Guidelines for evaluation of proposals/requests for ground water abstraction for drinking and domestic purposes in Notified areas and Industry/Infrastructure project proposals in Non-notified areas.

1.1 INTRODUCTION

The development of ground water in different areas of the country has not been uniform. Highly intensive development of ground water in certain areas for irrigation, drinking, domestic and industrial uses in the country has resulted in over-exploitation leading to long term decline in ground water levels, and under certain situations, deterioration in quality of the ground water. As a consequence, there has been:

i) increase in pumping depths, drastic reduction in well/tube well yields and enormous rise in the cost of pumping of ground water,

ii) widespread and acute scarcity of ground water in summer months for irrigation and drinking uses ,and

iii) increase in salinity ingress in coastal areas.

For providing sustainability to ground water resources in such areas and keeping in view the increasing thrust on development of ground water resources for meeting the growing/increasing demands of water in various sectors, there is an urgent need to regulate over-exploitation of ground water resources and also to augment the depleting ground water resources.

Water requirement for industries in India is comparatively small as compared to the quantity of water needed for agriculture. However, when industrial demand is concentrated in specific locations, heavy withdrawals are done from available water resources. Industries require water for processing, cooling, boiler feed and other miscellaneous uses such as washing, maintenance of yards and domestic requirement in townships. Mostly the industrial uses are non-consumptive, thus making reuse through recycling and other conservation measures possible. The amount of water consumed for any product, varies widely depending upon the processes used, plant efficiency, technology employed, the degree to which water is re-circulated and other factors. Industrial waste may contain different kinds of toxic pollutants, which if untreated may result in contamination of water resources. Treatment of industrial waste water and recycling are essential to conserve water resources.

1.2 OBJECTIVE

The prime objective of the guidelines for the withdrawal of ground water, especially for the industries and infrastructures, is to focus on a specific part of ground water management viz. ensuring sustainability of ground water both in terms of quantity & quality and also focus on land based management of ground water resources, looking into the variations of availability of water in different climatological regions and diverse hydrogeological conditions in various states of the country.

As per the ground water resource estimates of 2004, out of the **5723** assessed units (Blocks, Mandals, Talukas, districts), **839** over-exploited units, **226** critical units and **550** semi-critical units have been identified across the country by Central Ground Water Board.

A. GUIDELINES FOR WITHDRAWAL OF GROUND WATER FOR DRINKING AND DOMESTIC PURPOSES IN NOTIFIED AREAS :

The CGWA so far has notified **43** areas for the purpose of regulation of ground water development. Regulation of Ground Water development in Notified areas is through district administrative heads assisted by advisory committees under the provisions of section 4 of the EPA, 1986 in notified areas. All issues pertaining to granting of NOC's for ground water withdrawal, checking violations, sealing of tube wells, launching of prosecution against offenders, etc are to be addressed by the Authorised Officers and nodal departments. The guidelines for abstraction of ground water for drinking /domestic purposes in Notified areas for various users are given below.

(I) NOC can be accorded for construction of tube wells / replacement of existing defunct well for drinking and domestic purpose to:

- (i) Government department entrusted with the water supply
- (ii) Other Government organizations if Water Supplying Department is not providing water in the area
- (iii) Schools/ Institutions/ Universities
- (iv) Hospitals
- (v) Embassies
- (vi) State Bhawans

Pre-conditions for grant of NOC for abstraction of ground water to categories under Sl No. (i) to (vi) are:

1. Maximum diameter of the tube well should be restricted to 100 mm only and capacity of the pump should not exceed 1 HP except in case of Government water supply agencies. In case of Govt, water supply agencies, tubewell size/dia can be more depending on the ground water availability and requirement.
2. Concurrent with the construction of tube well, the owner of the tube well shall undertake installation of the rain water harvesting structure in the premises within 45 days of issuance of NOC and will confirm to the Authority for verification.
3. The water from the tube well will be used for drinking and domestic purposes only.
4. All details of the drilling like rock formations encountered, the depth and diameter of the constructed tube well, type of pipes used, yield of bore well/ tube well and ground water quality etc have to be furnished to the nodal agency authorized by district administration head within 15 days of the completion of the construction.
5. This permission is valid for a period of two months from the date of issue of NOC except in case of Government water supplying agencies/departments.

(vii) For Individuals for individual households

1. Only one tube-well is allowed for construction in the premises to meet the drinking and domestic purposes. No tube-well/bore-well will be constructed, if any working tube-well already exists. In case the existing well has become non-functional and is to be replaced, it should be converted into recharge well, if possible or properly sealed and no water be pumped from it.
2. The person(s) intending to construct new tube-well will intimate the Authorized officer/Advisory Committee, 10 days in advance along with the name and address of the drilling agency, which will undertake construction of tube-well. Authorities/Nodal Agency can ask the user to supply additional information.
3. The maximum diameter of the tube-well should be restricted to 100 mm only and the capacity of the pump should not exceed 1HP.
4. Concurrent with the construction of tube well, the owner of the tube-well shall undertake installation of the rainwater harvesting system in the premises.
5. The water from the tube-well/bore-well will be used exclusively for drinking and domestic purposes only.
6. All details of the drilling like rock formations encountered, the depth and diameter of the constructed tube-well, type of pipes used in tube well, yield of bore well/tube well and ground water quality etc., shall be kept for record and are to be provided at the time of inspection.
7. Any violation of the above conditions will attract legal action under section 15 of the Environment (Protection) Act, 1986.

INDIVIDUALS ARE REQUIRED TO SUBMIT AN UNDERTAKING FOR COMPLIANCE OF GUIDELINES OF CGWA FOR THE CONSTRUCTION OF TUBEWELL/BOREWELL FOR DRINKING AND DOMESTIC PURPOSES ON NON-JUDICIAL STAMP PAPER OF RS. 10/-

I, …….. resident of ……
do hereby solemnly affirm and declare as under:

1. That I am the owner of premises of ……
2. That in the above said premises/ building the supply of water for drinking/ domestic use is grossly inadequate/ there is no supply of water by the Municipality/Govt. Agency(ies) in the premises /area.
3. That I/we intend to install bore-well for abstraction of ground water for drinking/domestic use only. In the event of installing bore-well, the maximum diameter shall be restricted to 100 mm (four inches) and the capacity of the pump shall not exceed 1 H.P.
4. That I/we undertake that in the event of any instructions/directions from the Central Ground water Authority/Deputy Commissioner or any other authorized officer(s) of the Govt., we shall discontinue the usage of the said open-well/bore-well/tubewell if so required.
5. That I/we further undertake that we shall be held liable for any such civil/criminal action that may be initiated against me /us for violation of any of the terms and conditions of this Undertaking.

(DEPONENT)

VERIFICATION:

Verified at ……. on this day of …… that the contents of the above Undertaking are correct to the best of my knowledge and belief and nothing has been suppressed.

(DEPONENT)

(II) Permission will not be accorded for construction of tube well for agriculture, industrial, commercial, horticulture and construction purposes.

B. Guidelines for Evaluation of proposals/requests for Abstraction of Ground Water for Industrial/Infrastructure project proposals in Non Notified Areas

B-I CRITERIA FOR THE DEVELOPMENT & MANAGEMENT OF GROUND WATER

The criteria for the development and management vary widely. The prospects for the management of ground water in various regions are also varying and required to be addressed as area specific. The criteria to be considered are:

1. Purpose of ground water use

- Drinking and Domestic
- Industries
- Infrastructure
- Mining
- Recreation
- Any other use

2. Examining the area of ground water against its availability

- Water requirement
- Availability of aquifer
  - (A) Shallow aquifer (Hard rock, alluvial, coastal, hilly, etc.)
  - (B) Deeper aquifer (Hard rock, alluvial, coastal, hilly, etc.)
- Status of ground water development of the area as defined by CGWB 2004
  - Over-exploited
  - Critical
  - Semi-critical
  - Safe

3. Availability of shallow aquifer

- Estimation of ground water availability
- Existing and projected ground water withdrawals

4. Availability of deeper aquifer

- Occurrence and distribution scenario of regional aquifer system
  - Saturated Thickness
  - Water level trends
  - Water level fluctuations
- Ground water resource and potential estimation – Micro-watershed
- Status of shallow aquifer and recharge potential
- Impact and sustainability of shallow aquifer system due to withdrawal from deeper aquifer
- Connectivity with shallow aquifers

5. Criteria for Recycling and reuse of effluents

- Quantity of effluent generated
- Quality of effluent generated
- Existing treatment technologies and /or technologies proposed to be adopted
- Whether the effluents quality conforms to the standard norms of CPCB/SPCB/PCC(s)
- Flow chart indicating optimal utilization of treated water
- Whether utilization of treated water is as per the norms of PCB/SPCB/PCC(s)/MOEF

6. Adoption of water conservation measures

- Indicate the technologies used for ensuring water conservation
- Water audits for ensuring minimal use of water in various sectors
    - In terms of quantity
    - Quality
    - Recycle/Reuse and the purpose

7. Installation of water meters

- Whether water meters are existing /or proposed to be installed
- Whether furnishing the return and if yes, then name of reporting agency?

8. Examining the Scope of Rain water harvesting and ground water recharging potential

- The quantum of harvested rain water and recharge to ground water for neutralizing /improving the effects of ground water abstraction.
- Whether rainwater harvesting structures exist
- Proposed rain water harvesting structure (s)
- Creation of water bodies in the premises
- Adoption of water bodies in the micro-watershed with Panchayati Raj Institution/ Local Govt. bodies

9. Land use

- The detailed land use pattern;
- Type of land conversion for industrial project:
    (A) Waste land
    (B) Govt identified industrial parks
    (C) Agriculture land
    (D) Saline water belt

10. Ground water Draft

The ground water draft details prior to establishing industrial unit:

- Details/ number of existing ground water abstraction structures for various uses.

    (i) Irrigation
    (ii) Drinking/Domestic

(iii) Industrial
(iv) Other than i, ii, iii
(v) Fitted with electric/diesel pumps
(vi) Traditional methods, if any

11. Saline ground water aquifers

(i) Saturated thickness of fresh water zones above saline water zones
(ii) Saturated thickness of fresh water zones below saline water zones
(iii) Saturated thickness of fresh water zones between saline water zones

- Abstraction of fresh ground water is to be regulated to prevent
  (i) Upconing of saline water into fresh water zone
  (ii) Lateral ingress of saline water
  (iii) Depletion/ shrinkage of fresh ground water zones

12. Mining Areas

- Open cast mining/excavation not intersecting ground water table
  (i) Affecting natural surface water regime
  (ii) Affecting ground water recharge regime

- Open cast mining/excavation intersecting ground water table
  (i) Pumpage of ground water
  (ii) Declining of water table
  (iii) Affecting natural surface water regime
  (iv) Affecting ground water recharge regime
  (v) Affecting natural springs

- Underground mining
  (i) Affecting ground water recharge regime
    - Shallow aquifers
    - Deep aquifers
    - Affecting ground water flow direction
    - Affecting ground water recharge
    - Ground water resource/ potentials – drying of upper aquifers

Based on these criteria, the project proposals for various purposes are evaluated for consideration of ground water abstractions under different hydrogeological conditions including water conservation measures in Safe, Semi-critical, Critical and Over-exploited areas. These are tabulated **below** for phreatic aquifers.

Evaluation of Proposals to Abstract Ground Water for Industries

Category	Stage of Development (%)	Recycle/Reuse	Other Water Conservation Practices	Withdrawal permitted (%age of proposed recharge)
Safe	< 70	Mandatory recycling and reuse of water	Water audit measures to be adopted	To be brought under the purview if quantity of abstraction exceeds 1000 m^3/day in hard rock areas and 2000 m^3/day in alluvial areas. RWH to be adopted.
Semi-critical	70 - 100	Efficient utilization of recycled water and reuse of water should be mandatory.	Water audit measures to be adopted	Withdrawal may be permitted subject to undertaking of recharge measures. Since the area is less stressed, at least 50% recharge be made mandatory.
Critical	90 – 100	Efficient utilization of recycled water and reuse of water should be mandatory.	Water audit measures to be adopted	Withdrawal may be permitted subject to undertaking of recharge measures. The quantum of recharge should be **equal to or more** than the proposed withdrawal.
Over-exploited	>100	Efficient utilization of recycled water and reuse of water should be mandatory.	Water audit measures to be adopted	Withdrawal may be permitted upto 60 % of proposed recharge. Also withdrawal should not exceed a maximum limit of 1500 m^3/day for each unit.

Note: Guidelines are subject to modification from time to time

B-2 ABSTRACTION OF GROUND WATER FOR INFRASTRUCTURE PROJECTS

- Run-off from the entire project area is to be utilized for artificial recharge to ground water.
- The quantum of water for usage other than drinking/ domestic shall not exceed 25% of the total requirement.
- The concerned State Government, while sanctioning any infrastructure project is to look into the ground water availability aspect also.
- Proponents are to submit a status report on water supply available from water supplying agencies stating the quantum of water that would be provided by the agency.

B-3 ABSTRACTION OF GROUND WATER FOR INDUSTRIAL PROJECTS

a) Areas having Deeper Aquifers:

In all **Over-exploited and Critical areas having deeper potential aquifers**, withdrawal may be permitted irrespective of the stage of development, subject to:

(a) Withdrawal of water from deeper aquifers only,

(b) Implementing recharge measures to recharge shallow/deeper aquifers to the extent possible within the lease/industry area

(c) Recommendation of concerned Regional Directorate on feasibility of exploitation of deeper aquifers.

b) **Water table intersection by mining industries and dewatering of mine pit water**

Abstraction of ground water by mining industry intersecting water table can be permitted and dewatering of mine pit water be permitted subject to the following conditions:

- The mine water is to be put to gainful use. This may include water supply to adjacent areas and local water supply agencies, utilization for dust suppression by the industry, utilization by the mining industry for different processes, utilization for artificial recharge to ground water etc.
- Piezometers for monitoring the ground water level are to be mandatorily installed within the mine and in peripheral areas. The record of water level data be maintained and to be provided whenever demanded by the regulating agency.

c) **Abstraction of saline ground water by Industries**

Due care to be taken in respect of disposal of the effluents by the units so as to protect the water bodies and the sub-surface shallow aquifers from pollution. Proposals pertaining to the cases must have a detailed report elucidating the mechanism of handling the effluent water and its various uses. All precautions must be taken for protection of environment. Large scale recharge mechanism is mandatory in such cases to improve the ground water quality in the region.

III **Adoption of Rain Water Harvesting and Artificial Recharge by Existing Industries:**

- All industries, **including existing** units, which are drawing ground water shall mandatorily undertake artificial recharge measures.
- The artificial recharge proposals are required to be vetted by any competent authority.
- Treated water shall not be used for recharge to ground water.

IV **Exemption of Industries from obtaining NOC from CGWA.**

(i) Industries requiring ground water upto **25 m^3/day** located in over exploited areas; upto **50 m^3/day** for critical areas; and upto **100 m^3/day** in semi-critical areas are exempted from obtaining NOC for ground water abstraction from CGWA.

- The responsibility of verifying the actual requirement and withdrawal is vested with the State Pollution Control Boards.
- It should also be mandatory for such industries to undertake Rain Water Harvesting to the extent possible and enforcement of the same is vested with the State Pollution Control Boards.

(ii) Industries located in Safe category areas, are required to obtain NOC from CGWA if ground water abstraction by the industry **exceeds** 1000 m^3/day for hard rock areas and 2000 m^3/day for alluvial areas. Such cases will be examined as in 'B'.

(The above will not include industries which are using water as a raw material like packaged drinking water industries, distilleries and breweries)

V Other procedures:

a. NOC to be issued only once and renewal system is stopped. There would be random site inspection of selected industries by CGWA, and in case the industry/project is found to be a defaulter in adhering to the laid down terms and conditions, the NOC to be cancelled.
b. The present practice of issuing a No Objection to all industries/ projects falling in safe category areas to be continued with an advise on recharge, recycle and reuse of water till the revised/new guidelines are implemented.

Note: Guidelines are subject to modification from time to time

Procedure to be followed for evaluation of industry/ infrastructure project proposals seeking ground water clearance:

A committee with the following composition to be constituted at district level for receiving and evaluating the project proposals, for ground water clearances:

i)	District Collector	Chairman
ii)	Hydrogeologist CGWB of concerned district	Member
iii)	Representative from Industry	Member
iv)	Representative from Pollution Control Boards	Member
v)	Additional member to be adopted if required.	

The committee shall meet at least once in a month depending on the number of proposals received for examination and forward the same to CGWA through Regional Director after reviewing. Regional Director will forward after reviewing with clear recommendations to CGWA, N. Delhi within two weeks and CGWA will clear these cases within two weeks of receipt.