, PWD, M/s PASIC Ltd. etc.], so as to enable this authority to ascertain the depth & dia of the tubewell and the other conditions stipulated in the permit.

(v) The Groundwater Authority, for technical reasons may alter, amend or vary the terms of this permit giving 15 days notice to this permit holder specifying the reasons.

(vi) The new tubewell should be registered with this Authority immediately after construction.

(vii) **This permit is valid for one year from the date of issue and expires on 15.05.2023.**

PONDICHERRY GROUND WATER AUTHORITY PONDICHERRY

Yours faithfully,

(S. MANOHAR)

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No. 18/PGWA/Permit/NTW -Drinking/2021 - 22
PONDICHERRY GROUNDWATER AUTHORITY
No.15, III CROSS (Extn), MARIAMMAN NAGAR,
KARAMANIKUPPAM, PONDICHERRY - 605 004.
****

To

Date: 13.01.2022

The Assistant Engineer,
A.F.D. Project Unit,
Subash Chandra Bose Street,
1st Floor (Computer Design Centre),
Public Works Department,
Puducherry.

Sir,

Sub: PGWA – Permit to sink a new Tubewell No.9, Pennaiyar River South – East of Survey No. 103, Manamedu Revenue Village, Bahour Commune Puducherry, for drinking water purpose – Accorded – Reg.

Ref: (i) Your letter No. 650/D/PW/AFD-PU/F.No.61/2021 dated 19.08.2021 with Form – I application.
(ii) This office letter No. 53/PGWA/Permit/NTW -Drinking/2021 – 22 dated 02.09.2021.
(iii) This office receipt No.5909 dated 11.01.2022.

With reference to the subject cited above, permit is hereby accorded to sink a new Tubewell No.9, Pennaiyar River South – East of Survey No. 103, Manamedu Revenue Village Bahour Commune Puducherry, under AFD Project for augmentation of water supply sources and Rehabilitation of system in Urban area of Puducherry District (Phase – I) under AFD Project, to provide sufficient drinking water supply to the people of Manamedu Revenue Village, Bahour Commune, Puducherry, subject to the following conditions:-

(i) The tubewell should be sunk to a depth of 175mts with 200mm dia UPVC casing pipe tapping Cuddalore Sandstone aquifer.

(ii) Electrical Logging should be conducted to delineate the saline water – fresh water interface, so that it is possible to decipher fresh water bearing aquifer zone before lowering the casing pipes.

(iii) Proper clay ball packing must be provided for considerable thickness just above the slotted portion of the casing pipe, during pipe errection to avoid vertical leakage of salt water from the overlying strata, if any.

(iv) The tubewell should be sunk through the authorized person/firm/ Corporations/Government Departments having valid license for the drilling machinery issued by this Authority. However, the permit holder may prefer the drilling machineries of Puducherry Government Departments/undertaking [i.e. State Groundwater Unit & Soil Conservation of Agriculture Department, PWD, M/s PASIC Ltd. etc.], so as to enable this authority to ascertain the depth & dia of the tubewell and the other conditions stipulated in the permit.

(v) The Groundwater Authority, for technical reasons may alter, amend or vary the terms of this permit giving 15 days notice to this permit holder specifying the reasons.

(vi) The new tubewell should be registered with this Authority immediately after construction.

(vii) **This permit is valid for one year from the date of issue and expires on 12.01.2023.**

Yours faithfully,

(S. MANOHAR)
MEMBER SECRETARY

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No. 19/PGWA/Permit/NTW -Drinking/2021 - 22
PONDICHERRY GROUNDWATER AUTHORITY
No.15, III CROSS (Extn), MARIAMMAN NAGAR,
KARAMANIKUPPAM, PONDICHERRY - 605 004.
****

Date: 13.01.2022

To

The Assistant Engineer,
A.F.D. Project Unit,
Subash Chandra Bose Street,
1st Floor (Computer Design Centre),
Public Works Department,
Puducherry.

Sir,

Sub: PGWA – Permit to sink a new Tubewell No.8, Pennaiyar River South – West of Survey No. 103, Manamedu Revenue Village, Bahour Commune Puducherry, for drinking water purpose – Accorded – Reg.

Ref: (i) Your letter No. 644/D/PW/AFD-PU/F.No.61/2021 dated 13.08.2021 with Form – I application.
(ii) This office letter No. 50/PGWA/Permit/NTW -Drinking/2021 – 22 dated 02.09.2021.
(iii) This office receipt No.5910 dated 11.01.2022.

With reference to the subject cited above, permit is hereby accorded to sink a new Tubewe No.8, Pennaiyar River South – West of Survey No. 103, Manamedu Revenue Village Baho Commune Puducherry, under AFD Project for augmentation of water supply sources an Rehabilitation of system in Urban area of Puducherry District (Phase – I) under AFD Project, t provide sufficient drinking water supply to the people of Manamedu Revenue Village, Baho Commune, Puducherry, subject to the following conditions:-

(i) The tubewell should be sunk to a depth of 175mts with 200mm dia UPVC casing pipe tapping Cuddalore Sandstone aquifer.

(ii) **Electrical Logging should be conducted to delineate the saline water – fresh water interface, so that it is possible to decipher fresh water bearing aquifer zone before lowering the casing pipes.**

(iii) **Proper clay ball packing must be provided for considerable thickness just above the slotted portion of the casing pipe, during pipe errection to avoid vertical leakage of salt water from the overlying strata, if any.**

(iv) The tubewell should be sunk through the authorized person/firm/ Corporations/Government Departments having valid license for the drilling machinery issued by this Authority. However, the permit holder may prefer the drilling machineries of Puducherry Government Departments/undertaking [i.e. State Groundwater Unit & Soil Conservation of Agriculture Department, PWD, M/s PASIC Ltd. etc.], so as to enable this authority to ascertain the depth & dia of the tubewell and the other conditions stipulated in the permit.

(v) The Groundwater Authority, for technical reasons may alter, amend or vary the terms of this permit giving 15 days notice to this permit holder specifying the reasons.

(vi) The new tubewell should be registered with this Authority immediately after construction.

(vii) **This permit is valid for one year from the date of issue and expires on 12.01.2023.**

Yours faithfully,

PONDICHERRY GROUND WATER AUTHORITY

(S. MANOHAR)
MEMBER SECRETARY

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No. 5/PGWA/Permit/NTW -Drinking/2022 - 23
PONDICHERRY GROUNDWATER AUTHORITY
No.15, III CROSS (Extn), MARIAMMAN NAGAR,
KARAMANIKUPPAM, PONDICHERRY - 605 004.
****

To

Date:12.08.2022

The Executive Engineer,
A.F.D. Project Unit,
Public Works Department,
Puducherry.

Sir,

Sub: PGWA – Permit to sink a new tubewell in R.S.No. 10/1, inside the Govt. Middle School Campus, Panayadikuppam Village, Bahour Commune, Puducherry for drinking water purpose – Accorded – Reg.

Ref: (i) Your letter No. 757/PW/AFD-PU/2022 dated 14.07.2022 with Form – I application.
(ii) This office letter No. No. 36/PGWA/Permit/NTW -Drinking/2022 - 23 dated 14.07.2022.
(iii) This office receipt No.7854 dated 11.08.2022.

With reference to the subject cited above, permit is hereby accorded to sink first new tubewell in R.S.No. 10/1, inside the Govt. Middle School Campus, Panayadikuppam Village, Bahour Commune, Puducherry under the scheme of AFD Project, subject to the following conditions:-

(i) The tubewell should be sunk to a depth of 200mts with 200mm dia UPVC casing pipe tapping Cuddalore Sandstone aquifer.

(ii) Electrical Logging should be conducted to delineate the saline water – fresh water interface, so that it is possible to decipher fresh water bearing aquifer zone before lowering the casing pipes.

(iii) Proper clay ball packing must be provided for considerable thickness just above the slotted portion of the casing pipe, during pipe errection to avoid vertical leakage of salt water from the overlying strata, if any.

(iv) The tubewell should be sunk through the authorized person/firm/ Corporations/Government Departments having valid license for the drilling machinery issued by this Authority. However, the permit holder may prefer the drilling machineries of Puducherry Government Departments/undertaking [i.e. State Groundwater Unit & Soil Conservation of Agriculture Department, PWD, M/s PASIC Ltd. etc.], so as to enable this authority to ascertain the depth & dia of the tubewell and the other conditions stipulated in the permit.

JE(G) 19/8/22

(v) The Groundwater Authority, for technical reasons may alter, amend or vary the terms of this permit giving 15 days notice to this permit holder specifying the reasons.

(vi) The new tubewell should be registered with this Authority immediately after construction.

(vii) **This permit is valid for one year from the date of issue and expires on 11.08.2023.**

Yours faithfully,

(S. MANOHAR)
MEMBER SECRETARY

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GOVERNMENT OF PUDUCHERRY
(ABSTRACT)

Puducherry Ground Water Authority – New Guidelines to control and regulate the extraction of groundwater in accordance with the Notification issued by the Central Ground Water Authority, New Delhi – Implementation in the Union Territoryof Puducherry – Notification – Orders – Issued.

CHIEF SECRETARIAT (AGRICULTURE)

G.O.Ms.No.2/Ag Puducherry, dated: 12.04.2023

READ: (i) G.O.Ms.No.30/Ag dated 02.02.2005 of the Chief Secretariat (Agriculture), Puducherry.

(ii) Notification No.S.O.3289(E), dated 24.09.2020 of the Central Ground Water Authority, Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jalshakthi, New Delhi.

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ORDER

The following notification shall be published in the next issue of official Gazette.

NOTIFICATION

1. Back Ground

1.1 On the directions of the Hon'ble Supreme Court, vide its Order, dated 10th December, 1996 passed in Civil Writ Petition No.4677 of 1985 in M.C. Mehta Vs. Union of India, the Central Government constituted the Central Ground Water Authority vide Notification No.S.O.38(E), dated 14th January, 1997 to exercise powers under section 5 of the Environment (Protection) Act, 1986 (29 of 1986) for the purposes of regulation and control of groundwater management and development and to exercise certain powers and perform certain functions relating thereto.

1.2 In similar line, the Government of Puducherry enacted Legislations namely, Puducherry Ground Water (Control & Regulation) Act, 2002 and Puducherry Ground Water (Control & Regulation) Rules, 2003 to regulate and control the development of groundwater and for the matters connected therewith.

1.3 In exercise of the powers conferred under sub section (2) of Section 3 of the Puducherry Ground Water (Control & Regulation) Act, 2002 (Act No.2 of 2003) the PuducherryGround Water Authority had been constitutedvide G.O. Ms. No.22/Ag, dated 15th October 2004 of the Chief Secretariat (Agriculture), Government of Puducherry, for the purpose of regulation, control and development of groundwater management in the Union Territory of Puducherry;

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1.4 The Puducherry Ground Water Authority has been regulating groundwater development and management by way of issuing Permit, Certificate of Registration and License for groundwater extraction for various purposes and framed guidelines in this connection, from time to time, applicable to the Union Territory of Puducherry.

1.5 Now, the Central Ground Water Authority has issued New Guidelines to regulate groundwater extraction and conserve the scarce groundwater resources in the Country. This guidelines will come into force with immediate effect from the date of Gazette Notification and supersede guidelines issued by the Central Ground Water Authority vide S.O. 6140 (E), dated the 12th December 2018. The guidelines will have Pan India applicability.

2. Order

2.1 In order to implement the New Guidelines in the Union Territory of Puducherry to control and regulate the extraction of groundwater in accordance with the Notification issued by the Central Ground Water Authority, New Delhi, the following notification shall be published in the Extraordinary Official Gazette of Government of Puducherry.

2.2 In exercise of the powers conferred by sub-section (1) of Section 5 of the Puducherry Ground Water (Control and Regulation) Act, 2002 (Act No.2 of 2003), the Lieutenant-Governor, Puducherry, is pleased to issue the following guidelines by superseding all the previous G.Os issued in respect of control and regulation of groundwater extraction viz.,

i. G.O.Ms.No.6/Ag dated 21.01.1980, of Development Department
ii. G.O.Ms.No.39/Ag, dated 21.09.1988 of Chief Secretariat (Agri.),
iii. G.O.Ms.No.134/88/F6, dated 24.11.1988 of Finance Department (Housing),
iv. G.O.Ms.No.13/Ag, dated 18.04.1989 of Chief Secretariat (Agri.),
v. G.O.Ms.No.16/Ag, dated 13.05.1991 of Chief Secretariat (Agriculture & Forest),
vi. G.O.Ms.No.30/Ag, dated 02.02.2005 of Chief Secretariat (Agriculture & Forest) and
vii. G.O.Ms.No.5/Ag, dated 05.07.2010 of the Chief Secretariat (Agriculture & Forest), Puducherry, in public interest to the Puducherry Groundwater Authority constituted vide G.O.Ms.No.22/Ag, dated 15.10.2004 of the Chief Secretariat (Agriculture & Forest), Puducherry.

3. Regulations of Ground Water usage

3.1 Any user of groundwater except categories mentioned in clause 5.1 desiring to sink a tubewell in the notified area for any purpose viz., Industries, Institutions, Hotels/Lodges, Resorts, Marriage Halls,all Infrastructure Projects, Construction of Buildings & Roads, all types of Commercial Establishments etc., either on personal or community basis,

shall apply in Form- I appended in sub rule (1) of Rule 11 of the Puducherry Ground Water (Control and Regulation) Rules, 2003, before Puducherry Ground Water Authority (PGWA),as per section 6 of Puducherry Ground Water (Control and Regulation) Act, 2002, for grant of permit for this purpose, and shall not proceed with any activity connected with such sinking, unless a permit has been granted by the Ground Water Authority.

3.2 Similarly, as per sub section (1) of Section 7 of Puducherry Ground Water (Control and Regulation) Act, 2002 read with Rule 12 of the Puducherry Ground Water (Control and Regulation) Rules, 2003 (herein after referred to as "Rules") every user of groundwater shall apply to Puducherry Ground Water Authority for grant of a Certificate of Registration recognizing its existing use, in Form –IV appended in the said Rules.

3.3 Sinking of tubewell without obtaining the necessary prior permit of Puducherry Ground Water Authority except categories mentioned in clause 5.1 and extraction of groundwater without obtaining the necessary prior Certificate of Registration for user of groundwater will attract penal action under section 20 of the Puducherry Ground Water (Control and Regulation) Act, 2002 (herein after referred to as "Act").

4. *Prohibited zone for construction of tube wells*

No tubewell shall be sunk by any individual / agency for extracting groundwater for any purpose, in Coastal Regulatory Zone (CRZ) i.e., within 500 m distance from the High Tide Line (HTL), since extraction of groundwater in the CRZ area is a prohibited activity under Coastal Regulatory Zone notification, 2011.

5.1. Exemptions from seeking permission

(A) The following categories have been exempted from obtaining permit of Puducherry Ground Water Authority for sinking of tubewells and for groundwater extraction:

(i) Individual domestic consumers in both Rural and Urban areas for personal drinking water and domestic uses.
(ii) Rural and Urban drinking water supply schemes.
(iii) Armed Forces Establishments in both Rural and Urban areas.
(iv) Agriculture activities, and
(v) Micro and Small Enterprises / Industries drawing groundwater upto 10,000 LPD except packaged drinking water industries / mineral water units, soft drink manufacturing units and high water consuming industries.

(B) The exempted categories mentioned above, should register their tubewells with Puducherry Ground Water Authority, within 30 days from the date of completion of sinking of tubewell and should obtain Certificate of Registration for the existing user of groundwater from Puducherry Ground Water Authority.

5.1.1 Drinking & Domestic use for Residential Apartments / Group Housing Societies

5.1.1.1 For grant of Permit to sink tubewell for groundwater extraction, the project proponent shall apply to Puducherry Ground Water Authority along with the details in Form – I appended under the said rules. Permit to sink tubewell shall be granted only in such cases, where the local Government water supply agency is unable to supply the requisite amount of water in the area.

5.1.1.2. Permit shall be granted, subject to the following specific conditions:

(i) Installation of Sewage Treatment Plants shall be mandatory for all residential apartments/ Group Housing Societies, where groundwater requirement is more than 20,000 LPD. The water derived from Sewage Treatment Plants shall be utilized for toilet flushing, car washing, gardening etc.

(ii) The Permit shall be valid for a period of five years from the date of issue or till such time, Local Government water supply is provided to the project area, whichever is earlier. In case the project proponent receives water supply from the concerned Local Government Water Supply Agency during the validity of the permit, intimation regarding availability of public water supply shall be sent by the project proponent, to the Puducherry Ground Water Authority and permit shall be cancelled by the Puducherry Ground Water Authority.

(iii) Proponents shall be liable to pay groundwater extraction charges for the quantum of groundwater proposed to be extracted, as applicable.

(iv) Details of documents to be submitted with the Form – I appended under the said rules are furnished vide Annexure – VII.

5.1.2Agriculture Sector

Agriculture sector shall be exempted from obtaining permit to sink tubewells for groundwater extraction. However, such tubewell should be registered with Puducherry Ground Water Authority and Certificate of Registration to be obtained in this regard. Certificate of Registration from Puducherry Ground Water Authority is essential for energizing the tubewell by Electricity Department, for any purpose.

No tubewell shall be permitted within the Coastal Regulatory Zone.

5.2. Commercial Use

(i) No Commercial users requiring more than 10,000 LPD will be permitted within 6km from the sea coast. However, Commercial users which are

(vii) Processing fee prescribed, if any, from time to time shall be charged for various services.

(viii) In case of Infrastructure projects, the firm/entity shall ensure implementation of dual water supply system in the projects. Compliance of the same shall be submitted to Puducherry Ground Water Authority.

(ix) Guidelines are subject to modification from time to time.

17. Powers to relax

Provision / norms notified in the guidelines issued under the notification are relaxable with the approval of the Government.

// BY ORDER OF THE LIEUTENANT-GOVERNOR //

(SUNDARARAJAN.P). 12 04 2023
DEPUTY SECRETARY TO GOVERNMENT
(AGRICULTURE)

To
The Director of Printing & Stationery
Puducherry.

... with a request to publish the said notification in the next issue of official Gazette and to supply 50 copies to Puducherry Ground Water Authority for reference & records.

Copy to:-

1. The Chairman (PGWA)-cum-Secretary (Agri.), Chief Secretariat, Puducherry.
2. The Director of Agriculture & Farmers Welfare, Puducherry.
3. The Superintending Engineer, Electricity Department, Puducherry.
4. All the Members of Puducherry Ground Water Authority concerned.
5. The Member Secretary, Puducherry Ground Water Authority, Puducherry.
6. The P.S. to Hon'ble Chief Minister, Puducherry.
7. The P.S. to Hon'ble Agriculture Minister, Puducherry.
8. The P.S. to Chief Secretary, Puducherry.
9. The P.A. to Secretary (Agriculture), Puducherry.
10. The Central Records Branch, Puducherry.
11. Order / spare.

Government of Puducherry

Present Proposal of Ground water extraction

Present Daily Water Demand	:	140000	CUM/Day
No. of Tubewell Proposed	:	**40**	**Nos**
Proposed Extraction of Ground Water per Tube well per day	:	**1920**	CUM/Day
Total Ground water extraction from 40 Tube well per day	:	76800	CUM/Day
Total Ground water extraction from 40 Tube well per Annum	:	28032000	CUM/Annum
		28.03	**MCM/Annum**
Say		**28**	**MCM/Annum**

Executive Engineer
AFD Project Unit
P.W.D., Puducherry

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STATUS REPORT OF

PENNAIYAR (2 Nos of Bed dams)

SI. NO.	Name of the Project	Name of River / Sub - Basin/Basin	Location	Technical Details		Year of Completion
1	SitheriAnicut	Pennaiyar River	Sitheri Village, Bahour Commue	Width of Bed-Dam	420.00 m	Constructed during 2005
				Height of Weir	1.45 m	
				Storage capacity	11.132 Mcft	
				Length of Storage	1200 mt	
				Water Spreader Area	0.43 Sqkm	
2	Kumandhanmedu Bed Dam	Pennaiyar River	Kumandhanmedu Village, Bahour Commune	Width of Bed-Dam	210.00 m	Constructed during 2009
				Height of Weir	1.50 m	
				Storage capacity	8.34 Mcft	
				Length of Storage	1500 mt	
				Water Spreader Area	0.32 Sqkm	

Executive Engineer
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