

**PROPOSED MODIFICATIONS ON**  
**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. In order to have a scientific approach in giving environmental clearance of the industries and infrastructure projects, norms are made for ground water extraction. As a part of regulatory measures by CGWA under EPA 1986 rules and regulations, directions are given to pollution control boards who are having regular monitoring of the industrial pollution including the assessment of land, water and air environment to insist the proper water management by the industries. Number of cases are referred to CGWB/CGWA for giving NOC to use ground water. The cases are studied by Regional office of the CGWB and duly recommended for the issuance of NOC by CGWA. Also, as part of environmental clearance by MoEF for industries, specific conditions for NOC from Ground Water Authority is made and such cases are referred to CGWB/CGWA. In certain cases, irrespective of the ground water use or surface water use, rainwater harvesting in consultation with CGWB is made as a specific condition by MoEF.

Artificial Recharge council under the chairmanship of Hon'ble Minister of Water Resources, GOI also gave specific suggestion to insist rain water harvesting in industries and also suggested to stop water intensive industries in over exploited areas. In view of the above, it has been considered to make specific norms for giving NOC in various category of assessment units. The guidelines made by CGWA over time for processing the cases of referred industries and infrastructures is to be modified with specific norms for withdrawal of ground water as per the prevailing status of ground water development. Accordingly, a committee with three Regional directors of CGWB, under the chairmanship of Member (SML) was constituted by Chairman, CGWB.

Accordingly, the committee met on 26<sup>th</sup> august 2010 at New Delhi, under the chairmanship of Dr. S.C. Dhiman, Member (SML) with members namely, Dr N. Varadaraj, RD, SR, Hyderabad, Dr R.C.Jain, RD, Ahmedabad and Sh. Manoj Srivastava, RD, WR, Jaipur. After deliberations and consideration of the various inputs received from other regions and state departments, the norms for the NOC and guidelines for the processing of the case is modified and given below for further deliberations with state governments and MOWR and issuance.

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

The CGWA has notified select areas for the purpose of regulation of ground water development. Regulation of Ground Water development in Notified areas is implemented 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 under this directive when the same is not already done by any state authority in the specific areas. It is also envisaged that the individuals will not be allowed to construct any type of new ground water abstraction structures like bores, tube wells, wells etc in the notified area and drinking and domestic water supply needs will be assessed and suitable action to be taken by concerned water supply department of the state.

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. The construction of bore well/tube well/dug well and its design will be depending on estimated requirement and the sustainable ground water availability .
2. Concurrent with the construction of well, the owner of the well shall undertake installation of the rain water harvesting structure in the premises within 90 days of issuance of NOC and will confirm to the Authority for verification.
3. The construction of bore well/tube well will be in accordance with rules and regulations prevailing in the land and should be registered with designated “bore well authority”.
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 45 days of the completion of the construction.
5. This permission is valid for a period of six months from the date of issue of NOC except in case of Government water supplying agencies/departments.

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

The industries are defined as per the water (Prevention and control pollution) Cess rules 1978 of ministry of works and housing and its amendments made from time to time. The water intensive industries are the one which uses water as raw material and generates huge quantity of waste water. There are few industries which discharges toxic wastes and few requires huge quantity of water for cooling towers. Sea water is also used as cooling water in major power projects and the available fresh water sources in the land needs proper protection. The SEZ and industrial Estates have cluster of units and the NOC for common water facility will be applied by the promoters separately. Along with the common NOC details, individual unit will also apply separately for NOC for the ground water development in its premises

The infrastructure developments are also needs water resources. The following items fall under this category

- 1 Group housing, Residential township, Resorts and similar structures
- 2 Roads, Railways, Airports, Ports, Bridges and similar structures
- 3 Hospitals
- 4 Educational institutions

## 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 to be evaluated for consideration of ground water abstractions under different hydrogeological conditions including water conservation measures in Safe, Semi-critical, Critical and Over-exploited areas. The broad norms are tabulated below for phreatic aquifers.

### Norms to Abstract Ground Water for Industries

Category	Recycle/Reuse	Other Water Conservation Practices	Withdrawal permitted (%age of proposed recharge)
Safe	Mandatory recycling and reuse of water	Water audit measures to be adopted	To be brought under the purview if quantity of abstraction exceeds 500 m <sup>3</sup> /day
Semi-critical	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	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	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 <sup>3</sup> /day for each unit.

**Note: Quantity of rain water harvesting in the premises and quantity harvested under Corporate Social Responsibility (CSR) program within the watershed/assessment unit will be taken as credit to promote rain water harvesting.**

### 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.

- In case of residential township and colony, 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**

The aquifers in hard rocks are having limited potential in deeper fractures while the deeper aquifers in alluvial and sedimentary rocks have high potential. The development of such high potential aquifers for the beneficial use of the state is to be encouraged and the hence a separate norm is proposed for the industries in sedimentary aquifers. Also, the uses of brackish and saline water for the water intensive units are to be encouraged.

#### **a) Areas having Deeper Aquifers in sedimentary and alluvial 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 with suitable well design,
- (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 lease area 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. The continuity of aquifer system and likely fresh water / salt water interface movement within and between shallow and deeper zones to be considered for giving NOC

### 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<sup>3</sup>/day** located in over exploited areas; upto **50 m<sup>3</sup>/day** for critical areas; and upto **100 m<sup>3</sup>/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 500 m<sup>3</sup>/day**. Such cases will be examined as in 'B'.

(The above **exemptions will not be applicable** for 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**, the NOC given already will be revalidated by CGWA with a specific request from the concern giving the compliance report for the various conditions met. 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 advice 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 of CGWB/SGWD 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 **Four** weeks and CGWA will clear these cases within **Six** weeks of receipt.

In case of states where the state authority is functional under the EPA Act 1986 or appropriate state rules and regulations with operative system of ground water regulation, the prevailing authority can suitably adopt these guidelines with necessary modifications as per local policy and issue NOC with a copy to the Central Ground Water Authority/ Regional Director, CGWB for avoiding duplication and or overlap. The existing state authority may nominate Regional Director, CGWB as member of the state level authority and nodal officers of CGWB at district level.