

Amendment in the content of Impact Assessment Report for industries and infrastructure projects and hydrogeological reports for mines

As per the new guidelines notified on 24.09.2020, all industries extracting/proposing to extract ground water in excess of 100 m³/day in Over-exploited, Critical and Semi-critical areas shall have to mandatorily submit impact assessment report prepared by accredited consultants. The proforma for report that was made available on the NOCAP website includes ground water modelling study which is irrespective of quantum of water to be extracted. The following amendments are hereby made for information of the proponents:

1. (a) The Impact Assessment study Report in case of industries should cover 5 Km radius area around the project site and ground water modelling study is mandatory as per the criteria given in point number 4.

(b) Impact Assessment Report along with modelling study shall also be required to be submitted in **Safe category** where withdrawal by industries is >500 m³/d in hard rock and >2000 m³/d in soft rock/alluvium.
2. Infrastructure projects where dewatering is required, impact assessment report along with groundwater modelling in 5 km radius shall be mandatory irrespective of groundwater volume.
3. (a) All mining projects irrespective of dewatering shall mandatorily submit comprehensive hydrogeological reports of core and buffer zones in the radius of 2 and 10 sq.km respectively.

(b) In case of dewatering, ground water modelling in 10km radius is mandatory as per the criteria given in point number 4 below.
4. Criteria for modelling studies applicable to industries and mining projects.

Assessment Unit	Aquifer Type	Quantum of Groundwater (m ³ /day)	Report
Over-exploited, Semi-Critical and Critical (OCS)	Hard Rock	>500	Impact Assessment Report along with modeling study.
	Soft Rock/Alluvium	>1000	
Safe	Hard Rock	>500	
	Soft Rock/Alluvium	>2000	

Member (CGWA)

Format for Impact Assessment Report

1. Brief about the proposed project giving location details, coordinates, google/ toposheet maps, etc. demarcating the project area.
 - 1.1 *Land Use Land Cover of the surrounding area, Percentage of LULC categories*
 - 1.2 *Topography and drainage.*
 - 1.3 *Details of wetlands [Highlight protected wetlands / Ramsar sites / NLCP lakes/ other important wetlands in terms of dependencies of local communities if any]*
2. Ground water situation in and around the project area including water level and quality data and maps along with quality issues, if any. In case of mines, ground water conditions in both core and buffer zone should be described.
 - 2.1 *Brief geology of the area*
 - 2.2 *Hydrogeology of the area*
 - 2.2.1 *Aquifer description [type, depth, storativity, permeability and porosity]*
 - 2.2.2 *Ground water flow and aquifer interaction [flow direction, Ground water – surface water connectivity]*
 - 2.2.3 *Ground water level trend analysis [pre – monsoon and post – monsoon] for 10 years*
 - 2.2.4 *Hydrograph of the water level for 10 years*
 - 2.2.5 *Predicted water level declines for affected aquifers [Ground water modeling]*
 - 2.2.6 *Ground water quality [pre - monsoon and post – monsoon]*
 - 2.2.7 *Water quality of nearby water bodies*
3. Details of the tubewells/ borewells proposed to be constructed. This includes the aquifer parameters, drilling depth, diameter, tentative lithological log, details of pump to be lowered, H.P. of pump, tentative discharge of tubewells/ borewells, etc. Locations to be marked on the site plan/ map. Location of proposed piezometers.
5. Approved detailed dewatering plan in case of infrastructure dewatering projects.
6. Proposed usage of pumped water in case of infrastructure dewatering projects.
 - 6.1 *For drinking, irrigation etc.*
 - 6.2 *6.3 Recharge*
 - 6.3 *Runoff to stream*
 - 6.4 *Benefitted area*
7. Comprehensive assessment of the impact on the ground water regime in and around the project area highlighting the risks and proposed management strategies proposed to overcome any significant environmental issues.
 - 7.2 *Impact on groundwater sources*
 - 7.2.1. *A description of the impacts on environmental values that have occurred, or are likely to occur, because of any past ground water abstraction.*
 - 7.2.2 *An assessment of the likely impacts on environment that will occur, or are likely to occur, because of the ground water abstraction for a five years period starting on the*

consultation day for the report; and over the projected life of the resource project area, affected area and radius of influence in case of dewatering.

7.3 Socio-Economic Aspects:

7.3.1 Settlements and population dynamics around project area

7.3.2 Dependency on sources of water [surface or sub-surface]

7.3.3 Ground water uses [e.g. irrigation (irrigation method, number of watering) water supply etc.]

7.3.4 Improvement / decline in agricultural yield in last 5 years and likely impact after NOC

7.3.5 Impact of proposed / existing project on local communities [based on local interactions (interactions must be with stakeholders like fishermen community, farmers etc.)]

8. Proposed measures for disposal of waste water by industries drawing saline water.

9. Measures to be adopted for water conservation which include recycling, reuse, treatment, etc. This includes the water balance chart being adopted by the firm along with details of water conservation methods to be adopted.

- *Brief write up along with capacity and flow chart of Sewage Treatment Plants / Effluent Treatment Plants / Combined Effluent Treatment Plants existing/ proposed within the project.*
- *Details of water conservation measures to be adopted to reduce/ save the ground water.*
- *Total water balance chart showing the usage of water for various processes.*

10. Any other details pertaining to the project.

Format for **Comprehensive report on ground water conditions in both core and buffer zones for Mining Projects**

1. Brief about the proposed project giving location details, coordinates, google/ toposheet maps, etc. demarcating the project area.

1.1 Land Use Land Cover of the surrounding area, Percentage of LULC categories

1.2 Topography and drainage.

1.3 Details of wetlands [Highlight protected wetlands / Ramsar sites / NLCP lakes/ other important wetlands in terms of dependencies of local communities if any]

2. Ground water situation in and around the project area including water level and quality data and maps along with quality issues, if any. In case of mines, ground water conditions in both core and buffer zone should be described.

2.1 Brief geology of the area

2.2 Hydrogeology of the area

2.2.1 Aquifer description [type, depth, storativity, permeability and porosity]

2.2.2 Ground water flow and aquifer interaction [flow direction, Ground water – surface water connectivity]

2.2.3 Ground water level trend analysis [pre – monsoon and post – monsoon] for 10 years

2.2.4 Hydrograph of the water level for 10 years

2.2.5 Predicted water level declines for affected aquifers [Ground water modeling]

2.2.6 Ground water quality [pre - monsoon and post – monsoon]

2.2.7 Water quality of nearby water bodies

3. Details of the tubewells/ borewells proposed to be constructed. This includes the aquifer parameters, drilling depth, diameter, tentative lithological log, details of pump to be lowered, H.P. of pump, tentative discharge of tubewells/ borewells, etc. Locations to be marked on the site plan/ map. Location of proposed piezometers.

4. Details of Geophysical studies carried out in and around the project area. Ground water resources computation of the block in which the project falls.

4.1 Results of Geophysical analysis [vertical electrical sounding (VES), horizontal profiling and imaging, transient electromagnetism method (TEM)] etc

5. Approved Mine plan in case .

5.1 Year wise mine plan including excavation depth, area and mine seepage.

6. Proposed usage of pumped water in case of mine dewatering projects.

6.1 For drinking,

6.2 Irrigation.

6.3 Recharge

6.3 Runoff to stream

6.4 Benefitted area

6.5 Dust suppression, Green belt development etc

7. Comprehensive assessment of the impact on the ground water regime in and around the project area highlighting the risks and proposed management strategies proposed to overcome any significant environmental issues.

7.1. Impact on surface water sources

7.1.1 *Diversion of existing channels [constructed dam/barrages/weir/canals/hydro-electric projects]*

7.1.2 *Change in land use [change in flood plain, lotic & lentic systems etc.]*

7.1.3 Current & Potential threats

7.2 Impact on groundwater sources

7.2.1. *A description of the impacts on environmental values that have occurred, or are likely to occur, because of any past ground water abstraction.*

7.2.2 *An assessment of the likely impacts on environmental that will occur, or are likely to occur, because of the ground water abstraction for a five years period starting on the consultation day for the report; and over the projected life of the resource project area, affected area and radius of influence.*

7.3 Socio-Economic Aspects:

7.3.1 Settlements and population dynamics around project area

7.3.2 Dependency on sources of water [surface or sub-surface]

7.3.3 *Ground water uses [e.g. irrigation (irrigation method, number of watering) water supply etc.]*

7.3.4 Improvement / decline in agricultural yield in last 5 years and likely impact after NOC

7.3.5 *Impact of proposed / existing project on local communities [based on local interactions (interactions must be with stakeholders like fishermen community, farmers etc.)]*

8. Proposed measures for disposal of waste water by mine drawing saline water.

9. Measures to be adopted for water conservation which include recycling, reuse, treatment, etc. This includes the water balance chart being adopted by the firm along with details of water conservation methods to be adopted.

- *Brief write up along with capacity and flow chart of Sewage Treatment Plants / Effluent Treatment Plants / Combined Effluent Treatment Plants existing/ proposed within the project.*
- *Details of water conservation measures to be adopted to reduce/ save the ground water.*
- *Total water balance chart showing the usage of water for various processes.*

10. Any other details pertaining to the project.

