

**GOVERNMENT OF INDIA
MINISTRY OF JAL SHAKTI
DEPARTMENT OF WATER RESOURCES, RD & GR
CENTRAL GROUND WATER AUTHORITY
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Minutes of Third Meeting of the Expert Appraisal Committee held on 27.07.2021 through video conferencing.

Third meeting of the Expert Appraisal Committee was held on 27.07.2021 online through video conferencing to consider the applications for grant of No Objection Certificates for abstraction of groundwater as per the guidelines.

List of participants is enclosed.

Member, Central Ground Water Authority welcomed all the members of the committee. After a brief introduction of all the participants, Dr. Rajesh Chandra, CGWA gave a brief about the second meeting held on 05.07.2021.

Agenda Item No. 3.1: Confirmation of the Minutes of Second meeting of the Expert Appraisal Committee held on 05.07.2021

As no comments were received from the members on the minutes of second meeting, the same were confirmed. It was informed to the committee that out of the eight proposals considered in the last meeting, four proposals were approved by the EAC and out of the rest only one reply has been received and that too was incomplete.

It was decided that in case of objections raised by the Committee, the project proponents shall be given not more than 15 days time to submit replies to the objections/ comments of the Committee. In cases, where field studies are needed to be conducted, 30 days time shall be given to the proponents to submit their response failing which their applications will be rejected and applicants will have to apply again for NOC. Once the response/ rectified report is received from the Project Proponent, it will be circulated to the member of Expert Appraisal Committee by CGWA and in case no objection is received from Committee members within 15 days from date of circulation, proposal will be deemed approved.

Agenda Item No. 3.2: Appraisal of Impact Assessment Reports by the committee

The Agenda Items were then taken up for discussion and the agenda were presented by the Consultants of the respective Project Proponents of 14 projects.

3.2.1 M/s . KJS Cement (I) Ltd, Amilia limestone mine, village Amilia, Tehsil Maihar, Satna, Madhya Pradesh, Application No. - 21-4/886-MP/MIN/2019- Reconsideration

This is an existing mine located in Maihar Block of Satna District and falls in Semi-critical category. The proponent has applied for NOC for ground water extraction of 294 KLD through 01 existing borewell and 02 existing mine pits. The proposal was considered in the first meeting of the EAC held on 13.04.2021, wherein the proponent was advised to submit revised maps showing major locations, village boundary, drainage, land use, geology etc., depth to water level map and water table contour map showing ground water flow directions, year wise, bench wise and season wise mine seepage estimation of each mine pit and detailed recharge plan. The applicant had submitted all the details. Proponent was further advised in the meeting to submit the following:

1. Detailed justification and breakup for usage of 209 KLD of mine seepage.
2. Gradient value and Hydraulic Conductivity (K) value seem to be on lower side. These values need to be fine tuned. Re-estimation of mine seepage assessment on the basis of corrected gradient and K value be submitted.

Decision: Deferred till submission of reply within 15 days.

3.2.2. M/S. Scheffler India Limited, Maneja, Block and District Vadodara, Gujarat, Application No. : 21-4/3020/GJ/IND/2017 - Reconsideration

This is an existing industry located in Vadodara Block of Vadodara District, which falls under Semi-critical category. The ground water requirement of the industry is 735KLD through 02 existing tubewells. The proposal was considered in the first meeting of the EAC held on 13.04.2021, wherein the proponent was advised to submit the revised maps showing major locations, village boundary, drainage, land use, geology etc., depth to water level map and water table contour map showing ground water flow directions and revise water balance and reduce fresh water requirement. It was also observed that the model was incorrect with RMS error of 10 m. The proponent was, therefore, advised to conduct modeling studies again to predict the impact and plan mitigation measures accordingly. The proponent had submitted all the details as desired

by the committee in its first meeting. The PP has reduced the fresh ground water requirement from 735 KLD to **550 KLD**.

The following observations were made by the Members:

1. Depth to Water and Water Table Contour maps should be corrected on the basis of actual water levels as recorded and site locations and values should be plotted on maps.
2. Modeling report submitted by Consultant needs be corrected. Conceptual model should be re constructed on the basis of data acquired from field. Parameters should be site specific. Boundary condition and parameters taken for the model were wrong. Zone budgeting should be redone again on the basis of assumptions regarding boundary conditions and other allied parameters..

Decision: Deferred till resubmission of revised Impact Assessment report within 30 days.

3.2.1 M/s. Shreenathji Rasayan Pvt. Ltd., Survey No.-1418, Village Rajpur, Block Kadi, Mehsana, Gujarat. Application No. : 21-4/1615/GJ/IND/2016

This is an expansion programme of existing industry located Kadi Block of Mehsana District, which falls under Over-exploited category. The industry is presently getting surface water supply to the tune of 70 KLD and 17 KLD from tankers. The ground water requirement of the industry is 291 KLD through 2 proposed borewells. The water level in the area varies from 111 m to 115 m below ground level. Average seasonal fluctuation in the study area is 0.5-2.0 m as reported by CGWB. The main source of recharge in the study area is rainfall. Major part of the area in the Kadi Block is devoid of any drainage network and does not fall in any catchment. The surface water resources of the study area are very limited. Groundwater is the main source of irrigation, about 93% of the area being irrigated by groundwater. TDS in ground water varies from 850 to 1000 mg/l. The proponent was advised to submit the revised Impact Assessment Report in prescribed format on the basis of primary data collected from the field.

Decision: Deferred till resubmission of revised Impact Assessment report within 30 days.

3.2.2 M/s. Jayant Agro Organics Limited, Behind GACL, PCC AREA, Ranoli, Block Vadodara, Dist: Vadodara. Application No. : 21-4/1841/GJ/IND/2017

This is an existing industry located in Vadodara Block of Vadodara District, which falls under Semi-critical category. The ground water requirement of the industry is 210 KLD through 02 existing tubewells. Groundwater occurrence in the study area under confined conditions. Confined aquifer system exists below impervious clay horizons in alluvial formation. Quaternary deposits predominantly consist of silt, sand, gravel, pebbles, clay, kankars, etc. in the form of beds of varied thickness and lateral extension.

The following observations were made by the Members:

1. Water Level Maps are not in coherence with water levels observed and reported.
2. Water level rise is 10m, which seems to be impossible.
3. Revised report must be submitted as per the prescribed format.

Decision: Deferred till resubmission of revised Impact Assessment report within 30 days.

3.2.3 M/s. Deedy Chemicals Pvt. Ltd., Survey Plot No. 69 and 71, Dhanot village on Ahmedabad – Mehsana Highway, Taluka Kalol, District Gandhinagar, Gujarat State. Application No. - 21-4/1947/GJ/IND/2017

This is an existing industry located in Dhanot village on Ahmedabad – Mehasana Highway, Kalol taluka, Gandhinagar District, which falls under Semi-critical category. The unit is operating since 2011. The ground water requirement of the industry is 127 KLD through 01 existing borewell. The area is underlain by multilayer Alluvial Aquifer System of Cambay Basin of Western India. Within alluvial plains of Ahmedabad – Gandhinagar - Mahesana region, two major aquifers have been identified up to the explored depth of about 600 m below surface. The upper unit is mainly phreatic, but at places becomes semi-confined to confined while the lower unit comprises a few hundred meters of alternating arenaceous (sandy) and argillaceous beds and forms the confined aquifer system. The water quality in the phreatic aquifer is mostly brackish to saline. The industry is drawing ground water from the deeper aquifer, which is generally fresh. Most of the domestic water requirement of this part of Kadi – Kalol – both urban & rural clusters is now met through surface water-based source. Agriculture draft has reduced drastically over the period as more areas are getting converted into non-agriculture land. Industries are dependent on groundwater sources; but possibilities of

more new industries coming in city area is rare. With revised regulatory guidelines, Industries are opting for conserving water resources.

The following observations were made by the Members:

1. Justification for use of Fresh water for gardening may be furnished.
2. Detailed break-up of Water Balance and proper justification for 108 KLD for industrial use may be submitted

Decision: Deferred till resubmission of reply within 15 days.

3.2.4 M/s. Sheelpe Enterprises Pvt. Ltd. , S.NO. 316, Opp. Sunali Textiles, CSD Depot Road, Near River Side School, Hansol, Ahmedabad Cantonment, Ahmedabad City, Ahmedabad District, Gujarat. Application No. 214/2597/GJ/IND/2017

This is an existing industry located in Ahmedabad Cantonment area, Ahmedabad City Block of Ahmedabad District, which falls under Semi-critical category. Ground water requirement of the industry is 600 KLD. The area is underlain by multilayered alluvial aquifer system of Cambay basin. Two major aquifers exist down to depth of 300 m. The upper aquifer is mainly unconfined but becomes semi- confined to confined at places while the lower aquifer is confined. Quality of upper unconfined aquifer is fresh with EC varying from 500 to 1250 mg/l. Confined aquifer also yields fresh water. Industry is drawing water from the semi-confined to confined aquifer. Area within 5 KM radius of Sheeple Enterprise unit is underlain by Stabilized Sand Dune & Sabarmati River Terrace. Phreatic aquifer system has Fresh ground water EC 750 to 1250 $\mu\text{S} / \text{cm}$ at 25 °C. The ground water requirement of the industry is 600KLD through 03existingtubewells. The domestic water requirement of entire Ahmedabad City and Dascroi Taluka – both urban & rural clusters is presently met from surface water. Sabarmati River front has become the main recharge source to unconfined aquifer system underlying Ahmedabad City area. Agriculture draft has reduced drastically over the period as more area is getting converted into non-agriculture land. The process requires only filtration. No water rejection technology is used.

Decision: Proposal was approved.

3.2.7 M/s. Diamond Textile Mills Private Limited, 210, Nikol Road, Thakkar Bapa Nagar, Nikol, Ahmedabad City block, Ahmedabad district, Gujarat, Application No. : 21 -4/3028/GJ/ IND/2017

This is an existing industry in operation since 1956 and is located in Ahmadabad City Block of Ahmadabad District, which falls under Semi-critical category. The ground water requirement of the industry is 236.53 KLD through 02 existing tubewells. The area is underlain by multilayered alluvial aquifer system of Cambay basin. Two major aquifers exist down to depth of 300 m. The upper aquifer is mainly unconfined but becomes semi- confined to confined at places while the lower aquifer is confined. Quality of upper unconfined aquifer is brackish to saline. Lower aquifer yields fresh water. Industry is drawing water from the lower confined aquifer. Cement sealing of borewells has been done to avoid contamination of lower aquifer. The domestic water requirement of entire Ahmedabad City and Dascroi Taluka – both urban & rural clusters is presently met from surface water. Sabarmati River front has become the main recharge source to unconfined aquifer system underlying Ahmedabad City area. Agriculture draft has reduced drastically over the period as more area is getting converted into non-agriculture land.

Decision: Proposal was approved.

3.2.8 M/s. Gujarat Microwax Pvt. Ltd., Survey No. 291/1-2, Kalol Mehsana Highway, Nandasan village, Kadi block, Mehsana District, Gujarat. Application No. : 21-/3288/GJ/IND/2017

This is an existing industry located in Kadi Block of Mahensa District, which falls under Over Exploited category. The ground water requirement of the industry is 338 KLD through 01 existing tubewell. The unit is in operation since 1992. The area is underlain by multilayered alluvial aquifer system of Cambay basin. Two major aquifers exist down to depth of 300 m. The upper aquifer is mainly unconfined but becomes semi-confined to confined at places while the lower aquifer is confined. Lower aquifer yields fresh water. Industry is drawing water from the lower confined aquifer. Cement sealing of borewells is done to avoid contamination of lower aquifer. At Nandasan, piezometric surface ranges from -42 m to more than - 60 m agl, with flow direction from northeast to southwest with gradient of 1:555. Unconfined aquifer system has low potential, quality constraint and yields mostly brackish to saline groundwater. Southeastern part of Kadi – Kalol is covered under Narmada Irrigation. Water logging

condition exists in some pockets due canal seepage and return irrigation. Most of the domestic water requirement of this part of Kadi area, for both urban & rural clusters is now met through surface water-based source. Agriculture draft has reduced drastically over the period as more area is getting converted into non-agriculture land.

Industries are dependent on groundwater sources; but possibility of more new industries coming in this stretch is rare.

The proponent was advised to submit detailed revised water balance.

Decision: Proposal was approved subject to submission of revised water balance in 15 days time.

3.2.9 M/s. National Engineering Industries Limited, Khatipura Road, Hasanpura, Jaipur, Rajasthan. Application No. : 21 -4/6 127/RJ/IND/2017

This is an existing industry located in Jhotwara Block of Jaipur District, which falls under Over Exploited category. The ground water requirement of the industry is 776 KLD through 08 existing borewells. Altitude of the ranges from about 350 mamsl in the southern part to 480 mamsl in the northern part. Geomorphologically, the area predominantly is part of pediment zone with structural hills in the eastern parts and alluvial plains in limited area. Though declining trends of water levels have been observed during pre monsoon period, the trends during post monsoon period are showing rising trends or the declining trends are less significant. The regional flow of ground water is towards south. TDS in ground water varies from 695 to 1790 mg/l. Chloride, alkalinity and sulphate are within permissible limits of the BIS standard for drinking water. Quality problems of Fluoride and Nitrate are observed in some locations and water is very hard at places. Industry has implemented recharge structures within the premises. To conserve water, industry plans to reuse RO reject of 40 KLD, which is presently going to ETP, explore use of treated water for cooling towers, analyzing leakage water loss in coolant plant to reduce RO water consumption and approaching Jaipur Development Authority for purchasing sewage water for use in the industry after treatment.

Decision: Proposal was approved.

3.2.10 M/s R.S.W.M. Limited (Unit: Mandpam), Village Biliya Kalan, Suwana Block, Bhilwara District, Rajasthan. Application No. : 21 -4/10996/RJ/IND/2011

This is an existing industry located in Suwana Block of Bhilwara District, which falls under Over Exploited category. The ground water requirement of the industry is 410 KLD through 02 existing borewells. Total water requirement of the industry is 2590 KLD, out of which 2180 KLD is recycled. The area is underlain by Berach Granite and Gneiss and Mica schists. Ground water occurs in the weathered zone and fractures and joints

in the hard rocks. Weathered formation generally extends down to depth of 30 m and deep seated occasional fractures are found to depth of 100 mbgl. Movement of ground water is from SW to NE and hydraulic gradient is 1.3 m/km. Pre-monsoon depth to water level in the 5 km radius of the plant varies from 12 to 22 mbgl. Electrical Conductivity in all the samples was found to be above 2500 micromhos/cm. The plant has implemented rain water harvesting measures within the premises. No waste water is discharged out of the plant premises. Treated waste water is used for green belt development and in the industrial process.

Decision: Proposal was approved.

3.2.11 M/s Mahanadi Coalfields Limited, Hingula Open Cast Project, Tehsil Talchir, District Angul, Odisha. Application No. : 21-4/2054/OR/MINE/2018

This is an existing mine located in Talchir Block of Angul District, which falls under Safe category. The ground water abstraction of the project is 829 KLD, 80 KLD through 03 existing borewells and 749 KLD from 2 mine pits. Groundwater in the area occurs under both unconfined and Confined conditions. Apart from phreatic aquifer, Karharbari and Basal Barakar formations are encountered in this block, which form potential aquifers. Regional ground water flow is towards northeast. Quality of ground water is fresh. All the parameters are within the permissible limit. Depth to water level varies from 5 to 7 mbgl. Pumped water is used for domestic use in mines, green belt, dust suppression, fire fighting and workshop. Waste water is treated in ETP and reused for floor washing. Excess water is stored in sump, which acts as recharge structure. Aquifer present immediately above the roof of the working coal seams (semi-confined/confined aquifer) will mainly get affected and will contribute to the mine seepage. Predicted Mine Influence area in Talcher Coalfield is 175 - 900 m. Mining activity will lead to change in the drainage and surface run-off. External dumps will result in silting on soils and local drains. Agriculture which is one of the source of livelihood in the area is likely to be impacted due to environmental hazards created by mining. The decoaled quarry of working and abandoned mines serve as huge water reservoirs, which indirectly contributes to overall water resources in the area. In the post-mining period, the drainage pattern of the reclaimed area will be such that the run-off will be diverted to final void of the quarry as a measure for water harvesting. The unlined garland drain and sedimentation pond will enhance the runoff recharge in the area. Routine environmental monitoring shall be carried out by the proponent.

The following observations were made by the Members:

1. Hydrogeological and Geological map of 10 km buffer area be provided.
2. Water quality should have multidirectional sample representation.

3. Report may be revised.

Decision: Deferred till resubmission of revised Hydrogeological Report within 30 days.

3.2.12 M/s. Madhav Industries, Block No. 395, Nadasa – Martoli Road, Village Martoli, Taluka Jotana, District Mehsana, Gujarat. Application No. :2 1 - 4/6717/GJ/IND/2020

This is an existing industry located in Jotana Block of Mahensa District, which falls under Over Exploited category. The ground water requirement of the industry as per NOC application is 370.05 KLD through 01 existing borewell. Total water requirement of the industry is 650.88 KLD, out of which 280.83 KLD is recycled.

The area is underlain by multi layered aquifer system within a depth of 300 mbgl. Two major aquifer units are identified. In the upper unit down to average depth of 40 m, ground water occurs under phreatic conditions. The lower units comprising more than 300 m of alternating sand and clay horizons form multiple confined aquifers with thickness varying from 12 to 30 m. These aquifers lie between the depth ranges of 45 to 90, 100 to 170 and 180 to 300 mbgl. Piezometric heads of deep confined aquifer are predicted to decline owing to the huge withdrawal in future. Industry has plan to implement rain water harvesting measure to capture runoff of 17314 cubic metres. The existing water requirement of industry is 367 KLD including 227 KLD of fresh water and 140 KLD of recycled water.

The following observations were made by the Members:

1. As project is located in the Over-exploited area, e expansion may not be considered.
2. Revised depth to water level and water table contour maps showing flow direction need to resubmitted.
3. Report should be resubmitted with advised corrections.

Decision: Deferred till resubmission of revised Impact Assessment report within 30 days.

3.2.13 M/s. Nachiketa Power and Steel Pvt. Ltd., Silpahari Industrial Area, Tehsil Belha, District Bilaspur, Chhattisgarh. Application No. : 21-4/1741/CT/IND/2011

This is a new industry located in Belha Block of Bilaspur District, which falls under Semi Critical category. The ground water requirement of the industry is 180 KLD through 04 proposed borewells. The entire area is dominated by underlying different types of limestones, shales, dolomites along with intercalations of cherts of Chhattisgarh Group. The area is characterized by the presence of laterites which occur as capping over carbonate formations. Laterite occurs in a very sporadic manner particularly in the northern part of buffer zone as capping over rocks which plays an important role in hydrogeological set up of area. Formations of Chhattisgarh Super Group show more or less similar hydrogeological behaviour and are classified as consolidated formation. Laterites are semi consolidated and alluvium as unconsolidated formations. Ground Water occurs under unconfined condition in phreatic aquifers and semi confined to confined conditions in the deeper fractures zones and solution cavities. Overall depth to water level in area remains between 1.2 to 10.4 meters below ground level. The depth to water level between 2 to 5 mbgl are observed in most of the area. Water levels more than 10.4 mbgl are observed in the Eastern and south-western part along surface water divide. The depth to water levels less than 1.2 mbgl are observed along river courses. In general, the water quality in the area is potable, suitable for drinking, industrial and irrigation purposes. Measures like construction of artificial recharge structures, reusing and recycling waste water, keeping a constant check on waste water treatment process to avoid surface and sub surface water contamination, etc., are taken by the firm. To keep excessive pumping in check the maximum amount of water abstraction is pre-decided and controlled by water flow meter. It is estimated that a total potential of 44592.84 cu. m. of rainfall run-off can be harvested annually within the premises.

Decision: Proposal was approved.

3.2.14 M/s Western Coalfields Limited, Expansion of New Sethia Open Cast Mine, Near Sethia Village, Pench area of WCL, Parasia Block, Chhindwara District, Madhya Pradesh. Application No. : 21-4/537/MP/MIN/2017

This is an existing industry located in Parasia Block of Chhindwara District, which falls under Safe category. The ground water requirement of the industry is 170 KLD through 01 existing mine pump. Shallow aquifer is composed of soil zone/weathered basalt and Motur formation (upto 30 m depth). Motur formation contains medium to coarse grained sandstone with variegated clays. Deeper aquifer is represented mainly by the Barakar Formation and Motur formation (present beyond 30 m depth). Presence of Deccan basalt at the top and underlain variegated clay of Motur formation reduces the potentiality of the aquifer. Occurrence of impermeable coal seams/shale repeatedly also affects the potentiality of the aquifer in adverse way. Hydraulic conductivity varies from 0.3 to 0.7 m/d. Radius of mine influence for the mine has been estimated around 260 m. The disposition of Coal seam in the area is such that during mining of the same, water yielding formations/aquifers (mainly weathered mantle and Barakar sandstone) get

incised, thus due to gravity drainage ground water seeps and gets accumulated into the mine pit. To continue safe mining operations, accumulated ground water is pumped out to the surface and gainfully utilized.

During opencast mining the hydraulic gradients generally steepens down in the vicinity of mine i.e. within the mine influence area. In the up-dip region only un-confined aquifer gets punctured through the mining process and gets affected whereas, in the down-dip region both un-confined and semi-confined aquifers may be affected. Confined aquifers of lower Barakars in the mining area does not get punctured as it lies below the working coal seams and hence normally there is no noticeable effect in the aquifer related to this formation. The effect on ground water level for most of the coal mines in PENCH Kanhan Valley coalfield has been observed in the down-dip side, generally within a distance of 200-300 m and becomes milder/ negligible thereafter. Due care is being taken to treat the mine water discharge through sedimentation tank. Garland drain around the OB dump & coal dump has been made to avoid siltation of natural water courses. The abandoned quarries/mine patches near New Sethia OC Mine act as ground water recharge structures.

The following observations were made by the Members:

1. Maps of core and buffer zone of radius 10 km should be resubmitted.
2. Mine seepage estimation is to be recalculated.
3. Values of K and specific yield should be calculated on the basis of actual field data preferably and not on the basis of CGWB dataset alone outside the 10 km radius.

Decision: proposal was deferred till resubmission of revised Hydrogeological report within 30 days time.

LIST OF PARTICIPANTS

MEMBERS OF THE COMMITTEE:

1. Shri P. Nandakumaran, Chairman, CGWB
2. Shri Sundeep, Scientist 'F' and director, CP Division, MoEF&CC.
3. Shri A. Sudhakar, Divisional Head, WQM I Division, CPCB.
4. Shri KD Bhardwaj, Regional Director, NPC.
5. Shri Motipalli Ramesh, Scientist 'E', wetland Division, MoEF&CC.
6. Dr. Shashank Shekhar, Geology Deptt., Delhi University.

Other Officers

1. Shri Sunil Kumar, Member, CGWA.
2. Shri P. K. Naik, Scientist 'D', CGWA
3. Dr. Rajesh Chandra, Scientist 'D', CGWA
4. Dr. Rakesh Kushwaha, Scientist 'D', CGWA
5. Shri Ashok Patre, Scientist 'D', CGWA
6. Shri Anmol Sharma, Scientist 'C', CGWA
7. Shri Vikas Ranjan, Scientist 'C', CGWA
8. Ms. Aditi Bhatt, Scientist 'B', CGWA.
9. Shri M. Goutham, Scientist 'B', CGWA.
10. Ms. Anita Bisht, Young professional (GW), CGWA.
11. Shri Anand Bhatt, Young professional (GW), CGWA.
12. Shri Ankush Sarange, Young professional (GW), CGWA.