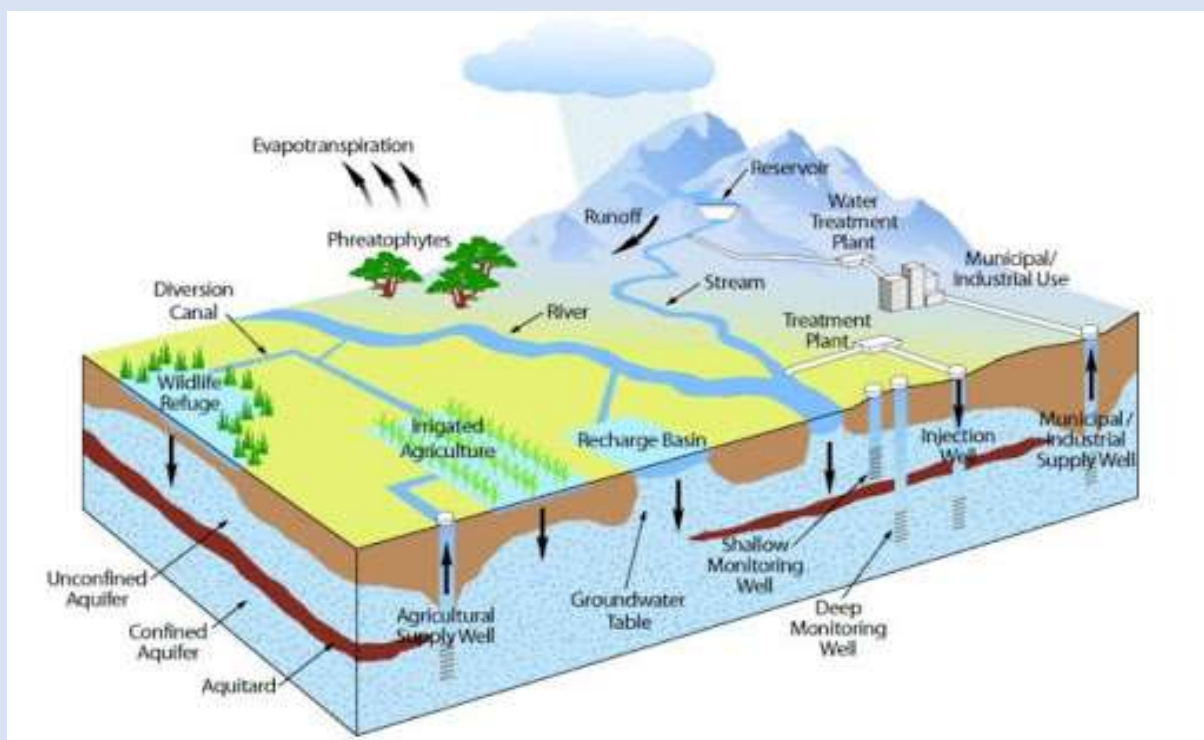


## Accreditation Scheme for Ground Water Consultant Organizations (GWCO)



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## Foreword

Quality Council of India (QCI) was set up jointly by the Government and the Indian Industry represented by CII, FICCI and ASSOCHAM as an autonomous not-for-profit body, registered under the Societies Registration Act, as per the decision of the Cabinet, vide Cabinet Secretariat's letter No 6/CM/96(i) dated 14<sup>th</sup> February, 1996.

Department for Promotion of Industry and Internal Trade (DPIIT) is the nodal Ministry of Government for matters related to QCI. The objectives of QCI include establishing and operating national accreditation structure and promoting quality through National Quality Campaign. There are five constituent Boards of QCI and the National Accreditation Board for Education and Training (NABET) is one of them. The Boards of QCI are working with various ministries and operating many accreditation schemes supporting national initiatives, in the field of Hospitals and Healthcare services, Vocational training, Food Safety, Panchayats, Schools, Micro Small and Medium Enterprises, etc.

The Central Ground Water Authority (CGWA) was constituted under Section 3 (3) of the Environmental Protection Act, 1986 for the purpose of Regulation and Control of Ground Water Management and development. Central Ground Water Authority has framed guidelines for grant of NOC for withdrawal of groundwater, which have been revised from time to time. Last revision in guidelines was done in 2015 to bring existing industries/ infrastructure/ mining projects under the purview of NOC as per directions of the Hon'ble NGT vide order dated 15.04.2015 in the matter of Krishan Kant Singh Vs. M/s Deoria Paper Ltd., Hata Road, Narainpur, Deoria and other connected.

The latest Notification by Ministry of Water Resources, River Development and Ganga Rejuvenation no. S.O. 6140(E) dated 12th Dec 2018 (website – [www.cgwb.gov.in](http://www.cgwb.gov.in)). Central Ground Water Authority has to exercise the following powers and perform the following functions namely: -

- i) Exercise of powers under Section 5 of the Environment (Protection) Act, 1986 for issuing directions and taking such measures in respect of all the matters referred to in sub-section (2) of section 3 of the said Act.
- ii) To resort to the penal provisions contained in sections 15 to 21 of the said Act.
- iii) To regulate and control, management and development of ground water in the country and to issue necessary regulatory directions for this purpose.
- iv) Exercise of powers under Section 4 of the Environment (Protection) Act, 1986, for appointment of officers.

In exercise of powers conferred upon it, the Authority regulates ground water development through various means including grant of No Objection Certificates (NOCs) for abstraction of ground water and issuing advisories, directions, notifications etc. as and when necessary. The Authority has been granting NOCs for withdrawal of groundwater by new industries and those under expansion/ infrastructure/ mining projects since 1999.

List of States/ Union Territories, where ground water development is being regulated by Central Ground Water Authority (*Annexure 1*). The remaining States/ Union Territories are regulating ground water development through ground water legislation enacted by them or through Government Orders.

### Industries:

For users drawing/proposing to draw ground water to the tune of 2000 m<sup>3</sup>/day or more in safe

assessment units, 1500 m<sup>3</sup>/day or more in semi critical and critical assessment units and 1000 m<sup>3</sup>/day or more in over-exploited assessment units.

### **Mining projects:**

Comprehensive report on ground water conditions in both core and buffer zones of the mine, depth wise and year wise mine seepage calculations, impact assessment of mining and dewatering, details of recycling, reuse and recharge, reduction of pumping with use of technology for mining and water management to minimize and mitigate the adverse impact on ground water, based on local conditions.

### **Infrastructure projects requiring dewatering or use of ground water for construction:**

In cases where dewatering of more than 100 m<sup>3</sup>/ day is required, hydrogeological report on the ground water situation in the area giving detailed plan of pumping, proposed usage of pumped water and comprehensive impact assessment of the same on the ground water regime. The report should highlight environmental risks and proposed management strategies to overcome any significant environmental issues. An affidavit on non-judicial stamp paper of Rs. 10/- regarding non availability of water from any other source for construction in safe and semi critical areas. Certificate from the government agency regarding non availability of treated sewage water for construction within 10 km radius of the site in critical and over-exploited areas. The proponent shall be required to adopt roof top rain water harvesting in the project premises after completion of building construction. Recharge measures shall not be implemented in areas prone to water logging (water level within 5 metres below ground level).

### **Abstraction of Saline / contaminated ground water:**

Abstraction of saline / contaminated ground water for use by industries/ dewatering by infrastructure/ mining projects including those located in over-exploited areas would be encouraged. The list of such assessment units having saline ground water at all depths as per the latest assessment of dynamic ground water resources will be made available by the Authority in the web-based application system. Packaged drinking water units shall be encouraged to be set up in quality affected areas. However, due care should be taken in respect of disposal of effluents by the units so as to protect the water bodies and the aquifers from pollution. Proposals pertaining to such cases, extracting more than 100 m<sup>3</sup> / day, must include a detailed project report elucidating the mechanism of handling the saline /contaminated/ effluent water and its various uses. All precautions must be taken for protection of environment especially fresh water aquifers in and around the area.

Withdrawal of saline/ contaminated ground water by the proponent, shall not affect the fresh water aquifers, if any, in the area.

No disposal of brine or untreated waste shall be allowed in the premises.

Samples for monitoring of water quality of the aquifer from which the saline/ contaminated water is pumped and that of the adjacent/overlying/underlying fresh water aquifers, if any, should be collected during April/ May every year and should be analysed at NABL accredited laboratory for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc.

In areas having saline ground water aquifers underlain/ overlain by fresh water aquifers, the application would be considered for NOC only after submission of detailed hydrogeological report including mathematical modelling study indicating the long-term impact of ground water extraction on the ambient ground water regime of the overlying/ underlying fresh water aquifers. This condition would be applicable to proponents withdrawing more than 100 m<sup>3</sup>/day of saline ground water.

National Accreditation Board for Education & Training (NABET), a constituent board of the QCI has developed an Accreditation Scheme with inputs from various stakeholders including experts in the field, regulatory agencies, consultants etc., and will be published on QCI website.

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## ABBREVIATIONS

ACOs	Accredited Consultant Organizations
AICTE	All India Council for Technical Education
AO	Applicant Organization
AR	Artificial Rain
ASSOCHAM	Associated Chambers of Commerce and Industry of India
BIS	Bureau of Indian Standards
CA	Co-Assessor
CGWA	Central ground water authority
CGWB	Central ground water Board
CII	Confederation of Indian Industry
CSIR	Central Building Research Institute
DA	Desktop Assessment
DGPS	Differential Global Positioning System
DPIIT	Department for Promotion of Industry and Internal Trade
DWLR	Digital Water Level Recorder
ECS	Electronic Clearance Service
FICCI	Federation of Indian Chambers of Commerce and Industry
FR	Feasibility Report
FY	Financial Year
GIS	Geographic Information System
GL	Geology
GP	Geophysicist
GPS	Global Positioning System
GW	Ground Water
GWCO	Ground Water Consultant Organization
GWM	Ground Water Modelling
GWS	Ground water Study/ Ground Water Survey
HFL	Highest flood level
HGL	Hydrogeology
HL	Hydrology
IA	Initial Assessment
IAF	International Accreditation Forum
IITs	Indian Institute of Technology
IMPS	Immediate Payment Service
INR	Indian Rupee
ISO	International Organization for Standardization
LGR	Local Grid Refinement
MoEF	Ministry of Environment & Forests
MoU	Memorandum of Understanding
MWR	Ministry of Water Resources
NABET	National Accreditation Board for Education and Training
NABL	National Accreditation Board for Testing and Calibration Laboratories
NC	Non-conformance

NEFT	National Electronic Funds Transfer
NGO	Non-governmental organization
NGT	National Green Tribunal
NITI	National Institution for Transforming India
NOC	No Objection Certificate
Obs	Observation
PA	Principal Assessor
PC	Project Coordinator
PFR	Pre-feasibility report
QCI	Quality Council of India
QMS	Quality Management Systems
RA	Re-Accreditation
RSG	Remotesensing
RTGS	Real Time Gross Settlement
RWH	Rain Water Harvesting
SA	Surveillance Assessment
TAE	Technical Area Expert
TM	Team Member
UGC	University Grants Commission
WL	Water Level
WQ	Water Quality

## 1.0 Introduction

India is a vast country with varied hydrogeological situations resulting from diversified geological, climatological and topographic setups. The rock formations, ranging in age from Archaean to Recent, which control occurrence and movement of ground water, widely vary in composition and structure. Physiography varies from rugged mountainous terrains of Himalayas, Eastern and Western Ghats and Deccan plateau to the flat alluvial plains of the river valleys and coastal tracts, and the Aeolian deserts in western part. Similarly, rainfall pattern also shows region-wise variations.

India is the world's largest user of groundwater and, since the 1980s, groundwater levels have been dropping across the country. The severity of the problem is particularly acute in the northwest, where levels have plunged from 8m below ground to 16m, so that water needs to be pumped from even greater depths. Worse yet, much of this groundwater is non-renewable since recharge rates are significantly less than extraction rates and replenishing this resource can take thousands of years. In some areas that experience projected increases in monsoon rainfall, the expansion of irrigated agriculture will lead to more non-renewable groundwater extractions. This means that groundwater levels will likely continue to drop over the next thirty years in these areas. In extreme cases, a complete loss of non-renewable groundwater irrigation can reduce national annual crop production by as much as 25 percent. Thus, responsible use of particularly non-replenishable groundwater is imperative to ensure sustained availability of groundwater in the future.

As per publication of NITI Ayog, India is placed at 120<sup>th</sup> amongst 122 countries in water quality index. Most states have achieved less than 50% of the total score in augmentation of groundwater resources, highlighting a growing national crisis. 54% of India's ground water wells are decreasing in levels and 21 major cities across the country are expected to run out of ground water by 2020. Almost none of the States have built the infrastructure required to recharge groundwater in over exploited and critical areas. Several States such as U.P., Bihar, Rajasthan etc. have not put in place any regulatory framework for managing the groundwater. These states produce 20-30% of India's agricultural output and groundwater accounts for 63% of all irrigation water. Therefore, unsustainable extraction in these states also poses a significant food security risk for the country.

Out of 4272 blocks in the country (except Andhra Pradesh, Gujarat and Maharashtra where ground water resource assessment has been carried out on the basis of mandals, talukas and watersheds respectively), 231 blocks have been categorised as "Over-exploited" where the stage of ground water development exceeds the annual replenishable limit and 107 blocks are "Dark" where the stage of ground water development is more than 85%. Besides, 6 mandals have been categorised as "Over-exploited" and 24 as 'Dark' out of 1104 mandals in Andhra Pradesh. Similarly, out of 184 talukas in Gujarat, 12 are "Over-exploited" and 14 are 'Dark' and out of 1503 watersheds in Maharashtra, 34 are 'Dark'.

The 'National Water Policy' adopted by the Government of India in 1987 regards water as one of the most crucial elements in developmental planning. It emphasizes that the efforts to develop, conserve, utilize and manage this resource have to be guided by national perspective. Water is a scarce and precious national resource to be planned, developed and conserved as such and on an integrated and environmentally sound basis.

The National Water Policy enunciates the following guidelines for ground water.

There should be a periodic reassessment on scientific basis of the ground water potential, taking into consideration the quality of the water available and economic viability.

- Exploitation of ground water resources should be so regulated as not to exceed the recharge possibilities, as also to ensure social equity. Ground water recharge projects should be developed and implemented for augmenting the available supplies.
- Integrated and coordinated development of surface water and ground water and their conjunctive use should be envisaged right from the project planning stage and should form an essential part of the project.
- Over-exploitation of ground water should be avoided near the coast to prevent ingress of sea water into fresh water aquifers.

## **2.0 An Outline of Scheme**

### **2.1 Background**

Groundwater is the most preferred source of water in India because of its easy accessibility, dependability and low capital cost. The increasing dependence on ground water as a reliable source of water has resulted in indiscriminate extraction of these resources in various parts of the country without due regard to long term impact on the aquifers and environment.

### **2.2 Objective of Scheme**

Industries, Mining and infrastructure development projects like residential township projects increasingly rely on Hydrogeological Report prepared by 3<sup>rd</sup> party consultants. This is true for urban areas as well as in agricultural areas. Regulators are increasingly relying on independent third-party declarations of compliance to support their enforcement and monitoring activities as they demonstrate compliance against defined CGWA guidelines.

Given that the degree of responsible use, ownership and distribution of groundwater is directly related to its availability as a sustainable source in the future, an accurate groundwater report in line with the CGWA guidelines is very critical. Not only this, the effective implementation of the guidelines post the grant of NOC to the concerned applicant is also crucial. These activities, mandatory towards the sustenance of groundwater levels by the Developers/Builders/Miners is also done in the guidance of an expert or a consultant.

### **2.3 Need of scheme**

Invariably NOC for groundwater withdrawal has become statutory requirement for most developmental and industrial activities in our country. Ground Water Study (GWS) reports are also being progressively used by regulatory bodies, government departments and research & educational institutions to assess the situation of ground water availability in the area. GW reports prepared in our country, more often do not measure up to the desired quality. Some of the reasons for this are:

- Competence (the combination of relevant qualification, experience and training) of Ground Water Consultants
- Quality of data used
- “cut and paste” method, using old data etc.

Therefore, it is felt that a well-designed Accreditation Scheme, which defines the requirements for a consultant organization to have resources, competent personnel, system-oriented approach, capability to assess the water situation to prepare a good quality Hydrogeological report. It will provide a list of competent and resourceful GW consultants organizations in India and it may contribute towards improving the quality of Hydrogeological reports in our country and will protect the groundwater storage from any adverse impact.

The list of Accredited Groundwater Consultant Organizations (ACOs) will be available on

website of QCI and CGWB/CGWA for all the stakeholders. Project proponent may engage ACOs from the list as per their choice. Further Government departments, private company individuals may also use these Accredited Consultant Organizations for proposals of Hydrogeological report and Artificial Recharge (AR) & Rain water Harvesting (RWH) reports as well as for reports related to Installation of digital water flow meter (conforming to BIS standard) with telemetry in the observation well, Construction of purpose-built observation wells (piezometers) for monthly ground water level monitoring, Installation of Digital Water Level Recorders (DWLR) in the observation well and other related reports. ACOs can also be used for submission of compliance reports as well as third party inspection.

In view of the above it is therefore proposed to develop a credible scheme specifying the requirements for the accreditation of Ground Water Consultant Organizations to fulfil the requirements of standard like infrastructure, competent human resource, system oriented working approach, continual improvement and ethical working. This scheme is operated by NABET under the guidance of regulator and other stakeholders to frame independent, transparent and impartial accreditation scheme. This comprehensive document describes the scheme's requirements of human resources, consultant's quality assurance systems (CQAS) and procedures to be followed, the assessment process and accreditation criteria. Various aspects of the scheme are-

- Eligibility (who can get accredited) and coverage of the Scheme
- Human Resource - qualification, experience and requirement
- Consultant Organization Quality Assurance System (CQAS)
- Assessment and accreditation process
- Closure/suspension/delisting/on hold etc. of applications
- Fee Structure

## 2.4 Scheme implementation

For the implementation of the Scheme across the country, NABET will be guided by a group of eminent professionals in the field of Ground Water development and management and allied subjects structured into four groups as follows:

**Technical Committee** – comprising 5 -7 members experienced professionals with proven track record. They will be guiding NABET in developing/implementing the Scheme as well as the assessment process.

**Accreditation Committee** – comprising 5 -7 members experienced professionals in the field of GW. The committee will approve and accord accreditation. They will also assist in resolving issues that may arise time to time.

**NABET Assessors** – are group of very senior and experienced professionals with relevant experience. They will be assigned for technical assessment of the applications and office assessment at their premises and interact with experts and head of organization.

**NABET Secretariat** – it comprises a mix of senior professionals in certification, accreditation field and young technical staff which coordinates the entire process of assessment and accreditation.

## 2.5 Updating of the Scheme

Any modifications and updation may take place time to time, as it ought to be for continually improving the delivery and effectiveness of the Consultants.

QCI - NABET reserves all rights to amend its accreditation scheme, procedures and fees etc. as it may deem fit. Applicants are requested to refer to the updated scheme on QCI website ([www.qcin.org](http://www.qcin.org)) before applying for their accreditation.

## 3.0 Eligibility, Accreditation requirements and process

Only organizations meeting the eligibility criteria of this Scheme are considered for accreditation. These consultant organizations can include government bodies, public sectors undertakings and private organizations. All requirements of the Scheme as mentioned in this document are to be complied with for an organization to get accredited

### 3.1 Legal eligibility for consultant organisation

Organizations shall be legally identifiable. These organization may be government body, public sector undertaking, private organization, proprietorship firms, partnership firms or companies (Pvt & Public Limited) or sole proprietorship owned by an individual or in personal name, registered under Society Acts, under Section 25 of Companies Act, Research Institutes and the like can also apply provided it fulfils with all the other requirements of the Scheme.

Universities including IITs, CSIR labs, other labs and/or research-based organizations conducting these types of studies can also apply for accreditation.

### 3.2 Human Resource Requirement

Hydrogeological report preparation is essentially a multi-disciplinary activity where inputs are required from specialists having knowledge of the fields like hydrogeology, geology, hydrology, Geophysics, soil science, land use, ground water recharge, groundwater modelling to assess long term impact on its quality and quantity, water pollution control, Ground Water Resource Estimation, Design of recharge structure, water conservation measures, annual water audit etc.

**3.2.1 Ground water Project Co-ordinator (PC):** Is the key person in developing Hydrogeological report, hence, they should have broad knowledge about the project, as well as the functional areas, which are likely to be affected by the activities related to the project in its construction, operation and the closure phases. The role of the co-ordinator will include but not be limited to setting-up the team, planning the study, visiting the site with the team, draw up the scope/terms of Hydrogeological report as per the requirements and various manuals developed by CGWA/CGWB/ BIS/ Govt. Environmental Agencies. The co-ordinator should organize various activities to meet the requirements of report, verifying the reliable data and for appropriate utilisation. He should also possess proper knowledge of Rules and regulations, applicable standards, latest Notification and Acts.

**3.2.2 Technical Area Experts (TAEs):** Are expected to assess the impacts from the proposed development / industrial activities in their respective areas of expertise and provide their expert inputs to the Project Coordinator. The Project Coordinator will then be able to collate and review the projected impacts and develop an overall Ground Water situation in and around project area.

An expert shall be qualified, experienced and competent person in his domain, along with this must have knowledge of regulation, legislative documentation, interpretation and analysis of reports.

### 3.2.3 Qualifications and Experience for Experts:

#### 3.2.3.1 PROJECT COORDINATOR (PC)

As Hydrogeological Report preparation is a multi-disciplinary activity where the central figure is the PROJECT COORDINATOR (PC) who should possess the following –

- a. Clarity in the concept of the GW system.
- b. Knowledge of the applicable standards, Acts, Rules and regulations.
- c. Domain knowledge and understanding of the project for which Hydrogeological Reports are to be prepared
- d. Leadership quality in planning, selecting and guiding the GW team

Thus, for GW Coordinator emphasis is given on experience and vision.

#### Minimum Educational Qualification for PROJECT COORDINATOR (PC)

- a. Master's (post-graduate) degree in Science/Technology or equivalent in either subject- Hydrogeology, Geology/ Applied Geology, Geophysics, Hydrology, Water Resources Management from a UGC/AICTE recognized University/ Institution or equivalent.
- b. Desirable: PhD in relevant subject.
- c. B. Tech/ MTech or equivalent or higher degree in technical subjects such as Civil, Mining, Water Resource Engineering, Hydrology and equivalent from a UGC /AICTE recognized University/ Institution or equivalent.

#### Experience of PROJECT COORDINATOR (PC)

- a. In case of PhD and Master's/ MTech degree holder, minimum of 7 and 10 years of overall work experience respectively, after the completion of above-mentioned qualifying degrees, related to Hydrogeological studies/ report preparation.
- b. Officers retired/served for minimum **10** years in Central/ State Ground Water Organizations/ Research Institutes/ universities/ IIT as Hydrogeologist, Hydrologist, Geologist, Geophysicist, will be considered to fulfil the minimum experience.
- c. For further details please refer **Appendix A**

#### 3.2.3.2 Technical Area Experts (TAEs)

Hydrogeological study is an applied science and requires multidisciplinary approach. Technical Area Experts (TAEs) are expected to provide inputs as required in the Hydrogeological Report. They should have adequate knowledge and expertise in their respective discipline. Following disciplines have been identified for preparation of report:

- |   |         |
|---|---------|
| i. Hydrogeologist/ Geologist/ Hydrologist | HGL/ GL |
| ii. Geophysicist                          | GP      |
| iii. Remote Sensing and GIS Expert        | RSG     |
| iv. Water Quality Expert                  | WQ      |

Moreover, the TAE should have an in-depth knowledge in their respective areas of specialization with broad understanding of the GW system and capability of assessing the impacts of the project on ground water regime.

### **Minimum Educational Qualification for TAEs-**

- a. Master's (post-graduate) degree in Science/Technology or equivalent in either subject- Hydrogeology, Geology/ Applied Geology, Geophysics, Hydrology, Water Resources Management from a UGC/AICTE recognized University/ Institution or equivalent.
- b. Desirable: PhD in relevant subject.
- c. BTech/ MTech degree or equivalent or higher in technical subjects such as Civil, Mining, Water Resource Engineering, Hydrology and equivalent from a UGC /AICTE recognized University/ Institution or equivalent.
- d. For further details please refer **Appendix A**

### **Experience of Technical Area Expert (TAE)**

- a. In case of PhD and Master's/ MTech degree holder, minimum of 3 and 5 years of overall work experience respectively, after the completion of above-mentioned qualifying degrees, related to Hydrogeological studies/ report preparation.
- b. Minimum 5 years overall work experience after the completion of BTech or equivalent qualifying degrees, related to Hydrogeological studies/ report preparation.
- c. Officers retired/served for minimum 5 years in Central/ State Ground Water Organizations/ Research Institutes/ universities/ IIT as Hydrogeologist, Hydrologist, Geologist, Geophysicist, will be considered to fulfil the minimum experience.
- d. For further details please refer **Appendix A**

#### **3.2.3.3 Team Member**

To encourage the entry of fresh graduates/post graduates (as applicable), they would be permitted to work as team member for three years under the guidance of an approved TAE. A team member has to be in-house employee only.

The objective is to encourage young and fresh candidates with no experience or up to 3 years of professional experience after acquiring minimum qualification as required in the Scheme.

In order to ensure proper guidance and training to the team member, an approved TAE is permitted to guide maximum two team members at a time. After five years' experience and assessments, a team member may be considered for approval as independent TAE.

#### **3.2.4 Requirements of Experts/ Number of experts Required:**

1. PROJECT COORDINATORS must be in-house (full time employee).
2. Experts involved in preparing Hydrogeological reports i.e. TAEs, can be both, in-house (full time employee) or empanelled.
3. Any organization to be accredited must have one approved in-house PROJECT COORDINATOR (HGL/ GL), one in-house TAE (HGL/ GL) and one In-house/ empanelled TAE (GP) and Water Quality Expert (WQ)
4. The other TAE may be inhouse or empanelled. The organisation must cover remaining TAs as per the project requirement.
5. Empanelled expert shall have written declaration with the organization as mentioned in **Annexure 3**.



- **In-house (IH) expert**- is a full-time employee working on the pay rolls of the applicant organization (AO)/accredited consultant organization (ACO) on regular basis (not on 'time to time basis' or on 'as an when required' basis) and gets appropriately paid as per her/his qualification and experience. (IH) should not be working in any capacity, part time or full time, in any other organization/Institution/Govt. job/University / public or Private Company.
  - **Empanelled expert** - An empanelled expert may be a 'freelancer' (not a full-time employee of any organization) or may be working with an NGO or Research organization/Academic institute. In the latter case, a No Objection Certificate (NOC) is to be obtained from the Registrar for a University, the Principal for a college and the head of organization for an NGO or a Research organization, as the case may be. The AO/ACO who wishes to have an empanelled expert must have an MOU/written agreement with such experts. An empanelled expert can work as a TAE with not more than three organizations.
6. Submission of any false or misleading information in any of the above aspects, shall lead to cancellation of approval of such experts and/or accreditation for the organization.

### 3.3 Scope of accreditation

NABET accredited consultant organization shall prepare hydrogeological report required by regulatory bodies for obtaining NOC for user drawing/proposing to draw groundwater (GW) for Industries/Mining projects/Infrastructure projects/ abstraction of saline/contaminated groundwater. Till now, the artificial recharge and rain water harvesting projects are also being implemented by drillers and other agencies, all of which may not be competent and may have impact on ground water quality. In the coming time some of the other advantages may be for accredited GW consultants –

- A system of yearly assessment by highly experienced NABET assessors providing valuable input.
- Listing at QCI-NABET and CGWA websites, which will be an important database for prospective clients and stakeholders.
- Use of the QCI-NABET logo, a mark of quality in stationery, to improve the brand image of the organization.
- Recognition in the international arena through the QCI-NABET being member of International Accreditation Forum (IAF).
- Third party assessment will help to improve the competency, capability, credibility, system-oriented approach, continual improvement, visibility, acceptability, sustainability in operations etc.
- Possibly efficient and fast processing of for issuance of NOC / regulatory directions of CGWA/SGWA

The scope of the scheme specifically covers hydrogeological reports required to be prepared for NOC requirement for all projects covered by the above Notifications

### 3.4 Infrastructure (Office Setup, Hardware and Software)

Consultant Organisation(s) wish to apply for accreditation under this Scheme should have the following infrastructural facilities:

- a. Office setup, suitable meeting/ discussion room(s)
- b. Experts room / work stations
- c. GW and other relevant Software –
  - i. Hydro-Geological Softwares (like USGS ModFlow etc) - for 3D modelling flows of groundwater, transfer of heat and pollutants.

1. Construction of Conceptual Models and Digital Integrated flow of groundwater
2. Powerful 2D and 3D visualization capabilities
3. Tool for handling water quality, groundwater flows, and initiatives concerning the protection of spring water – like
  - i. MODFLOW-2000, 2005, NWT - Standard modelling of GW flow
  - ii. MODGLOW-LGR - Local mesh refinement (LGR) in shared node for simulations at the regional-local
  - iii. MT3DMS - Package Standard simulation of pollutant transport for several species
  - iv. DRASTIC
  - v. MODPATH - Standard Package modelling the particle path
  - vi. Zone Budget - water balance calculation Package of different sub-areas
  - vii. Remote Sensing/Image Processing software like GRASS, SAGA (Open Source), ERDAS, ENVI etc
  - viii. GIS Softwares Like QGIS (Open Source), ArcGIS etc
- d. Instrumentation – adequate instrumentation
  - i. Hydrological Drilling (Rigs – capable to drill up to 100m)
  - ii. WL & Flow meter, Soil Sampler, Rain Gauge, Piezometric well construction etc.
  - iii. Surveying Instruments - DGPS, GPS, Theodolite, Total Station, Lidar-Survey etc.
  - iv. Resistivity Survey Instruments, Geophysical Loggers and SW
  - v. Remote sensing and GIS analyses softwares

### 3.5 Primary/ Secondary data collection–

Collection of primary/ secondary data is of crucial importance for preparing Hydrogeological reports. Project Coordinator (PC) and Technical Area Expert (TAE) must visit the site for ground truth verification, sample collection site and field tests. Data to be collected should include following parameters.

#### Primary Data Collection:

- **Well inventory Data:** over the study area (core zone and buffer zone) to collect and record the aquifer type, geometry and continuity, status of water table/ piezo metric head, Well Yield, Bore hole lithology etc.
- **Collection of water samples:** (surface & groundwater) to know the quality. Field measurement of few parameters (pH, conductivity or as specified by CPCB/CGWA/BIS procedures/ standard for recharge) should be preferred.
- **Resistivity Data Collection:** related to Surface and/or Sub-surface geology and/or Borehole Lithology.
- **GNSS/GPS data and Field Verifications:** for collection of data related to Co-ordinates of water well, ponds/lakes, Elevation, Land use, Geo-tagged photographs etc.
- **Meteorology data:** intensity, average annual rainfall data etc.
- **Pump Test Data:** to evaluate the aquifer properties (Drawdown, permeability of aquifer material, storativity and transmissive capacity, area of influence, Well yield etc.).
- **Aerial Photo/Satellite imagery:** for Land use / Cropping pattern, geomorphology, geology, soil, groundwater prospect etc.

- **Computer based Mapping / Modelling:** 1D/2D/3D modelling of Groundwater flow, Geomorphology, Drainage pattern & density, Flooding, Morphometric analysis, DRASTIC model, Altitude, slope and aspect maps etc.

**Secondary Data Collection:** Related to Geo-Hydrology, HFL and soil data from different government departments, recognized institutions and organizations. Having a detailed ‘feel’ of the proposed site of the project is of utmost importance for developing the scope of study followed by the planning for collecting the data through secondary source.

### 3.6 Laboratory Arrangement

The Consultant Organization / proprietary firm must have an arrangement with a NABL accredited or MoEF recognized laboratory for water quality data. For NABL accredited laboratories the scope of accreditation and for MoEF recognized laboratories copy of the application must be submitted.

The responsibility of all data due diligence, authentication etc. will be the responsibility of applicant Ground Water Consultant organisation.

### 3.7 Quality Management System (QMS)

Consultant organisation should have quality assurance system for continually improving the delivery and effectiveness of consultancy. It could be based on Quality Management System ISO 9001, while addressing specific requirements of NABET Scheme. The organization should have the following procedures prescribed below:

1. Procedures for control of documents including records
2. Procedure for evaluating, selecting, appointing and monitoring expert
3. Procedure for internal audits, maintaining records and documents
4. Procedures for actions taken to address non-conformances
5. Procedure for collection of primary data, collation, synthesis and interpretation of secondary data
6. Procedure for outsourced work
7. Procedure for laboratory work including calibration of equipment
8. Procedure for ensuring the implementation of all the above procedures and maintaining related records

Refer suggested guidelines - **Appendix B**.

### 3.8 Quality of hydrogeology reports

It is of utmost importance to maintain the quality of reports prepared by Ground Water Consultant Organizations. Hence, it should be ensured that the assessment criteria include accuracy of site description, quality of data, analysis and interpretation of the data and assessments.

All Consultant Organizations must follow the format of Hydrological Report as per **Annexure 8** (as per Annexure VIII of the guidelines of “MINISTRY OF WATER RESOURCES, RIVER DEVELOPMENT AND GANGA REJUVENATION” (CENTRAL GROUND WATER AUTHORITY) NOTIFICATION New Delhi, the 12th December, 2018

### 4.0 Assessment and accreditation process

#### 4.1 Application Process

Details of the accreditation scheme and the online application form (**Annexure 1**) is available on the QCI-NABET website. Any organisation keen to get accreditation under the scheme should carefully go through the requirements, processes and assess their own adequacy and take care of shortfalls, if any, before applying.

Application form complete in all respects giving relevant details and on submission of requisite application fee may be submitted on the NABET web portal <http://gwco.nabet.qci.org.in>

Hard copy of any other document may have to be submitted if asked for, by QCI-NABET. NABET Secretariat will inform the applicant of any clarification/additional information that may be required for completeness of the application.

#### 4.2 Accreditation Cycle

The accreditation cycle shall be of 3 years, wherein 3 types of assessments shall be carried out. These are

- I. Initial Accreditation (IA)
- II. Surveillance Assessment (SA)
- III. Re-Accreditation (RA)

##### I) Initial Accreditation (IA)-

In the IA, the applicant organization shall be assessed and based on their result accreditation will be awarded. On successful completion of the initial assessment and subsequent approval of the accreditation committee the accreditation shall be given for 3 years.

##### II) Surveillance Assessment (SA)-

There will be Surveillance assessment (SA) after 18 months of initial accreditation (which is effective from the date of award of initial accreditation).

Application for SA in prescribed format, accessible from QCI-NABET website, is required to be submitted to NABET at least 3 months before the due date i.e. 15<sup>th</sup> month after IA along with surveillance assessment fee.

The application must be complete with all relevant documents, which include a list of projects carried out after IA, list of experts involved, copy of the QMS manual, other details etc.

##### III) Re-Accreditation-

Before expiry of 3 years period of accreditation RA application shall be submitted 3 months prior to due date. RA process may be completed before the expiry of accreditation to avoid any discontinuation of accreditation.

***Extra Visit if needed:*** On the bases of risk factors, received information or complaint from primary or secondary source, surprise visit / extra visit may be planned unannounced or announce.

Refer **Appendix C** of Scheme.

#### 4.3 Assessment Process

The assessment process will involve the following 3 stages: -

- a) **Stage I:** NABET secretariat will check the completeness of application and all supporting documents

- b) Stage II:** Desktop Assessment (DA) - NABET Assessor shall conduct technical review of the documents (application along with relevant documents).
- c) Stage III:** NABET Assessor will conduct office assessment at the premises of the applicant and submit their report.

These 3 stages are explained in detail below-

- a. Application Completeness:** Application submitted shall be reviewed by NABET secretariat for its completeness. Inadequacies in application (if any) shall be informed to applicant organization. Applicant should submit complete response within 15 days. Only completed applications will be further processed. Applicant should submit the filled self-assessment report in NABET format.

**Note 1:** If inadequacies are found in the response again, the same will be communicated with an additional time of 15 days. If applicant fails to submit satisfactory response even after additional time then the application will be made inactive and the applicant has to apply afresh.

**Note 2:** Inactive period will be for 60 days and in-case applicant does not submit the satisfactory response in the given time, then the application will be treated as closed and the applicant has to apply afresh.

- b. Desktop Assessment:** NABET assessor conducts adequacy assessment (application & technical assessments of documents submitted by applicant). Observation(s) and NCs (if any) would be communicated by NABET secretariat. Applicant should submit complete response within 30 days.

**Note 3:** NABET assessor will verify Closure of NCs and observations submitted by applicant. Note 1 & 2 given will be followed for timelines.

**Non-Conformity (NC):** - Non-fulfilment of the requirement/s of the scheme

**Observation (Obs):** Any point which may lead to non-conformity if not addressed.

- c. Office Assessment:** Following the review and acceptance of the documentation procedures, NABET shall undertake, one- or two-day full assessment (days depending upon applicant HR size and proposed scope) at applicant premises.

It includes interaction with each expert (In-house and Empaneled) /quality manager, concerned administrative staff etc. verification of infrastructure, implementation of quality assurance system and other.

Assessment report [findings like observation(s) and NCs (if any)] would be reported by Assessor to NABET secretariat and in turn communicated to applicant. Corrective measures shall be submitted by applicant within 15 days. The assessment report will be reviewed by NABET secretariat and put up to accreditation committee for approval.

Decision regarding grant/denial of accreditation would be communicated to organization by NABET secretariat.

#### 4.4 Accreditation Criteria

On the basis of desktop assessment (DA), report by assessor(s) and satisfactory closure of NCs and observations, office assessment will be conducted by NABET assessor(s). Based on office assessment report, NCs and observation, if any, shall be communicated to the applicant for the compliance. Applicant shall submit evidence-based compliance of NCs and observations

within 15 days but not later than a month. If required, additional office assessment may be conducted for verification of closures of NCs.

#### **4.5 Changes in Experts**

In respect of experts proposed, changes may be considered under the following conditions

- a) In response to Non-conformances/Observations (NCs/Obs) raised by NABET on the original application during Stage I and Stage II of Initial Assessment process.
- b) In case of non-availability expert/s due to a genuine and unavoidable reason (Accreditation Committee's decision in regard to genuineness of the reason shall be final).

Intimation of any such change must be submitted to NABET prior to the Office Assessment.

#### **4.6 Important points to be considered while applying**

- a) Any organization to be accredited must have one approved in-house PROJECT COORDINATOR (HGL/ GL), one in-house TAE (HGL/ GL) and one In-house/ empanelled TAE (GP) and one Inhouse/ empanelled water quality expert. The other TAE may be inhouse or empanelled. The organisation must cover remaining Technical Areas (TAs).
- b) Experts proposed must meet the requirements of the Scheme both in respect of qualification and experience.
- c) An expert may be proposed both as a PROJECT COORDINATOR and TAE, provided s/he meets the Scheme's requirements, a PC can apply for any one Technical Area out of (GP, RS & GIS, WQ), PC cannot apply as TAE for HGL/GL.
- d) One Technical Area Expert (TAE) can be proposed for only one Technical Area.
- e) CVs of experts must be submitted in Formats developed by NABET along with all the supporting documents like Degree certificates, Work experience certificates etc.
- f) The approved candidate(s) (in-house or empanelled) in-case leave the organization and joins another organization should be informed to NABET, expert can be utilized in Hydrogeological Reports preparation process and the candidate will be assessed whenever next assessment of the organization takes place.
- g) Supplementary assessment is conducted for inducting any new unapproved expert (In-house/ Empanelled) and to fulfil any shortfall of expert in the organization. During supplementary assessment the proposed expert(s) shall be assessed as per the prescribed qualification and experience mentioned in the scheme. Any shortfall in the QMS should be covered through supplementary assessment.
- h) It is not mandatory for a Consultant Organization to be certified to ISO 9001 but it should have a Quality Management System for guiding the activities of the organization. The Quality Management System should address the procedures mentioned in **Appendix B** of this Scheme. The application must be accompanied by the Quality Management System manual of the Organization.
- i) The Consultant Organization must have an arrangement with a NABL accredited Laboratory for water quality test. It can be an In-house or External laboratory. For NABL accredited laboratories the scope of accreditation and validity must be submitted. For external laboratory arrangement MoU with laboratory with scope to cover water quality test.
- j) For external laboratory, copy of the agreement, scope of accreditation and Validity period must be submitted with the application.

k) A check list of documents to be submitted with the application is given in **Annexure 1**

## **5.0 Terms & Conditions to maintain accreditation**

### **5.1 Compliance to the conditions of Accreditation**

- a) Accreditation period of three years shall be counted from the date of grant of initial accreditation; however, this validity period is subject to satisfactory Surveillance Assessment (SA).
- b) Accreditation shall expire at the end of its validity unless renewal is sought in time.
- c) All payments shall be made in advance.
- d) Franchising, licensing, subcontracting of NABET accredited consultant organisation(s) is NOT permissible.
- e) Any change in expert, employment status, scope etc. shall be informed to NABET within 15 days with relevant documents.
- f) The Accredited Consultant Organization (ACO) shall maintain relevant records of each consultancy conducted. All information should be meticulously documented, as defined in the organization's QMS to meet the requirements of the QCI scheme
- g) Accredited Consultant Organization (ACO) just after accreditation shall sign the 'Code of Conduct' and send it to NABET Secretariat.

### **5.2 Suspension/delisting/cancellation/on hold/withdrawal of accreditation**

NABET shall suspend/ delist/cancel/on hold/withdraw or even debar accreditation on account of any or more grounds during accreditation process or after, but not limited, to the following:

- a) Non-compliance or violation of the NABET requirements and conditions of accreditation.
- b) Deviation from facts as stated in application and enclosures.
- c) Submission of false or misleading information in the application or in subsequent submissions.
- d) Improper use of NABET accreditation mark or QCI/NABET logo.
- e) Using unapproved experts/ carrying out changes in experts/ quality procedures without NABET's approval and information.
- f) Failure to report any major legal (mandatory compliance) changes and evident conflict of interest
- g) Using fraudulent practices by the Accredited Consultant Organization (ACO) in respect of its submission/ interaction with NABET which would include, but not limited to, deliberate concealment and/or submission of false or misleading information, suppression of information, falsification of records or data, unauthorized use of accreditation, and non-reporting of complaints against organization to NABET.
- h) Non- payment of applicable fees on time to NABET.
- i) Violation of the Code of Conduct for the consultant organizations
- j) Not submitting SA/RA application in time and allowing to conduct the same.
- k) Any other condition deemed appropriate by NABET

The decision for the Suspension/delisting/cancellation/on hold/withdrawal will be with the approval of accreditation committee.

### **5.3 Code of Conduct**

All Accredited Consultant Organizations (ACOs) are obliged to improve the standing of the profession by rigorously observing the Code of Conduct. Failure to do so may result in the suspension or cancellation of accreditation.

*The ACO undertakes:*

- a) To act professionally, accurately and in an unbiased manner.
- b) To be truthful, accurate and fair to the assigned work, without any fear or favour.
- c) To judiciously use the information provided by or acquired from the applicant and to maintain the confidentiality of information received or acquired in connection with the assignment.
- d) To avoid and / or declare any conflict of interest that may affect the work to be carried out.
- e) Not to act in a manner detrimental to the reputation of any of the stakeholders including NABET and the customer.
- f) To co-operate fully in any formal enquiry procedure of NABET

#### **5.4 Complaint and Appeals**

- I. The Accredited Consultant Organization (ACO) shall establish documented procedures for handling and disposal of complaints and appeals within a reasonable time. The documented procedure shall include provision for-
  - Providing information regarding complaint handling process to all interested parties
  - Acknowledgement of complaints.
  - Complaint analysis/ investigation for redressal of complaint/appeals.
  - Communication with the complainant/appellate for satisfactory closure of the complaint.
  - Involvement of NABET in unresolved complaints or appeals if any.
- II. The ACO shall maintain records of all complaints and their resolutions including actions taken.
- III. All complaints and appeal to be assessable to NABET assessment.

#### **5.5 GRIEVANCE REDRESSAL**

There are two methodologies available under the Scheme for addressing the grievances of AOs and ACOs–

- a. Review of Decisions
- b. Appeal

##### **5.5.1 Review of decisions**

In case an AO/ACO wishes for review/reconsideration of any decision taken by NABET, they may send a request for same to NABET. The following procedure is applicable:

- I. Request received from AO/ACO by NABET is recorded in the same serial as date of receipt
- II. Request must mention specific complaints (not generic in nature) and supported by documentary evidence.
- III. Anonymous/ pseudonymous requests are not be entertained.
- IV. Each request must be accompanied with an ECS/ Demand Draft of Rs. 25,000/ plus Services Tax and other relevant cess as applicable, payable in favour of “Quality Council of India” to partially offset the cost of hearing of such requests.
- V. Only substantial errors/mistakes on procedural matters are taken up for consideration. Re-assessment of any aspect of assessment or request for deviation from the Scheme cannot be considered.
- VI. Such ‘Reviews’ are taken up for consideration in a meeting of the relevant accreditation committee as early as possible.
- VII. Agenda of such meetings is intimated to the AO/ACO.
- VIII. AOs/ACOs making the request may present their case in person to the AC, if they so desire.



IX. Decision of the AC is intimated to the concerned organizations as well as posted on QCI website.

### 5.5.2 Appeal

An AO/ ACO may apply for Appeal in case it is not satisfied with the 'Review' decision.

An 'Appeal' must include the specific issues on which the appellant is filing the appeal accompanied

by supporting documents and fees for appeal. The following information is to be provided while

submitting the appeal -

S.No	Specific issue/s submitted in Review	Supporting documents submitted in Review	Decision of Review Committee	Additional/ new issues submitted in Appeal now	New supporting documents added now
1	--	--	--	--	--

The following procedure is applicable:

- I. Formation of 3-member Appeals committee by NABET, chaired by a member of NABET Board and comprising one more member from NABET Board and one subject specialist.
- II. The Appeals committee proposed is approved by the Chairman, NABET Board.
- III. The documents received from the appellant are submitted to the members of the Appeals committee by NABET secretariat.
- IV. Process of hearing by the committee - the committee fixes a date for the hearing which is intimated to the appellant by NABET secretariat. A reasonable notice period is given for the appellant to appear in the hearing. The committee gives due opportunity to the appellant and the NABET secretariat to present their cases. The committee gives its decision after hearing both the sides and based on deliberation within it.
- V. The decision of the Appeals committee is intimated to the appellant by NABET secretariat.

Each request for appeal must be accompanied with an ECS/ Demand Draft of Rs. 25,000/ plus Services Tax and other relevant cess as applicable, payable in favour of "Quality Council of India" to partially offset the cost of hearing of such appeals vide

### 5.6 Arbitration

An AO/ ACO may apply for Arbitration if is not satisfied with the decisions from 'Review of decision' and 'Appeal'. The Arbitrator is fixed by the Secretary General, Quality Council of India. The arbitration takes place as per the provisions of the Arbitration Act of India, with Delhi jurisdiction.

### 5.7 Fee Structure:

Terms and conditions of Payment of Fee is as given:

1. The fees are to be paid online on NABET web portal/NEFT/RTGS/IMPS/ in favour of "Quality Council of India".
2. Annual accreditation fee shall be paid every year.
3. No SA, RA, issuance of certificate etc. if dues are pending.
4. The fees paid are not refundable.
5. GST- as applicable.
6. If dues not paid for 60 days then name of the Accredited Consultant Organization (ACO) may be removed from list of Accredited Consultant Organization (ACO) without prior information.

7. For details of fee structure please refer **Appendix D**
8. The AO/ ACO shall pay application fees for accreditation, re-accreditation; expenses towards travel, boarding & lodging for any kind of assessment including supplementary visit, surveillance, desktop surveillance, re-assessment and annual accreditation fees as determined by NABET.
9. All invoices will be generated online and payments to be made online through payment gateway on the web Portal of the scheme. In case any invoice raised by NABET manually, should be paid within one month of date of dispatch/ mailing of the invoices. Timely payment of dues to NABET by the AO/ACO is crucial to the Scheme. Processes of IA, SA and RA can proceed to the next stage only if all pending bills to NABET are cleared by the AO/ACO. Failure to pay the applicable dues by the deadline given in invoices may result in delisting from the list of Accredited Consultant Organizations. This may be followed by cancellation of accreditation if the dues remain unpaid upto 6 months (180 days).

#### **5.8 Governance**

QCI-NABET reserves the rights with respect to accreditation scheme for CO(s). QCI-NABET will have following functions (but not limited to):

- a. Changing/ modifying the criteria/ guidelines/ fee structure
- b. Suspension/cancelling of accreditation in case of violation of any clause of the Scheme
- c. Surprise visits/ extra office assessments

#### **5.9 Confidentiality**

- a. All information, documents submitted by an applicant to NABET shall be used by NABET (including NABET Assessors and Members of Accreditation Committee) for the purpose of assessment & accreditation only. These may also be used for research purpose or sharing with any ministry, APLAC and other members of the International Personnel Certification Association. However, the identity of the accredited CO would be protected for sensitive information related to business whenever it is called for/ appropriate. In case a CO wants the information to be kept confidential, a communication shall be sent to NABET citing reasons for the same. NABET reserves the right to take decision in this regard.
- b. ACO shall have adequate arrangements consistent with applicable laws to safeguard confidentiality of all information provided by stakeholders. These arrangements shall be extended to include organizations or individuals acting on its behalf and as its representatives.
- c. The accredited CO should maintain confidentiality of their client's related information like location, products, processes, vendors, feedback form, personal details etc.

#### **5.10 Use of QCI/NABET Logo**

NABET logo can be used by accredited CO and is restricted only to the promotional material and stationery saying CO is accredited by NABET for consultancy only.

NABET logo can be used by ACO only at following places:

- On promotional material stating that the CO is accredited by NABET
- On letterhead and visiting cards mentioning that, the CO is accredited by NABET for the scope specific consultancy.
- ACO should ensure that NABET logo should not be used until accredited by NABET for specific scope.
- On suspension, withdrawal, after expiry of accreditation validity, earlier accredited CO must not use NABET logo. It may attract legal implications.

## **A. QUALIFICATION, EXPERIENCE & FUNCTION OF EXPERTS**

Experts involved in the Hydrogeological Reports preparation comprise Project Coordinator (PC) and Technical Area Experts (TAE). They may be helped by team members. The qualification and experience requirements of the experts and roles envisaged for them are detailed below-

### **A 1. Project coordinator (PC)**

#### **A 1.1 Minimum educational qualifications**

- a. Master's (post-graduate) degree in Science/Technology or equivalent in either subject- Hydrogeology, Geology/ Applied Geology, Geophysics, Water Resources Management from a UGC/AICTE recognized University/ Institution or equivalent.
- b. Desirable: PhD in relevant subject.
- c. BTech/ MTech degree or equivalent or higher in technical subjects such as Civil, Mining, Water Resource Engineering, Hydrology and the like from a UGC /AICTE recognized University/ Institution or equivalent.

In exceptional cases, the Accreditation Committee may waive off the minimum educational qualification for a Project Coordinator based on the report and recommendation of the assessors recording the rationale for the same.

#### **A 1.2 Experience of PROJECT COORDINATOR**

- a. In case of PhD/ Master's or MTech degree holder, minimum of 7/ 10 years of overall work experience respectively, after the completion of above-mentioned qualifying degrees, related to Hydrogeological studies/ report preparation.
- b. Officers retired/served for minimum **10** years in Central/ State Ground Water Organizations/ Research Institutes/ universities/ IIT as Hydrogeologist, Hydrologist, Geologist, Geophysicist, will be considered to fulfil the minimum experience.

#### **A 1.3 Hydrogeological Report Preparation Specific experience:**

Project Coordinator (PC) must have Hydrogeological Report Preparation Specific experience as follows:

- i. Prepared at least 3 Hydrogeological Report Preparation, or
- ii. Monitoring of 3 Hydrogeological Report (monitoring, auditing, performance evaluation etc.), which should involve spending a total of at least one month's time in an industry.  
or
- iii. A total of three in combination of (i) and (ii).

#### **A 1.4 Expected functions of Project coordinators (PC):**

The Project coordinator should be thoroughly aware of national and global Ground Water situation and be familiar with all relevant regulations, the CGWA Notification and its Amendments. S/he must have a clear concept and thorough knowledge of hydrogeological

studies, Ground Water and NOC process in the country. S/he should share this information with other team members.

The expected functions of Project Coordinator are as follows;

- a) Complete understanding about the project specification
- b) Having an understanding of the Ground Water settings in respect of topography, hydrology streams, Geology, Hydrogeology, land use etc., based on spatial data
- c) Develop broad scoping of the project taking into consideration site specific requirements
- d) Framing the methodology to be followed for preparing the Hydrogeological report on award of job.
- e) Meeting the project proponent, preferably with key TAEs, for an in-depth understanding of the activities.
- f) Explaining to the client the local Ground Water situation.
- g) Visiting the site for appropriate duration for the selection of sampling locations and deciding the type of samples in consultation with the TAEs.
- h) Collating and reviewing the reports of the TAEs which must include analysis and interpretation of data.
- i) Developing the draft Hydrogeological Report and circulating the same amongst team members for final feedback and ensuring completeness of the report.
- j) Sending the draft Hydrogeological report to the project proponent for comments.
- k) Must be acquainted with latest state and national policies, Guidelines/Rules/legislation, Act and Amendments related to water regime and relevant areas.

## **A 2.0 Technical area experts**

### **A 2.1 Minimum educational qualifications (General)**

- a. Master's (post-graduate) degree in Science/Technology or equivalent in either subject-Hydrogeology, Geology/ Applied Geology, Geophysics, Hydrology, Water Resources Management from a UGC/AICTE recognized University/ Institution or equivalent.
- b. Desirable: PhD in relevant subject.
- c. BTech/ MTech degree or equivalent degree or higher in technical subjects such as Civil, Mining, Water Resource Engineering, Hydrology and the like from a UGC /AICTE recognized University/ Institution or equivalent.

In exceptional cases the Accreditation Committee may waive off the minimum educational qualification for a TAE based on the report and recommendation of assessors recording the rationale for the same.

### **A 2.2 Minimum experience (general)**

- a. In case of PhD and Master's/ MTech degree holder, minimum of 3 and 5 years of overall work experience respectively, after the completion of above-mentioned qualifying degrees, related to Hydrogeological studies/ report preparation.

- b. Minimum 5 years overall work experience after the completion of BTech or equivalent qualifying degrees, related to Hydrogeological studies/ report preparation.
- c. In case of PhD in relevant field duration of PhD may be considered as relevant experience.
- d. Officers retired/served for minimum 5 years in Central/ State Ground Water Organizations/ Research Institutes/ universities/ IIT as Hydrogeologist, Hydrologist, Geologist, Geophysicist, will be considered to fulfil the minimum experience.

Training Preferable: Specialized course/training in Ground Water management and related concepts.

## **A 2.3 TAE Educational Qualification & Experience Specific to Technical/ Functional Area**

### **A 2.3.1 Hydrogeologist/ Hydrologist/ Geologist:**

#### **a. Educational qualifications specific to functional area**

- i. Master's (post-graduate) degree in Science/Technology or equivalent in either subject- Hydrogeology, Geology/ Applied Geology, Hydrology, Water Resources Management from a UGC/AICTE recognized University/ Institution or equivalent.
- ii. Desirable: PhD in relevant subject.

#### **b. Experience specific to functional area must include**

- i. Analysis of surface hydrological data pertaining to ground water, flow fluctuation, estimation of flows; setting up and interpretation of gauging station readings, designing of ground water table measurement and monitoring network, computation of ground water recharge, flow rate and direction.
- ii. Plotting of ground water contours.
- iii. Subsurface 3D modelling.
- iv. Analysis and description of aquifer characteristics e.g. permeability, transmissivity, storage coefficient etc., estimation of groundwater potential and recharge phenomenon, determination of impact of withdrawal of groundwater.
- v. Preparation of water budget for an area.
- vi. Geology and Geo morphological analysis/description/ Stratigraphy/Lithology.
- vii. Developing geohydrological maps.
- viii. Must be acquainted with state and national policies. latest state and national policies, Guidelines/Rules/legislation, Act and Amendments related to water regime and relevant areas.
- ix. It is also expected that the expert has the following knowledge /experience:
  - Contribution to Hydrogeological report documentation.
  - Understanding of policies, guidelines and the legislation related to ground water

### **A 2.3.2 Geophysicist:**

#### **a. Educational qualifications specific to functional area**

- i. Master's (post-graduate) degree in Geophysics/ Applied Geophysics/ Applied Geology from a UGC/AICTE recognized University/ Institution or equivalent.
- ii. Desirable: PhD in relevant subject.

**b. Experience specific to functional area must include**

- i. Geophysical methods comprise of measurement of signals from natural or induced phenomena of physical properties of sub surface formation. Various physical properties that are made use of in different geophysical techniques are electrical conductivity, magnetic susceptibility, density, elasticity & radioactivity etc.
- ii. Plotting of ground water contours.
- iii. observe the reaction of recording equipment to detect irregularities
- iv. use computers for data management, quality control and communication between the office and field locations
- v. Planning and execution of Geophysical Surveys including special studies using suitable geophysical technique and equipment.
- vi. Carry out Vertical electrical sounding, Magnetic / EM profiling and Borehole logging for ground water.
- vii. Interpretation of the data, synthesis of results and preparation of reports.
- viii. Maintenance and updating of Geophysical records.
- ix. Proper transportation and maintenance of equipment's.
- x. It is also expected that the expert has the following knowledge /experience:
  - Contribution to Hydrogeological report documentation.
  - Must be acquainted with state and national policies. latest state and national policies, Guidelines/Rules/legislation, Act and Amendments related to water regime and relevant areas.

**A 2.3.3 Remote sensing & GIS expert:**

**a. Educational qualifications specific to functional area**

- i. Master's (post-graduate) degree in Science/Technology or equivalent in either subject- Geology/ Applied Geology/ Geo-informatics/ Water Resources Management from a UGC/AICTE recognized University/ Institution or equivalent.
- ii. Desirable: PhD in relevant subject.

**b. Experience specific to functional area must include**

- i. Sound knowledge of GIS and Remote Sensing software's like ArcGIS, QGIS, Erdas etc.
- ii. Experience on Advance / Specialized GIS tools like Spatial Analyst, 3D Analyst, Subsurface Analyst, LIDAR, Network Analyst, like Spatial Analyst, Overlay Analysis etc.
- iii. Experience in GIS database management.
- iv. Plotting of ground water contours.
- v. Preparation of water budget for an area.
- vi. Hydrogeomorphological analysis/ Stratigraphy/Lithology etc.
- vii. Must be acquainted with state and national policies latest state and national policies, Guidelines/Rules/legislation, Act and Amendments related to water regime and relevant areas.
- viii. Developing geological maps.
- ix. It is also expected that the expert has the following knowledge /experience:
  - Contribution to Hydrogeological report documentation.

- Understanding of policies, guidelines and the legislation related to ground water.

#### **A 2.3.4 Water Quality Expert (WQ):**

- a. Educational qualifications specific to functional area**
  - i. MSc in Chemistry/ MTech in Environment or Equivalent.
  - ii. Desirable: PhD in relevant subject.
- b. Experience specific to functional area must include**
  - i. Designing sampling network for water quality
  - ii. Understanding of rock-water interaction, geogenic and anthropogenic pollution. Point and non-point pollution.
  - iii. Techniques and requirements of sampling of water.
  - iv. Supervision/monitoring of water samples.
  - v. Mapping and Modelling w.r.t. various water quality parameters like TDS, EC, pH, Hardness, Turbidity, Iron, Potassium etc and other Trace Elements.
  - vi. Knowledge of preparation of Piper and Durov Diagrams, Gibbs Plot etc
- c. Water conservation, prevention and control of pollution**
  - i. Developing schemes for cascading use (recycle, reuse) of water
  - ii. Identification, characterization and segregation of effluent streams
  - iii. Knowledge/experience on design consideration of various types of treatment systems
  - iv. Identification of probable impacts of effluent/waste water discharges in to the receiving environment/water bodies.
  - v. Water quality modelling for prediction of impacts.
  - vi. Understanding of policies, guidelines and legislations related to Water Pollution.
  - vii. Must be acquainted with latest state and national policies, Guidelines/Rules/legislation, Act and Amendments related to water regime and relevant areas.

#### **A 3.0 Team Member (TM)**

To encourage the entry of fresh graduates/post graduates (as applicable), they would be permitted to work as team member for three years under the guidance of an approved TAE.

The objective is to encourage young and fresh candidates with no experience or up to 3 years of professional experience after acquiring minimum qualification as required in the Scheme.

In order to ensure proper guidance and training to the team member, an approved TAE is permitted to guide maximum two team members at a time. After five years' experience and assessments, a team member may be considered for approval as independent TAE.

#### **A 3.1 Procedure to be followed to work as Team Member (TM)**

- a. Information for associating a TM is to be submitted to NABET in a prescribed Format *vide Annexure I D* with following details:
  - i. Declaration by the CEO/ authorized signatory of the AO/ ACO confirming the involvement of the team member in the project, name of approved Project Coordinator (PC)/ TAE with whom s/he is attached and the duration of involvement
  - ii. Specific nature of work in which the TM will be involved with the Project Coordinator (PC)/ TAE.

- b. List of the persons being used as TM must accompany the application giving the name of the Project Coordinator (PC)/ TAE with whom the TM is attached.

### **A 3.2 Role and functions of team member**

The team member is expected to support and get involved both in field work, Secondary data collection as well as in the discussions amongst the Project Coordinator (PC)/ TAE during the entire course of the Hydrogeological Report preparation.



## QUALITY MANAGEMENT SYSTEM

Ground water Consultants are advised to establish and maintain a Quality Management System (QMS) for their organization as the same offers the following benefits;

- Creates a culture of doing things right, the very first time.
- Inculcates the culture of “**saying, what we do and doing, what we say**”
- Increases system orientation and reduces person specific dependence.
- Encourages uniform knowledge sharing and develops skilled work force.
- Helps develop team spirit
- Reduces duplicate work and minimizes wastages.
- Improves quality of work and brand image.

QMS should be based on ISO 9001 while addressing specific requirements of NABET Scheme. Please note that if an organization is already ISO 9001 certified, guidelines B1 to B4 and B11 are normally addressed (which may please be checked). It is then required to develop procedures for the NABET specific items i.e., B4 to B10 and integrate them with the system meaning that these should also come under the ambit of auditing, document control, management review etc.

If an organization has not been initiated into the system-oriented approach of working which is documented, audited and reviewed, it needs to acquaint itself of ISO 9001 requirements. Such organizations may initially take the help of a consultant but MUST NOT OUTSOURCE THE WORK OF ESTABLISHING THE QMS to him to meet the requirements of the NABET Scheme. Such an approach will be counterproductive as the system so developed is less likely to be owned by the working team and would remain a standalone document. THE BEST WAY IS TO GET THE GUIDANCE OF A CONSULTANT BUT LET THE WORKING TEAM ESTABLISH THE SYSTEM.

A QMS is supported by a 3-tier documentation system

- The Quality Management System manual
- Procedures
- Work instructions/forms/formats/checklists to implement the procedures

Some organizations have included ‘Reference materials’ to their documentation system. Further explanation is given in B 2 below.

Guidelines given in **Appendix B** for various elements of the QMS and the explanation thereof are given below –

## **Guidelines for developing the QMS –**

**B1. Quality policy** shall be defined to address at least following:

- a. Be appropriate to the Organization's purpose & context, and support its strategic direction
- b. Includes commitment for, continual improvement and satisfy applicable requirements
- c. Provide a framework for setting objectives and a review mechanism
- d. Be communicated and understood within the Organization
- e. Focus on customer satisfaction

**B2. Leadership and Planning Support & Operation- Shall give procedures for planning, operations & support for defined QMS including role and accountability of Top management.**

- a. Accountability for Effective design and implementation of QMS is defined
- b. Use of process approach and risk-based thinking is evident
- c. System for effective communication is defined and implemented
- d. Risk Management process is established, that is linked to organizations context
- e. Interested parties for organization's QMS are identified and their inputs are captured to improve QMS
- f. System for change management is defined and implemented
- g. Shall determine, provide and maintain the infrastructure necessary for its operation and processes.
- h. Shall plan implement and control the processes needed to meet the requirements as per defined QMS

**B 3. Control of documented information** shall give procedures for:

- a. Uniquely identifying documents and records
- b. Approving documents prior to issue
- c. Distribution, access, retrieval and use
- d. Control of changes
- e. Reviewing and updating of documents, as required
- f. Retention and Disposition
- g. Ensuring quick availability of relevant revision of the document
- h. Storage, protection and retrieval of documented information and handling of outdated/superseded documents

**B 4. Performance Evaluation and Review** shall give procedures for:

- a. Fixing Key Performance Indicators (KPI) of experts involved and annual appraisal of the same
- b. Assessing / ensuring the quality of hydrogeological reports prepared
- c. Periodic and systematic audit, both internal and external and follow up action for closure of Non-conformances (NCs)/ observations.
- d. Management review giving periodicity and issues to be taken up including feedback from project proponent on quality of hydrogeological reports prepared and necessary follow up action.

**B 5. Actions taken to address Non- conformances–** shall give procedures for:

- a. Analysing the NCs of internal audits as well as external audits including NABET to identify the causes and the actions to be taken,
- b. Identifying resources and other inputs required for such actions,
- c. Fixing the time frame and the responsibility for the actions,
- d. Ensuring the completion of the actions to be taken,
- e. Review the effectiveness of corrective actions taken
- f. Review risks, opportunities and overall QMS if required

**B 6. Competence management of staff, experts and other persons related to scope of QMS–** shall give procedures for:

- a. Define and provide the necessary persons needed for effective implementation of QMS
- b. Define the necessary competence (Education, experience and skills) for staff, experts and other persons whether in house or contractual, impacting the QMS of the organization,
- c. Assessing the work done by the prospective experts prior to their retention
- d. Framing the “terms of reference” for retention of the expert, including preparation of the report for her/his portion of the work,
- e. Assessing performance of the work done by the experts for the organization,
- f. Wherever applicable, take appropriate actions to acquire necessary competence and evaluate the effectiveness of actions taken
- g. Maintain appropriate documented information as evidence of competence.

**B 7. Collection and measurement of primary data**

‘Primary’ data will cover all forms of data collected through the field work, for assessing the hydrogeology of project area. The procedures for collecting primary data should include:

- a. Site visits by the GROUND WATER team to familiarize about site conditions to plan for the GROUND WATER Selecting the number and location of monitoring stations and the type of sampling and parameters to be monitored
- b. Interpretation of data including statistical analysis to arrive at meaningful information
- c. Specifying as appropriate for the scope of GROUND WATER methodologies to be followed and interpretation of the same.

**B 8. Collation, synthesis and interpretation of secondary data –**

Authenticity, credibility, appropriateness and relevance of the secondary data are the cornerstones of a good hydrogeological report. Secondary data shall be used to supplement the primary data and under no circumstances this shall be used as a replacement of primary data. This procedure should include information on:

- a. When secondary data would be resorted to
- b. Relevant secondary data to be collected as appropriate for hydro study requirements
- c. Sources of secondary data ensuring their reliability and age
- d. Validation of important secondary data by cross verification at the site or from other sources
- e. Ensuring the brevity of the data (eliminating irrelevant information)

It is a good practice to give reference to the source when secondary data is used.

**B 9. Control of externally provided process, products and services**

Organization shall give procedure to apply necessary controls for the externally provided processes, products and services.

The manual should mention procedures for:

- a. Defining the conditions when outsourcing would be resorted to
- b. Assessing the capability of the agency to take up the work to be outsourced
- c. Drawing up the terms of reference for the outsourced work
- d. Identifying steps to be taken to ensure the quality of the outsourced work
- e. Timely review, monitor and control on outsourced services as per defined QMS

**B 10. Laboratory work for water quality data – should give procedures for:**

- a. Assessing a laboratory for its capability to analyze the parameters required for collection of surface and sub surface water quality data and studies
- b. Identifying the scope of work to be assigned to the lab and those to be done by the GROUND WATER Consultant Organization
- c. Collection, preservation and transportation of samples from site to the laboratory
- d. Quality assurance by the team of the primary data collection work including supervision at site
- e. Type of records to be maintained by the laboratory and the team on the baseline data collection work

**B 11. Customer satisfaction & Complaints– shall give procedures for**

- a. Monitor customers perceptions of the degree to which their needs and expectations are fulfilled.
- b. Informing the clients about the provision of complaints
- c. Accepting complaints
- d. Handling and disposal (including authority and responsibility) of the same within reasonable time
- e. Maintaining records of complaints
- f. Ensuring implementation of correction and corrective actions

## Process for Initial Accreditation, Surveillance Assessment and Re-Accreditation

### C 1.0 Accreditation cycle

In a 3 years cycle of accreditation 3 types of assessments are carried out. These are:

**Initial Accreditation (IA):** In the IA, the potential of the applicant organization is assessed and based on that accreditation is granted. On successful completion of the initial assessment, an applicant organization is given accreditation for 3 years, subject to a surveillance assessment after 18 months. Details of IA are furnished below.

**Surveillance Assessment (SA):** SA is to assess performance after IA for continuation of accreditation. The objective is to judge to what extent the potential has been fulfilled i.e. its performance along with compliance to the conditions of accreditation. SA falls due 18 months after IA. Details of SA are furnished below.

**Re-accreditation (RA):** Following the principle of 'continual improvement', in RA the stress is on improvement achieved by the ACO during the period of accreditation. Since, the ultimate objective of the Scheme is to prepare credible Hydrogeological reports, RA accords progressively higher weightage to the same. RA comes 18 months after SA i.e., on completion of 3 years after IA. Details of RA are furnished below.

### C 2.0 Assessment Process

All the 3 types of accreditation mentioned above have the following 3 stages;

- i. **Stage I assessment:** scrutiny for completeness of applications and supporting documents by NABET secretariat
- ii. **Stage II assessment:** technical review of the documents is done by NABET assessor called the principal assessor (PA).
- iii. **Stage III assessment:** the office assessment is jointly conducted by PA and a co-assessor (CA) at the premises of the applicant.

These are explained in detail in following sections:

#### C 2.1. Stage I Assessment: Scrutiny for completeness of applications and support documents by NABET secretariat

Applications submitted by an Applicant Organization (AO) on the web portal must be complete in all respects including uploading of the supporting documents as mentioned in the checklist in **Annexure 1** of the Scheme. The main points to be kept in mind by the AO/ACOs are -

- a. Ensure that proposed candidates meet the requirements of the Scheme both in respect of qualification and experience for all Project Coordinator, TAEs, TMs.

- b. An expert may be proposed both as a Project Coordinator and TAE, provided s/he meets this Scheme's requirements.
- c. Any organization to be accredited must have one approved in-house PROJECT COORDINATOR (HGL/ GL/) one in-house TAE (HGL/ GL) and one In-house/ empanelled TAE (GP). The other TAE may be inhouse or empanelled. The organisation must cover remaining Technical Areas (TAs).
- d. CVs of experts must be submitted in Formats given in **Annexure 2**, as applicable. AOs/ACO are advised to provide specific experience separately for each functional/ technical area. An incomplete CV can delay the processing of the application or may also result in non-approval of candidate.
- e. Empanelled candidates must submit MoU, Declaration (**Annexure 3**), and NOC, where applicable, as per requirements of the Scheme
- f. Application must include proposal for eligible candidates to cover functional/ technical areas as per requirements of the Scheme.
- g. The QMS should address the procedures mentioned in **Appendix B** of this Scheme. The application must be accompanied by the QMS Manual of the organization.
- h. The consultant organization must have an arrangement with a NABL accredited and/or MOEF recognized laboratory to be used for environmental base line data generation. It can be an in-house or external laboratory. For NABL accredited laboratories, the certificate and scope of accreditation and for MOEF recognized laboratories copy of the application must be submitted.
- i. In case of applications from Universities and Research Institutes, their in-house laboratory may be considered. Such laboratories should be equipped with necessary equipment and instruments to carry out analyses of parameters required and have proper systems and staff for the same. These are visited by NABET assessors and based on their report a decision is taken by the accreditation committee.
- j. For external laboratory, a copy of the MoU between the AO/ACO and the laboratory must be submitted with the application for accreditation indicating clearly the duration and scope along with other relevant details (see section C 7.0).
- k. Candidates seeking approval as Project Coordinator, TAE and TM based on her/his experience must submit relevant documents in support as specified in Scheme.
- l. Check lists of documents to be submitted with the application are given in **Annexure 1, 1A and 1B** for IA, SA and RA respectively.

### **C 2.2. Stage II – Technical review of documents by NABET assessor**

Once the application is checked for its completeness by the NABET secretariat, the technical contents of the documents are assessed by the principal assessor for conformity with the Scheme. After the evaluation, NABET informs the AO of the non-conformances (NC) and/or observations, if any, in the specific format. The closure actions submitted by the AO/ACO are assessed for completeness by the principal assessor. Candidates not fulfilling the requirements of Scheme in Stage II in terms of qualification and experience are not eligible for Stage III assessment.

For NABET to proceed further to stage III assessment, the following must necessarily be available in the application:

- a. Eligible in-house and empanelled Project coordinator (PC).
- b. Proposed TAEs must meet the qualification and experience requirements the Scheme.
- c. Experience details of all proposed candidates as per prescribed formats.
- d. Completed QMS manual and laboratory details as per requirements of Scheme

**Note:**

An assessment fee is charged for the documentation review, as per details in **Appendix D**. In case the verification of the closure action proposed/submitted needs assessment of more than two proposed TAEs or one proposed Project Coordinator, additional fee is applicable.

**C 2.3 Office assessment by NABET assessors**

- a. After the successful closure of NCs and observations as mentioned above by the AO, NABET undertakes at least one full office assessment by a team of two or more Assessors. This includes interactions with the experts, verification of compliance to systems and procedures submitted with the application, field investigation practices, records, laboratory and office/support structure and the reports prepared by the AO
- b. Members of AC, TC, new assessors and NABET secretariat may also visit AO/ACO premises as observers, at NABET's cost, in case need arises.
- c. During the Stage III assessment all in-house and empanelled Project coordinator, TAEs and team members proposed and fulfilling the requirements of the Scheme, interact with NABET assessors. Interaction may also become necessary with laboratory staff and personnel associated with QMS.
- d. NABET informs the AO/ACO, at least 10 days in advance, the date of the office assessment. Sometimes, office assessment may have to be conducted with a notice of less than 10 days, if it is feasible for AO/ACO.
- e. To keep the schedule of assessments, it is not possible to accept any postponement of assessment dates unless some extra-ordinary situation at the applicants' end which cannot be avoided.
- f. If any candidate proposed for Project Coordinator and/or TAE is not available during the office assessment without formal intimation to NABET, his/her name respectively are not considered for approval. If leave of absence is sought from NABET in advance, such candidates may appear for interaction at a later date to be communicated by NABET.
- g. During the interaction with experts, relevant documentary evidences of educational qualifications and experience are examined by the assessors. Hence, such documents should be kept readily available. The work experience may not be considered, if the candidates are unable to produce documentary evidence in support of their claim of experience.
- h. In case the organization has offices at multiple locations, it must be clearly mentioned in the application giving address, location, services, staff etc. A partial assessment of a few selected locations may be conducted by NABET. The choice of locations is at the discretion of the NABET assessment team.
- i. A NABET assessors may inspect the laboratory or an on-going base line data collection work, if required.

- j. During the office assessment many documentary evidences are put up by the applicant in original. Also, certain clarifications/additional information are sought by the assessors from the applicant. All such documents in soft format (scanned copies, if applicable) must be submitted to NABET by the applicant within one week of the stage III assessment.
- k. Non-conformance and observations may be raised by the assessors after the assessment or later, which are communicated to the AO/ACO by NABET. Closure actions on such NCs/Obs. must be sent to NABET by the AO within two weeks of the communication.

On receipt of closure of NCs/Obs. from the AO and clarifications/additional information from the assessors, if any, the case is put up to the accreditation committee for its review and decision.

### **C 3.0 Assessment process - Initial Accreditation (IA)**

This is the first step of approval in the accreditation cycle. There are five key requirements for accreditation. The assessment criteria for these are elaborated in section C 3.1 to 3.5.

#### **C 3.1. Human Resource**

The candidates meeting the qualification and experience requirements specified in the Scheme are assessed by the principal and co-assessors broadly on following aspects -

**a. Project Coordinators**– must have

- i. clarity on concept of Hydrogeological Report preparation, role of a Project Coordinator and knowledge of relevant legislations, policies, practices and guidelines
- ii. ability to plan and coordinate with the team to achieve the best results

**b. Technical area experts** – must have:

- i. knowledge of the functional/ technical area/s applicable in Hydrogeological Report

**c. Team members**

They are met by the assessors during office assessment to assess their suitability for the role proposed, but not given any marks.

**Note:** Documentary evidences in support of work experience claimed would help assessment process.

#### **C 3.2 Field investigations and laboratory systems**

To ensure data integrity, this section covers assessment of the following:

- a. Collection, quality assurance and interpretation of primary data for Hydrogeological Report preparation.
- b. Collation, synthesis and interpretation of secondary data if any.



### **C 3.2.1 Field investigation for primary data**

Assessment for this section covers the following for quality assurance:

- i. verification of the scope of accreditation/recognition of the lab which should include water, waste water and soil test for Hydrogeological Report study.
- ii. methodology for collection of primary data of physical environment including involvement of PCs and TAEs in selection of sampling locations, type of samples, parameters to be tested quality assurance of data collected, preservation and transportation of samples and interpretation of the data for use in Hydrogeological Report preparation
- iii. methodology for collection of primary data, field equipment used, maintenance of field log book, quality assurance of data for seasonality, timing and duration of investigation identification of species; laboratory testing of field samples where applicable; interpretation of data in respect of Hydrogeological report preparation).

### **C 3.2.2 Collation, synthesis and interpretation of secondary data**

- i. methodology for identification of sources,
- ii. ground validation and
- iii. interpretation of data

### **C 3.3 Quality management system (QMS)**

Since the use of QMS in developing Hydrogeological Reports is a comparatively recent approach, the emphasis is on the content and coverage of the systems and procedures developed and understanding of the same in the organization.

Assessment includes verifying whether all the requirements of **Appendix B** of the Scheme have been covered by documented procedures backed by forms/formats/check lists for implementation of the same; the quality of the content of the procedures developed; understanding of the system including organizational awareness of the QMS and action plan/status of implementation.

### **C 3.4 Quality of Hydrogeological Reports –**

In IA the Hydrogeological Reports/ assignments are examined for assessment of the quality of Hydrogeological Reports prepared by an applicant organization prior to getting accredited as a baseline reference.

- a. Primary data collection (sampling location, preservation, analysis)
- b. Secondary data (reference, relevance, authenticity, period, ground validation).
- i. Interpretation of data for Hydrogeological Assessment for the project.
- ii. Duly signed declaration of experts' involvement in Hydrogeological Reports preparation.

For a fresh applicant organization which has not carried out any Hydrogeological Reports preparation, this section is not applicable.

### C 3.5 Organizational commitment –

The following requirements aim to ensure the commitment from the accredited consultants towards continual improvement

#### a. Capacity building

- i. System of assessing performance of experts,
- ii. Identification of training needs and
- iii. Providing necessary training for enhancement of skill and competence to deliver quality Hydrogeological Reports.

#### b. Commitments towards quality of Hydrogeological Reports

- i. Preparation of clear activity chart (with milestones) from start to completion for the Hydrogeological Report projects;
- ii. Meeting/s with project proponent and feasibility report/detailed project report (FR/DPR) consultants to ensure better coordination for the Hydrogeological Reports project and recording the same;

#### c. Facilities –

- i. Use of appropriate tools and software for impact assessment
- ii. Provision of computing and internet and video conferencing facilities,
- iii. Library, documentation centre

### C 3.6 Weightage of Marks

The weightage of marks for various aspects of assessment are given below:

Sl. No	Aspects	Marks allotted (IA)	Focus in assessment
1	Quality and performance of personnel a. Project coordinator (PC) b. TAEs	25 20	Education Qualification and Experience
2	Infrastructure and Software & Hardware	15	Adequacy of facilities
3	Field investigations and laboratory systems to ensure data integrity	20	NABL accreditation validity and parameters covered
4	Hydrogeological Reports	-	Quality of report

5	Quality management system	15	Process, procedures and implementation
6	Organizational commitment/ Compliance to condition of accreditation	5	Compliance and commitment
	<b>Total</b>	<b>100</b>	

**NOTE:**

- An AO must score a minimum of 40% in each aspect of assessment (S. No 1 to 6 of the table) for being considered for accreditation.
- For a candidate to get approved as PC & TAE, s/he must score minimum of 40%.
- For team member only approval will be granted.

**C 3.7 Accreditation of organization**

**Ground Water consultant organization Scoring  $\geq$  40% overall in Stage III assessment will get the accreditation.**

**C 3.8 Conditions to be fulfilled for initial accreditation**

- In case the short fall concerns the QMS the AO is given 15 days' time to improve the QMS to meet the requirements of the Scheme
- NABET conducts one a day assessment at the premises of the AO within 3 months to find out level of understanding of the QMS in the organization and the action plan for implementation.

**C 3.9 Submission of complete application (Online)**

An AO is required to submit a complete application meeting requirement of the Scheme. In case the application is incomplete, the AO is informed by NABET of the aspects in which the same is incomplete. The AO is required to submit all details to make the application complete as early as possible for further processing of application. If the application remains incomplete even after six months from the date of initial application, it is treated as closed and the AO needs to submit a fresh application with requisite fees, should it wish to be considered for accreditation under the Scheme.

**C 3.10 Self-assessment checklist**

It is important that the application submitted by an applicant organization is complete in all respects, which would facilitate quick processing of the same. Also, it helps the organization in facing office assessment by NABET assessors if it is well prepared for the same. To help the consultant organizations on the above, self-assessment formats have been developed both for

completeness of application and for preparedness for assessment by NABET for IA, SA and RA and are given in **Annexure 6**.

#### **C 4.0 Assessment process - Surveillance Assessment (SA)**

Surveillance assessment (SA) falls due after 18 months of initial accreditation (which is effective from the date of office assessment for initial accreditation). Application for SA in prescribed format, accessible from QCI/NABET website, is required to be submitted to NABET at least 3 months before the due date i.e. 15 months after IA. The application must be complete with all relevant documents which include a list of HYDROGEOLOGICAL REPORTs prepared after IA, list of experts involved in the Hydrogeological reports preparation, copy of the QMS manual, details about laboratory arrangements, etc. A checklist of the documents to be submitted is given at **Annexure 1 A**.

SA cannot proceed in the following cases

- ii. Non-submission of satisfactory response to NC/ Obs. of initial accreditation
- iii. NABL accredited labs and/ or MoEFCC recognized have not been used after IA (provisions of section 2.1 i are applicable for universities and research institutes)
- iv. Non-compliance to conditions of accreditation and non-payment of pending dues
- v. Non-fulfilment of requirements of technical areas
- vi. Non-fulfilment of requirements of PC (GW) and TAEs

**Note:**

- i. In the event, an approved expert has left the ACO three months prior to the date of application for SA, an ACO can put up a proposal for approval of an alternative eligible In-house/emp.
- ii. In event of resignation of any of the approved PC/TAE, earlier than 3 months prior to the date of application of SA, replacement to be proposed by the ACO within defined timeline.

There are five key requirements in SA for continuation of accreditation. These are detailed in C 4.1 to C 4.5.

#### **C 4.1 Performance of approved experts**

The PC(GW) and TAEs experts approved in the SA are assessed by the principal and co-assessors on the following aspects -

**a. Project coordinator (PC) must have**

- i. Site familiarity through visit to the site to plan for Hydrogeological Reports
- ii. Updation in knowledge about regulations & development in Ground Water field.

**b. Technical area experts must have**

- i. Visited the site for familiarization and involvement in selection of sampling locations, collection and supervision of sampling for primary data
- ii. Made contribution to Hydrogeological Reports.

**Note:**

- a. Documentary evidences in support of work carried out during period under SA must be available for PC (GW)/TAEs
- b. In case an approved expert was not involved in any Hydrogeological Report for the period after IA and up to SA, s/he may be allowed to 'continue by default' for functional/ technical area as per recommendation of Assessors.

**C 4.2 Field investigations and laboratory systems**

Implementation of the methodologies developed in the initial accreditation process is assessed in respect of the following:

**a. Physical aspects –**

- i. involvement of PC(GW) and TAEs in sampling protocols,
- ii. quality assurance of data in collection, preservation and transportation of samples
- iii. interpretation of the data for use in preparation of Hydrogeological Reports.
- iv. **information relevant to the baseline data including name, address of laboratory, analysts, type of sample; duration/dates of analysis, method of analysis; no of samples analysed.**
- v. **the analysis report must be signed by the analyst and the head of the lab.**

**C 4.3 Quality management system**

This includes compliance to the various procedures developed during the initial accreditation process in the Quality manual of the ACO.

Address various elements of QMS as required under The NABET Scheme **Appendix B**.

The ACO is also expected to demonstrate corrective action and preventive action taken for deficiencies pointed out in QMS during initial accreditation with relevant documents, if applicable.

**C 4.4 Quality of Hydrogeological Reports prepared by the ACO –**

Assessment criteria for this are similar to that in IA. In addition, the efforts made by the ACO to improve quality of HYDROGEOLOGICAL REPORTS will also be assessed.

**C 4.5 Organizational commitment**

Assessment criteria for this are similar to that in IA namely capacity building for PC (GW) / TAEs/ TMs, commitments towards quality of Hydrogeological Reports and facilities provided, with stress on implementation since being accredited.

**C 4.6 Compliance to conditions of accreditation (Surveillance Assessment or SA)**

Assessment to cover the conditions of accreditation mentioned in the NABET's letter of IA. It broadly includes timely information and replacement by the ACO of approved experts leaving the organization; utilizing only approved experts of appropriate area for preparing Hydrogeological Reports; providing statement countersigned by PC (GW)s and TAEs involved in preparation of

Hydrogeological Reports in prescribed Format at the beginning of the Hydrogeological Reports and after timely payment of all dues to NABET.

Sl. No	Aspects	Marks allotted (SA)	Focus in assessment
1	Quality and performance of personnel	20	Education Qualification and Experience
	a. Project coordinator (PC)	15	
2	Infrastructure and Software & Hardware	10	Adequacy of facilities
3	Field investigations and laboratory systems to ensure data integrity	20	NABL accreditation validity and parameters covered
4	Hydrogeological Reports	10	Quality of report
5	Quality management system	15	Process, procedures and implementation
6	Organizational commitment/ Compliance to condition of accreditation	10	Compliance and commitment
	<b>Total</b>	<b>100</b>	

**Note:**

- a. An ACO must score minimum 40% in each of the 6 aspects as mentioned above for continuation of the accreditation/approval status (for experts).
- b. In case the ACO scores less than 40% marks in any aspect it may be given an opportunity of personal hearing by the AC to explain its case. The accreditation may or may not be continued as per decision of AC.
- c. If an ACO scores less than 40% marks in any of the above aspect/s, the accreditation cannot be continued.
- d. In case of shortfalls of marks i.e. below 40%, the following provisions apply –
  - considering that QMS is a new concept in hydrogeological reports profession, if the ACO scores less than 40% in QMS, it is given 15 days' time to address the shortfalls and submit the revised QMS to NABET meeting the requirements of the Scheme. Awareness of the revised QMS and implementation status is assessed by NABET assessors at the premises of

the ACO. The ACO needs to score 40% or more in this assessment to retain the accreditation granted to it.

- if the ACO scores less than 40% marks in any aspect other than QMS, it may be given an opportunity of personal hearing by the AC to explain its case before the final decision on the case.

#### **C 4.7 Conditions to be fulfilled for continuation of accreditation -**

- a. In case a major non-compliance/discrepancy/mis-representation of facts is observed in Hydrogeological Reports prepared by ACO during period under surveillance, the accreditation may not be continued. However, the ACO may be given an opportunity of personal hearing before final decision is taken by accreditation committee
- b. The ACO is informed of the scores of Stage III assessment for the organization as well as individuals with comments on areas of improvements, if any.

#### **C 4.8 Accreditation of organization**

**Accreditation will continue for the Ground Water Consultant Organization (GWCO) Scoring  $\geq$  40% overall in Stage III assessment.**

#### **C 4.9 Scoring requirements for experts/candidates -**

- i. If a candidate/expert assessed for PC or TAE score less than 40% in stage III assessment, s/he will not be approved under the Scheme.
- ii. The ACO is informed of the scores of stage III assessment for the organization as well as individuals with comments on areas of improvements, if any.

#### **C 4.10 Submission of application for SA**

- a. An ACO is required to submit its application for surveillance assessment three months in advance from the date on which SA falls due. In case the application is not received till the date when SA falls due, the ACO is given a 15 days' notice followed by a reminder notice of another 15 days. In case the application is not received even after the reminder notice, accreditation may be called off.
- b. If the ACO does not submit the complete application for SA even on expiry of 3 months after the SA falls due, the case is treated as closed and the name of the organization removed from the ACO list. The ACO needs to apply afresh with requisite application fees if it wishes to be considered for accreditation under the Scheme and is assessed as per IA norms.
- c. In case an ACO submits the application in time but the same is incomplete in terms of details to be submitted, the ACO is given a 15 days' notice followed by a 2<sup>nd</sup> notice of 15 days. In case the application is not complete even after the 2<sup>nd</sup> notice, same procedure as in a) and b) above applies.

- d. In case recruitment of expert/s is needed for completeness of the requirement of the Scheme, the ACO is given 3 months' time for recruitment of new expert. If the application remains incomplete after 3 months, same procedure as in a) and b) above applies.
- e. For an ACO falling under a), b) and c) above, irrespective of when the complete SA application is submitted the next assessment namely re-accreditation falls due as scheduled i.e. 36 months after IA.

#### **C 4.11 Self-assessment checklist**

Self-assessment checklist for completeness of application and for preparedness of the ACO for assessment by NABET for SA is given at **Annexure 6**.

#### **C 5.0 Assessment process: Re- Accreditation (RA)**

Accreditation cycle under the Scheme is 3 years and re-accreditation (RA) falls due after 3 years of initial accreditation. Application for RA in prescribed format, posted on QCI/NABET website, is required to be submitted to NABET three months before the due date i.e. 18+15=33 months after IA. The application must be complete with all relevant documents which include a list of Hydrogeological Reports prepared since SA, list of experts involved, copy of the QMS manual, details about laboratory arrangements, etc. A checklist of the documents to be submitted is given at **Annexure 1 B**.

For becoming eligible for RA, an ACO must meet the following requirements –

- i. All NCs/Obs. issued in SA have been closed satisfactorily
- ii. Only MoEFCC recognized or NABL accredited labs have been used after SA (provisions of section 2.1 i are applicable for universities and research institutes)
- iii. The ACO has at requisite number of PC and TAEs
- iv. The ACO has made all the payments due to NABET

#### **Note**

- i. Considering a situation that an approved expert may have left the ACO in recent past (3 months prior to the date of application) and it did not have enough time to get an alternate candidate approved, if an ACO puts up in its application eligible in-house/emp. candidates for the applicable core and significant FAs, it may be accepted.
- ii. In event of resignation of any of the approved PC/ TAE more than 3 months prior to the date of application, replacement is to be proposed by the ACO within defined timelines

Re-assessment broadly follows the criteria of initial assessment with emphasis in improvements achieved. This includes performance of approved experts, implementation of QMS, integrity of field investigation and laboratory work, quality of Hydrogeological Reports completed since accreditation and organizational commitment towards developing quality Hydrogeological Reports.

There are six key requirements in RA assessment for re-accreditation. These are detailed in C 5.1 to C 5.6.



### **C 5.1 Performance of approved experts**

#### **a. Project coordinators (PC)–**

- i. Updation in knowledge about regulations & development in Ground Water field
- ii. Site familiarity to plan for Hydrogeological Reports

#### **b. Technical area experts –**

- i. Updation about regulations & on latest developments in the concerned area
- ii. Site familiarity and role in collection/ supervision of primary data

#### **Note:**

Documentary evidences in support of work carried out during period under RA must be available for PC/TAEs.

### **C 5.2 Quality management system**

This includes implementation and compliance to the updated QMS including NC/Obs. issued in SA, if any. The stress is on assessing improvements in implementation of QMS across the organization and whether all requirements of **Appendix B** of the Scheme are addressed.

### **C 5.3 Field investigations and laboratory systems to ensure data integrity**

Issues to be covered are similar to that in SA which is described below with stress of improvements achieved since SA.

#### **a. Physical aspects**

- i. involvement of PC & TAEs in sampling protocols,
- ii. quality assurance of data in collection, preservation and transportation of samples
- iii. interpretation of the data for use in Hydrogeological Reports.
- iv. information trail (for identified project) is checked for the baseline data including name & address of laboratory, analysts, type of sample, duration/dates of analysis, method of analysis, no of samples analysed, whether the analysis report signed by the analyst and the head of the lab.

### **C 5.4 Quality of Hydrogeological Reports prepared by the ACO**

Assessment criteria for this are similar to that in IA with a stress on efforts made by the ACO to improve quality of Hydrogeological Reports since IA.

### **C 5.5 Organizational commitment –**

Assessment criteria are similar to that for SA. Stress is on how effective is the implementation of the systems adopted and improvements achieved since SA.

### **C 5.6 Improvements achieved –**

Assessment would include improvements made since IA in the areas of

- i. Performance of approved experts

- ii. Quality of baseline data
- iii. Enabling factors including facilities provided
- iv. Quality of Hydrogeological Reports

### C 5.7 Compliance to conditions of SA

During stage II and stage III assessments, compliance to the conditions given after SA for continuation of SA is seen for the ACO to be eligible for RA but no marks given.

### C 5.8 Weightage of marks

Sl. No	Aspects	Marks allotted (RA)	Focus in assessment
1	Quality and performance of personnel		Education Qualification and Experience
	a. Project coordinator (PC)	20	
	b. TAEs	15	
2	Infrastructure and Software & Hardware	10	Adequacy of facilities
3	Field investigations and laboratory systems to ensure data integrity	20	NABL accreditation validity and parameters covered
4	Hydrogeological Reports	10	Quality of report
5	Quality management system	15	Process, procedures and implementation
6	Organizational commitment/ Compliance to condition of accreditation	10	Compliance and commitment
	<b>Total</b>	<b>100</b>	

### C 5.9 Conditions to be fulfilled for re-accreditation

- i. An ACO needs to score 40% or more in each aspect of assessment as mentioned above for being considered for re-accreditation.
- ii. In case the ACO scores less than 40% marks in any aspect it may be given an opportunity of personal hearing by the AC to explain its case.
- iii. Requirements for laboratory arrangement, minimum IH employees and experts to cover the functional/ technical areas shall be same as those mentioned for IA and SA above.

- iv. In case a major non-compliance/discrepancy/mis-representation of facts is observed in Hydrogeological Reports prepared by ACO during period under assessment, renewal of the accreditation may not be considered. However, the ACO may be given an opportunity of personal hearing before final decision is taken by Accreditation Committee
- v. Above conditions are in addition to requirements of initial accreditation, which are also applicable.

#### **C 5.10 Re-Accreditation of organization**

**Ground Water Consultant Organization (GWCO) Scoring  $\geq$  40% overall in Stage III assessment will get the Re – Accreditation (RA).**

#### **C 5.11 Additional points for re-accreditation**

Additional points for Project coordinators and Technical area experts:

- a. If a candidate/expert assessed for an PC or TAE score less than 40% in stage III assessment, s/he is not approved under the Scheme.
- c. The AO/ACO is informed of the scores of stage III assessment for the organization as well as individuals with comments on areas of improvements, if any. In case an AO/ACO is not approved and wishes to re-apply, it may do the same after a gap of 3 months ensuring the shortcomings mentioned have been adequately addressed. The same applies for individuals as well.

#### **C 5.12 Timely submission of application**

Similar approach as in SA is followed in case the application from an ACO for RA is not received 3 months prior to the date when the RA falls due.

#### **C 5.13 Self-assessment checklist**

Self-assessment checklist for completeness of application and for preparedness of the ACO for assessment by NABET for RA is given at **Annexure 6**.

#### **C 6.0 Assessment of candidates for different organizations**

Organizations are accredited mainly on the basis of quality of their personnel, apart from other facilities/ capabilities available. An individual's contribution in the Hydrogeological Reports preparation is assessed in the context of overall capability and resources of the organization. The conditions for approval of individual in-house and empanelled experts are explained below:

- a. **For in-house experts** –Approval of in-house experts (PC or TAE) would be 'co-terminus' with her /his leaving the parent consultant organization, where the expert is assessed i.e. approval status of any 'approved' expert leaving the parent organization ceases. However, such an expert may be proposed as a fresh candidate by a new AO/ ACO and would undergo assessment as per the Scheme
- b. **For empanelled experts** –The number of AO/ACOs that an empanelled expert may be associated with is explained at section 3.2.4 of Scheme above. In case an empanelled expert applies on behalf of a fresh AO/ACO, s/he would undergo assessment accordingly. The new

AO/ACO proposing her/his candidature need to enclose the current empanelment status of the expert and also prior history of empanelment, if any, duly signed by both, the expert concerned and the CEO/ authorized signatory of the AO/ ACO.

Assessment of a candidate for an organization is carried out in context of the scheme, the documentary evidence submitted in support of the experience, performance/ quality of work carried out for other AO/ACOs with whom the expert is/was associated, and how s/he fares in the interaction with the NABET assessors during stage III assessment. It is, therefore, not guaranteed that if one is approved for certain technical area with an ACO, automatically gets approved for such technical areas for another AO/ACO.

The candidates (in-house or empanelled) who were approved earlier and have shifted organization, can be utilized in Hydrogeological Reports preparation process by the new organization wherein they have joined, only after following the defined approval process.

## **C 7.0 MOU/Agreement /NOC**

### **C 7.1 Between AO/ ACO and external laboratory**

In case an AO/ACO utilizes an external NABL accredited or MoEFCC recognized laboratory, there must be an MOU/ Agreement between them addressing the following –

- a. Name of the ACO & Labs
- b. Scope of services covered by NABL accreditation/ MoEFCC recognition
- c. Name of parameters covered by the agreement
- d. Duration of association
- e. Name of project/s (preferably)
- f. Financial terms including rates for specific items of work (all payments to the laboratory for services rendered to be made through Bank)
- g. Signature of CEO/ Head of ACO & authorized signatory of lab

### **C 7.2 Between AO/ACO and empanelled expert –**

In case an AO/ACO utilizes an empanelled expert, there must be an MOU/Agreement between them addressing the following to be submitted with the application–

- a. Name of the expert & AO/ ACO
- b. Name of technical areas for which services are provided
- c. Scope of services covered
- d. Duration of association
- e. Specific roles & responsibilities of empanelled expert
- f. Signature of empanelled expert & CEO/ Head of ACO
- g. All payments to the empanelled experts for services rendered to be made through Bank.

### **C 7.3 Contents of NOC**

All empanelled experts associated with an NGO or a Research/Academic institute need to furnish a No Objection Certificate (NOC) from the Registrar of the university, Principal of the college or the Head of the NGO/Research/Academic institute, respectively. The NOCs must address -

- a. Name of the expert
- b. Name of the Scheme and Hydrogeological Reports for which the NOC is granted
- c. Validity of the NOC

#### **C 8.0 Further classification of consultants**

It is proposed to further classify the consultants in more detail to afford the project proponents to select the right consultant with right degree of expertise, experience, systems and facilities. The accredited consultants are, therefore, advised to keep the QCI – NABET informed of the projects carried out by them, the number of Hydrogeological Reports/ NOC approved by the Govt., improvements in their organization and other relevant information, on yearly basis.

#### **C 9.0 Cases of re-application**

- i. **For individuals** – the cases of individual candidates who fail to get approved, may be applied by the ACO after 3 months of earlier results being put up on QCI-NABET website, making sure that the shortcomings of the assessment have been addressed. Details of experts as per requirements of IA/SA/RA norms are to be submitted by the ACO, as applicable and they undergo assessment accordingly, either at ACOs premises or at NABET office. Requisite application fees are applicable.

## Accreditation Fees Structure

S. No	Fees Details	Fees (in Rs.)
1	Application Fee (Stage I)	Not exceeding 8 proposed candidates - Rs 20,000/- More than 8 proposed candidates <sup>1</sup> - Rs 30,000/-
2	Document Review by Assessor (Stage II)	Up to 8 candidate <sup>2</sup> -1 x 1 person day More than 8 and above -2 x 1 person day
3	Office Assessment at organization premise (Stage III)	Up to 8 candidates <sup>3</sup> - 2 x 1 Person days > 8 candidates - 2 x 2 Person days
4	Analysis of the office assessment and the preparation of final report (Report writing by Assessor)	Up to 8 candidates 1x.5 person day 8 and above candidates 1x1 person day
5	<b>Annual fee including Accreditation costs</b>	
5.1	Annual Fee- operation and administrative costs.	Rs. 30,000/- per year
6	<b>Partial Assessment organized at QCI/NABET for TAEs</b>	
i.	Document assessment	0.5-person day for upto 3 candidates
ii.	Interaction and report making	2 x 0.5-person days upto 3 candidates 2 x 1-person day for more than 4 candidates
7	<b>Assessment of implementation of QMS</b>	2 x 0.5 Person days
8	<b>Supplementary assessment for TAEs</b>	At QCI/NABET – (up to 6 candidates) • Document assessment – ½ person day up to 6 candidates • Interaction and report making – 2 x ½ person days up to 6 candidates • Interaction and report making – 2 x 1 person days for 7 to 12 candidates
9	<b>Request for review of decision/ appeal by AO/ACO</b>	25,000/-
<b>Travel, stay etc. for Assessors- at actual</b>		

**Note:**

1. Applicable service tax/GST payable by the organization
2. 'Person days' charges are Rs. 18,000/- at the present. Numbers of days for assessment are estimated based on the number of candidates to be interviewed, size of the organization, documents/laboratory to be seen etc. QCI/NABET reserves the right to revise the person day rate, if deemed necessary.

3. Fees charged towards accreditation for sector (5.1 above) partially cover the costs of operating the Scheme.
4. 'Candidates' mean personnel proposed/assessed as Project Coordinator (PC), TAEs and team members
  - Candidate<sup>1</sup> - refers to all candidates proposed as Project Coordinator (PC), TAEs and team members in application
  - Candidate<sup>2</sup> - refers to all candidates as a part of application in Stage I & II
  - Candidate<sup>3</sup> - refers to all candidates assessed during office assessment
5. Economy class air fare/organization's guesthouse or Hotel (boarding and lodging, equivalent to 3-star facility), local travel by AC car/ taxis are paid at actuals by the applicant to NABET. The consultant organization may also make the ticketing & other arrangements as per the requirements.
6. The annual fee for the first year is to be sent only after the receipt of confirmation from NABET of the applicant having been approved for accreditation. Certificate is sent after receipt of full fees and expenses at NABET.
7. Continuation of accreditation after SA and re-accreditation are given only on payment of all dues to NABET.
8. The fees paid are not refundable.

**Application Form for NABET Initial Accreditation**  
(Kindly attach separate sheets if necessary, for more information)

Affix Passport  
Size photograph  
of the contact  
person

1. Name and Address of the Consultant organization

a. Head Office

\_\_\_\_\_

b. Branch Office

\_\_\_\_\_

2. Name of the Head of the Organization

\_\_\_\_\_

3. Contact person details

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Tel No. \_\_\_\_\_ Mobile \_\_\_\_\_

Email \_\_\_\_\_

4. Legal Status of the organization (please mark (v) the appropriate status)

- a) Public/Private/Government
- b) Company/Partnership/Proprietorship/Registered Society
- c) Research/Academic Institute
- d) Industry Association
- e) Others (please specify and attach necessary evidence)

5. Date of Registration / Incorporation (attach copy of certificate of incorporation/registration)

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 DD 

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 MM 

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 YY

6. Established in Year \_\_\_\_\_

7. Services provided by the Organization \_\_\_\_\_

8. Number of Employees

- Total
- For GWS/RWH / Hydro activities



9. Annual Income of the organization in Indian Rupees (attach balance sheet and IT returns for the last 3 years)
10. Organization Structure (with details of locations/associates etc.). For multi-functional organizations, the organization structure of the stream related to GW work may be detailed out (**attach organization chart and other details**).

**Abbreviation for Functional Areas:**

Sl. No.	Functional area	Abbreviation
1	Hydrogeologist/ Geologist/ Hydrologist	HGL/ GL
2	Geophysicist	GP
3	Remote Sensing and GIS expert	RSG
4	Water Quality Expert	WQ

11. Technical Expertise (full time employees and/ or empanelled) available with the organization (attach CVs) for experts' qualification, experience, exposure etc. In case of empanelled experts, please also attach declarations of Project Coordinators/ Technical Area Experts of their association with your organization and with others, in the format given in)

**Project Coordinator**

S. No	Name	In-house	CV Attached
			Y / N
			Y / N
			Y / N
			Y / N

**Technical Area Expert/(s)** Please use abbreviations mentioned above (Abbreviation for Functional Areas) or Refer section 3.2.3.2 Technical Area Experts (TAEs) of Scheme:

S. No	Name	In-house (TAE - HGL/ GL)	Area of Expertise	CV Attached
				Y / N
				Y / N
				Y / N

**Technical Area Expert/(s)** Please use abbreviations mentioned above (Abbreviation for Functional Areas) or Refer section 3.2.3.2 Technical Area Experts (TAEs) of Scheme:

S. No	Name	In-house / Empanelled	Area of Expertise	CV Attached
				Y / N
				Y / N
				Y / N

*Documentary evidence for the stated experience, exposure and training of the proposed GW Coordinators and Functional Area Experts to be provided to NABET Assessors during assessment.*

12. How do you get field monitoring done to collect physical groundwater data?

In-house laboratory

External laboratory

12.1 If laboratory is accredited by NABL, please submit copies of the Accreditation scope certificate and the parameters accredited for. For MOEF recognized laboratories, please submit a copy of the relevant Govt. Gazette Notification and also a copy of the application made to MoEF for assessing the scope recognition.

13. Furnish details of Instruments/prediction model/software available:

S. No	Name of Instruments/prediction model/software	Upload Relevant Document/ License

14. Organization's experience in Hydrogeological Report preparation:

S. No	Name of Report	Client Name	Report Type	Period	Completion Certificate from Client	Upload Report

15.1 Hydrogeological Reports/ GW studies carried out in last three years -

a. Numbers of reports prepared

b. Numbers of NOCs/ permissions got from CGWA

15.2 Enclose a copy of one Hydrogeological Report (soft copy) and list of reports prepared by the organization in the preceding two years from the date of application.

15. Enclose a copy of Quality Management System Manual (Refer **Appendix B** of Scheme)

16. **Declaration:**

We have carefully read all NABET guidelines for accreditation of GW Consultant Organization. The conformity of eligibility of the experts proposed, employment status of proposed experts to the requirements of the Scheme, has been verified by us at our end. We agree to code of conduct terms in clause no. 5.3.

We confirm that the information provided in the application in support of the application is correct to the best of our knowledge and belief.

We authorize NABET to make any enquiry as deemed fit as part of the reviewing process. We understand that in case any information is found to be incorrect, it may result in rejection of this application and/or disqualification. We authorize NABET to utilize the information provided in this application for legal, research, training, sharing with CGWA/MWR/MOEF and IPC members and/or for any other purpose as may be deemed fit by NABET.

If accredited, we commit to notify NABET immediately of any changes in the status where information regarding such changes, if declared may affect the consideration for accreditation of the organization.

Signatures	_____
Name (Authorized Signatory)	_____
Designation	_____
Organization	_____
Date	_____

**Ensure that the following are enclosed with the application: -**

Documents to be enclosed	Yes/ No
1. Filled in Application form with the photograph of the contact person ( <b>Annexure 1</b> )	
2. Application fees	
3. Copy of the legal Status of the organization including the date of registration/ incorporation	
4. Organization's Balance Sheet and Income Tax Returns, for the last three years (depending on date of registration of organization)	
5. Organizational structure with respect to the people involved.	
6. <b>Annexure 2</b> - signed resume of Project Coordinator/s (PC) with photographs	
7. <b>Annexure 2</b> - signed resume of Technical Area Experts with photographs	
8. <b>Annexure 3</b> - Declaration of empanelled Technical Area Experts of their association with applicant organization AO or other organizations, if applicable. Also, a NOC, as applicable.	
9. Copy of the certificate, scope of accreditation for NABL accredited laboratories and MoU/ Agreement	
10. Gazette Notification and the copy of application for MoEFCC recognized laboratories	
11. QMS Manual meeting the requirements of <b>Appendix B</b> of the Scheme	
12. Names of models/ software being used for generation/interpretation of data	
13. Copies of promotional material, if any.	

Application to be submitted in soft only. Hard copies of documents to be submitted only if specifically asked for by NABET.

**Application Form for NABET Surveillance Assessment**  
(Kindly attach separate sheets if necessary, for more information)

Affix Passport  
Size photograph  
of the contact  
person

1. Name and Address of the Consultant organization

a. Head Office

\_\_\_\_\_

b. Branch Office

\_\_\_\_\_

2. Name of the Head of the Organization

\_\_\_\_\_

3. Contact person details

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Tel No. \_\_\_\_\_ Mobile \_\_\_\_\_

Email \_\_\_\_\_

4. Legal Status of the organization (please mark (v) the appropriate status)

- a) Public/Private/Government
- b) Company/Partnership/Proprietorship/Registered Society
- c) Research/Academic Institute
- d) Industry Association
- e) Others (please specify and attach necessary evidence)

5. Date of Registration / Incorporation (attach copy of certificate of incorporation/registration)

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 DD 

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 YY

6. Established in Year \_\_\_\_\_

7. Services provided by the Organization

- a) Before initial accreditation \_\_\_\_\_
- b) After initial accreditation (new fields ventured in) \_\_\_\_\_

8. Initial Accreditation/Re-accreditation:

- a) Effective from (DD/MM/YYYY):
- b) Previous Assessment -AC MoM - (DD/MM/YYYY):
- c) Additional (Supplementary /Expansion of Scope) Assessment -AC MoM-(DD/MM/YYYY):

9. Annual Income of the organization in Indian Rupees (attach balance sheet and IT returns for the last 3 years)

Income	FY	FY	FY
Total Income (INR)			
Hydrogeological Reports preparation related Income (INR)			

10. Organization Structure (with details of locations/associates etc.). For multi-functional organizations, the organization structure of the stream related to GW work may be detailed out (**attach organization chart and other details**).

Abbreviation for Functional Areas:

Sl. No.	Functional area	Abbreviation
1	Hydrogeologist/ Geologist/ Hydrologist	HGL/ GL
2	Geophysicist	GP
3	Remote Sensing and GIS expert	RSG
4	Water Pollution Expert	WP

11. **Compliance to following conditions of Accreditation**

Sl. No.	Description	Yes/No	Attach doc evidence, if applicable
1.	Timely information and replacement of changes in approved experts		
2.	All applicable FAs are covered by approved experts/eligible candidates		
3.	Using only NABL accredited/MoEFCC recognized laboratories		
4.	Not utilizing any unapproved expert in Report preparation		
5.	Inclusion of names of Project Coordinator & TAEs in Hydrogeological reports in the prescribed format		

6.	Timely payments to NABET		
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12. Number of Employees/ Experts:

- Total Employees/ Experts:
- For Hydrogeological Reports preparation activities:

Experts	In-house	Empanelled	Total
Project coordinator (GW)			
Technical area experts (TAE)			
Team Members (TM)			
Total			

a) Project Coordinator available with the Organization (Approved/ Applied)

S. No	Name	In-house	Approved/ Applied	CV Attached
				Y / N
				Y / N

b) **Technical Area Expert/(s) available with organization:** Please use abbreviations mentioned above (Abbreviation for Functional Areas) or Refer section 3.2.3.2 Technical Area Experts (TAEs) of Scheme:

S. No	Name	In-house (TAE - HGL/ GL)	Area of Expertise	Approved/ Applied	CV Attached
					Y / N
					Y / N

c) **Technical Area Expert/(s) available with organization:** Please use abbreviations mentioned above (Abbreviation for Functional Areas) or Refer section 3.2.3.2 Technical Area Experts (TAEs) of Scheme:

S. No	Name	In-house / Empanelled	Area of Expertise	Approved/ Applied	CV Attached
					Y / N
					Y / N

d) **Team members available with organization:**

(to make sure that the TM proposed meets the qualification requirements)

S. No	Name	In-house / Empanelled	Qualification/ Experience	Approved/ Applied	CV Attached
<b>Project Coordinator</b>					
					Y / N
<b>With Technical Area Expert(s)</b>					
					Y / N

e) **New Candidates proposed:**

Sl. No.	Name	In-house/ Emp.	Area of Expertise/ Qualification	CV Attached
<b>Project Coordinator (GW)</b>				
				Y/N
				Y/N
<b>Technical Area Expert(s)</b>				
				Y/N
				Y/N
<b>Team Member</b>				
				Y/N
				Y/N

*Documentary evidence for the stated experience, exposure and training of the proposed GW Coordinators and Functional Area Experts to be provided to NABET Assessors during assessment*

13. How do you get field monitoring done to collect baseline physical groundwater data?

In-house laboratory

External laboratory

a) Laboratories being use:

No.	Name of the laboratory*	NABL accredited/ MoEFCC recognized	Copy of MoU/ Agreement with laboratory/ defining scope of work

\*the following details are to be provided for each laboratory being used.



- b) If the laboratory is accredited by NABL, please submit copies of the Accreditation scope certificate and the parameters accredited for. For MOEF recognized laboratories, please submit a copy of the relevant Govt. Gazette Notification and also a copy of the application made to MoEF for assessing the scope recognition.
- c) For all laboratories, please submit the copy of the agreement with the scope of coverage and validity period.

14. Furnish details of Instruments/prediction model/software available:

S. No	Name of Instruments/prediction model/software	Upload Relevant Document/ License

15. Organization's experience in Hydrogeological Report preparation:

S. No	Name of Report	Client Name	Report Type	Period	Completion Certificate from Client	Upload Report

15.1 Hydrogeological Reports/ GW studies carried out in last 18 months –

a. Numbers of reports prepared

b. Numbers of NOCs/ permissions got from CGWA

15.2 Enclose a copy of one Hydrogeological Report (soft copy) and list of reports prepared by the organization in the preceding year from the date of Initial Accreditation.

16. Enclose a copy of Quality Management System Manual (**Refer Appendix B of Scheme**)

17. Kindly provide complete payment details made through NEFT/ RTGS / IMPS/ any other source in favour of Quality Council of India, payable at New Delhi towards the application fees.

18. **Declaration:**

We have carefully read all NABET guidelines for accreditation of GW Consultant Organization. The conformity of eligibility of the experts proposed, employment status of proposed experts to the requirements of the Scheme, has been verified by us at our end. We agree to code of conduct terms in clause no. 5.3.

We confirm that the information provided in the application in support of the application is correct to the best of our knowledge and belief.

We authorize NABET to make any enquiry as deemed fit as part of the reviewing process. We understand that in case any information is found to be incorrect, it may result in rejection of this application and/or disqualification. We authorize NABET to utilize the information provided in this application for legal, research, training, sharing with CGWA/MWR/MOEF and IPC members and/or for any other purpose as may be deemed fit by NABET.

If accredited, we commit to notify NABET immediately of any changes in the status where information regarding such changes, if declared may affect the consideration for accreditation of the organization.

Signatures \_\_\_\_\_

Name (Authorized Signatory) \_\_\_\_\_

Designation \_\_\_\_\_

Organization \_\_\_\_\_

Date \_\_\_\_\_

### Checklist of Enclosures – Surveillance Assessment

Ensure that the following are enclosed with the application: -

Sl. No.	Documents to be enclosed	Yes/ No / Give Ref.
1.	Copy of the Gazette Notification and MoU/ Agreement for MoEFCC recognized laboratories utilized	
2.	Copy of the Accreditation certificate, scope of accreditation and MoU/ Agreement for NABL accredited laboratories utilized	
3.	QMS Manual meeting the requirements of <b>Appendix B</b> of the Scheme	
4.	<b>Annexure 2</b> and <b>Annexure 3</b> : Resume, Experience Details and Declaration	
5.	<b>Annexure 2, Annexure 4C</b> – Resume and work details for approved Project Coordinator (PC), if s/he has carried out work after IA	
6.	<b>Annexure 2, Annexure 4D</b> – Resume and work details for approved TAE, if s/he has carried out work after IA	
7.	<b>Annexure 4 A</b> - List of Hydrogeological Reports prepared/completed during the period between IA to SA giving requisite details	
8.	Soft copy of 2 Hydrogeological Reports (as identified by NABET) with declaration by names and signatures of experts involved in the Hydrogeological Reports	

**Application Form for NABET Re-Accreditation**  
(Kindly attach separate sheets if necessary, for more information)

Affix Passport  
Size photograph  
of the contact  
person

1. Name and Address of the Consultant organization

a. Head Office

\_\_\_\_\_

b. Branch Office

\_\_\_\_\_

2. Name of the Head of the Organization

\_\_\_\_\_

3. Contact person details

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Tel No. \_\_\_\_\_ Mobile \_\_\_\_\_

Email \_\_\_\_\_

4. Legal Status of the organization (please mark (v) the appropriate status)

- a) Public/Private/Government
- b) Company/Partnership/Proprietorship/Registered Society
- c) Research/Academic Institute
- d) Industry Association
- e) Others (please specify and attach necessary evidence)

5. Date of Registration / Incorporation (attach copy of certificate of incorporation/registration)

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 YY

6. Established in Year \_\_\_\_\_

7. Services provided by the Organization

- a) Before initial accreditation \_\_\_\_\_
- b) After initial accreditation (new fields ventured in) \_\_\_\_\_

8. Initial Accreditation/Re-accreditation:

a) Effective from (DD/MM/YYYY):

b) Previous Assessment -AC MoM - (DD/MM/YYYY):

c) Additional (Supplementary /Expansion of Scope) Assessment -AC MoM-(DD/MM/YYYY):

9. Annual Income of the organization in Indian Rupees (attach balance sheet and IT returns for the last 3 years)

Income	FY	FY	FY
Total Income (INR)			
Hydrological Reports preparation related Income (INR)			

10. Organization Structure (with details of locations/associates etc.). For multi-functional organizations, the organization structure of the stream related to GW work may be detailed out (**attach organization chart and other details**).

**Abbreviation for Functional Areas:**

Sl. No.	Functional area	Abbreviation
1	Hydrogeologist/ Geologist/ Hydrologist	HGL/ GL
2	Geophysicist	GP
3	Remote Sensing and GIS expert	RSG
4	Water Pollution Expert	WP

11. **Compliance to following conditions of Accreditation**

Sl. No.	Description	Yes/No	Attach doc evidence, if applicable
1.	Timely information and replacement of changes in approved experts		
2.	All applicable FAs are covered by approved experts/eligible candidates		
3.	Using only NABL accredited/MoEFCC recognized laboratories		
4.	Not utilizing any unapproved expert in Report preparation		
5.	Inclusion of names of Project Coordinator & TAEs in Hydrogeological reports in the prescribed format		
6.	Timely payments to NABET		

12. Number of Employees/ Experts:
- Total Employees/ Experts:
  - For Hydrological Reports preparation activities:

Experts	In-house	Empanelled	Total
Project coordinator (GW)			
Technical area experts (TAE)			
Team Members (TM)			
Total			

**a) Project Coordinator available with the Organization (Approved/ Applied)**

S. No	Name	In-house	Approved/ Applied	CV Attached
				Y / N
				Y / N

- b) Technical Area Expert/(s) available with organization:** Please use abbreviations mentioned below- Refer section 3.2.3.2 Technical Area Experts (TAEs) of Scheme or table above.

S. No	Name	In-house / Empanelled	Area of Expertise	Approved/ Applied	CV Attached
					Y / N
					Y / N

- a) Technical Area Expert/(s) available with organization:** Please use abbreviations mentioned below- Refer section 3.2.3.2 Technical Area Experts (TAEs) of Scheme or table above.

S. No	Name	In-house / Empanelled	Area of Expertise	Approved/ Applied	CV Attached
					Y / N
					Y / N

b) **Team members available with organization:**

(to make sure that the TM proposed meets the qualification requirements)

S. No	Name	In-house / Empanelled	Qualification/ Experience	Approved/ Applied	CV Attached
<b>Project Coordinator</b>					
					Y / N
<b>With Technical Area Expert(s)</b>					
					Y / N

c) **New Candidates proposed:**

Sl. No.	Name	In-house/ Emp.	Area of Expertise/ Qualification	CV Attached
<b>Project Coordinator (GW)</b>				
				Y/N
				Y/N
<b>Technical Area Expert(s)</b>				
				Y/N
				Y/N
<b>Team Member</b>				
				Y/N
				Y/N

*Documentary evidence for the stated experience, exposure and training of the proposed GW Coordinators and Functional Area Experts to be provided to NABET Assessors during assessment*

13. How do you get field monitoring done to collect baseline physical groundwater data?

In-house laboratory

External laboratory

a) Laboratories being used since IA/SA/RA:

No.	Name of the laboratory*	NABL accredited/ MoEFCC recognized	Copy of MoU/ Agreement with laboratory/ defining scope of work

\*the following details are to be provided for each laboratory being used.

- b) If in-house arrangement, then please provide details.
- c) If the external laboratory is accredited by NABL, please submit copies of the Accreditation scope certificate and the parameters accredited for. For external MOEF recognized laboratories, please submit a copy of the relevant Govt. Gazette Notification and also a copy of the application made to MoEF for assessing the scope recognition.
- d) For all external laboratories, please submit the copy of the agreement with the scope of coverage and validity period.

14. Furnish details of Instruments/prediction model/software available:

S. No	Name of Instruments/prediction model/software	Upload Relevant Document/ License

15. Organization's experience in Hydrogeological Report preparation:

S. No	Name of Report	Client Name	Report Type	Period	Completion Certificate from Client	Upload Report

15.3 Out of the Hydrogeological Reports/ GW studies carried out in last 36 Months -

- a. Numbers of NOCs/ permissions got from CGWA
- b. Number of meetings required for these GWA NOC
- c. Please attach conditions of NOC and actions taken

15.4 Enclose a copy of one Hydrogeological Report (soft copy) and list of reports prepared by the organization in the preceding year from the date of Initial Accreditation.

16. Enclose a copy of Quality Management System manual meeting the requirements of *Appendix B* of the Scheme. Also confirm if NCs / Obs. issued during SA on QMS have been addressed including closure action on each of these. (**Refer Appendix B of Scheme**)

17. **Declaration:**

We have carefully read all NABET guidelines for accreditation of GW Consultant Organization. The conformity of eligibility of the experts proposed, employment status of proposed experts to the requirements of the Scheme, has been verified by us at our end. We agree to code of conduct terms in clause no. 5.3.

We confirm that the information provided in the application in support of the application is correct to the best of our knowledge and belief.

We authorize NABET to make any enquiry as deemed fit as part of the reviewing process. We



understand that in case any information is found to be incorrect, it may result in rejection of this application and/or disqualification. We authorize NABET to utilize the information provided in this application for legal, research, training, sharing with CGWA/MWR/MOEF and IPC members and/or for any other purpose as may be deemed fit by NABET.

If accredited, we commit to notify NABET immediately of any changes in the status where information regarding such changes, if declared may affect the consideration for accreditation of the organization.

Signatures	_____
Name (Authorized Signatory)	_____
Designation	_____
Organization	_____
Date	_____

### Checklist of Enclosures – Re-accreditation

Ensure that the following documents are enclosed/uploaded with the application: -

Sl. No.	Documents to be enclosed	Yes/ No/ Give Ref
1	Copy of the Gazette Notification and MoU/ Agreement for MoEFCC recognized laboratories utilized	
2	Copy of the Accreditation certificate, scope of accreditation and MoU/ Agreement for NABL accredited laboratories utilized	
3	QMS Manual meeting the requirements of <b>Appendix B</b> of the Scheme	
4	<b>Annexure 2</b> and <b>Annexure 3</b> : Resume, Experience Details and Declaration	
5	<b>Annexure 2, Annexure 4C</b> – Resume and work details for approved Project Coordinator (PC), if s/he has carried out work after SA	
6	<b>Annexure 2, Annexure 4D</b> – Resume and work details for approved TAE, if s/he has carried out work after SA	
7	<b>Annexure 4A</b> - List of Hydrogeological Reports prepared/completed during the period between SA to RA giving requisite details	
8	Soft copy of 2 Hydrogeological Reports (as identified by NABET) with declaration by names and signatures of experts	

**Application Form for NABET Application form for Supplementary Assessment**

(Kindly attach separate sheets if necessary, for more information)

Affix Passport  
Size photograph  
of the contact  
person

## 1. Name and Address of the Consultant organization

## a. Head Office

\_\_\_\_\_

## b. Branch Office

\_\_\_\_\_

## 2. Name of the Head of the Organization

\_\_\_\_\_

## 3. Contact person details

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Tel No. \_\_\_\_\_ Mobile \_\_\_\_\_

Email \_\_\_\_\_

## 4. Reason for applying:

Sl. No.	Reason for applying	Abbreviation	Assessment norms
1	Addition / Modification in scope of approved experts	EXP	IA
2	New candidates: Replacement of approved experts (PC/TAE)	RPL	IA
3	Re-proposing the candidates three months after the last assessment (Refer NABET letter)	RPR	As per the last assessment norm
4	Absent during last Office assessment (Refer email sent to NABET by AO /ACO)	ABS	As per the last assessment norm
5	To be assessed (Refer AC MoM)	TBA	NABET to inform

\*Application must be submitted along with the applicable fee (see **Appendix D** of the Scheme).

- Amount paid
- Mode of payment and number (NEFT/ RTGS / IMPS)
- Date of payment

NEFT/ RTGS / IMPS to be done in favour of 'Quality Council of India' New Delhi.

5. Candidates proposed as:

**A. Project coordinator (GW) –**

(Enclose **Annexure 2**)

Sl. No.	Name of the candidate	IH/ Emp	Reason for applying (Ref point 4 above)	Areas applied	Areas approved already

**B. Technical Area Expert –**

(Enclose **Annexure 2**)

Sl. No.	Name of the candidate	IH/ Emp	Reason for applying (Ref point 4 above)	TAs applied	TAs already approved

**Note:**

1. Candidates who were not approved in last assessment and now re-proposed, must give a separate note on additional experience/ training/ knowledge acquired since last assessment supported by relevant documents.
2. **The candidates who are re-proposed need to submit**
  - **PC - Annexure 4C**
  - **TAE - Annexure 4D.**

**6) Declaration**

I have carefully read all NABET guidelines for accreditation of GW consultant organization. The eligibility criterion including academic as well as professional qualifications and experience claimed by all the candidates whose resume are enclosed with the application form are verified and endorsed by me. I hereby confirm that the true copy of Marks Sheets/Certificates for essential educational qualification candidates proposed, if asked for by NABET, would be duly verified by me before submission. I confirm that the information provided in the application form is correct to the best of my knowledge and belief.

I authorize NABET to make any enquiry as deemed fit as part of the reviewing process. I understand that in case any information is found to be incorrect; it may result in rejection of this application and/or disqualification.

NABET will treat the documents submitted by AO in confidence. However, the same may be used by NABET for research purpose, legal requirement and for submission to CGWA/ CGWB. Such information will not be shared with any other organizations without written permission of the AO.

If accredited, the organization commits to abide by the conditions of accreditation and notify NABET immediately for any changes in the status which have bearings on accreditation of the organization.

Signatures

Name (Authorized Signatory)

Designation

Organization

Date

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**Application Form for information on Team Member**  
(Kindly attach separate sheets if necessary, for more information)

Affix Passport  
Size photograph  
of the contact  
person

1. Name and Address of the Consultant organization

a. Head Office

\_\_\_\_\_

b. Branch Office

\_\_\_\_\_

2. Name of the Head of the Organization

\_\_\_\_\_

3. Contact person details

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Tel No. \_\_\_\_\_ Mobile \_\_\_\_\_

Email \_\_\_\_\_

4. Team Members proposed

SI	Name	Qualification #	PC/TAE	Technical Area	Approved Sr. Expert	Jobs to be assigned
<b>With Project Coordinator</b>						
<b>With Technical Area Expert</b>						

# Qualification – Bachelor degree in Technical subjects and Master’s degree in Science, Humanities and other subjects, year of passing and name of university

**Declaration by the employer**

We have carefully read the provisions in respect of ‘Team Members’ in the NABET’s Scheme for accreditation of Ground Water Consultants organizations and commit to abide by the same. The conformity of eligibility of the candidates proposed as Team Member in respect of qualification and other aspects has been verified by us at our end. We confirm that the information provided in the application is correct to the best of our knowledge and belief.

We understand that in case the information provided is found wrong/mis-leading, it may result in cancellation of accreditation granted to the organization.

Signature	_____
Name (authorized signatory)	_____
Designation	_____
Organization	_____
Date	_____

(Resume Format)

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(For Project Coordinator/ Technical Area Experts)

1) Mr./Ms./Dr.

\_\_\_\_\_

(First name) (Middle name) (Last name)



2) Date of birth \_\_\_\_\_

3) PAN \_\_\_\_\_

4) Role in the organization (please tick):

In-house expert (IH)  Empanelled expert (Emp.)

5) Contact details \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ Pin Code \_\_\_\_\_

6) Tel. No. \_\_\_\_\_

7) Fax No. \_\_\_\_\_

8) Email address \_\_\_\_\_

9) Office address \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ Pin Code \_\_\_\_\_



10) Academic Qualification (Graduation and above):

Period (Year)	Name of the University	Degree	Subjects	Grade / % Marks

11) Registered/recognized training courses attended:

Sl. No.	Title of the course	Conducted/organized by (name and address)	Dates		Result
			From	To	

12) Membership of Professional Bodies: -

Sl. No.	Professional body (name and address)	Membership	Period of validity

13) Experience (write in chronological order with most recent experience listed first):

*A. General (in brief):*

Period (From – to)	Organization with address	Designation	Type of Experience (A/B/C/D/E/F)		Specific details of experience for type A/B/C/D (not more than 25 words for each) as applicable
			Industrial Exp.	A	
			GW Assignments	B	
			Teaching / Ph.D.	C	
			Other	D	

**14) Declaration by the applicant**

I hereby declare that the above information relating to my education and experience is correct. I do understand that any incorrect information will result in disqualification of my candidature and accreditation of the organization with NABET.

Signature \_\_\_\_\_ Date (DD/MM/YYYY) \_\_\_\_\_

**15) Declaration by the employer**

The above information in relation to Dr./Mr./Ms. .... has been verified and found to be correct. I understand that in case the information is found to be incorrect it may result in disqualification of the organisation under the Scheme.

Signatures	_____
Name (Authorized Signatory)	_____
Designation	_____
Organization	_____
Date	_____

**Declaration for Empanelled Experts of  
their association with the applicant organization and others**

(to be signed within 60 days preceding the date of application for accreditation)

This is to confirm that I \_\_\_\_\_ am currently involved with the following GW projects:

1) With the Applicant Organization -

a. As a Project Coordinator (GW)

Sl. No.	Name of the project	Period	Technical areas as per Scheme

b. As a Technical area expert

Sl. No.	Name of the project	Period	Technical areas as per Scheme

2) With another organization/s –

a. As a Project Coordinator (PC)

Sl. No.	Name of the organization	Name of the project	Period	Technical areas as per Scheme

b. As a Technical area expert

Sl. No.	Name of the organization	Name of the project	Period	Technical areas as per Scheme

3) Involvement as an expert in NABET GW Accreditation Scheme (for projects in hand)

Sl. No.	Name of the organization	Technical areas as per Scheme	If interviewed by NABET (Date )	Duration of association with the organization(peri od)

I hereby confirm that I am involved only with..... (mention the number) consultants.

Name \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

**Present Status** (Please tick the appropriate one)

a. Freelancer: Yes/No

b. Working: In-house employee

(If yes, name of organization .....)

Address for Correspondence:

.....  
.....  
.....

**Declaration by the applicant organization**

I hereby confirm that I have applied complete due diligence on my part in ascertaining the appropriateness of the information furnished above by the expert ..... S/he has been empanelled with /employed in our organization from .....(month).....(year).

We confirm that the expert is not associated with more than 3 organization including ours during the time of signing of this document.

Name \_\_\_\_\_

Designation \_\_\_\_\_

Organization \_\_\_\_\_

Signatures and Date \_\_\_\_\_

Annexure 4 A

List of Hydrological Reports On-going/Completed  
(Since Last Assessment)

Name of Consultant Organization: \_\_\_\_\_

Sl.No.	Name of project with location	Name of the client	Name of Project coordinator (PC)	Status of Hydrogeological Report: a. On going b. Draft Report ready c. Final Report submitted to Client	Cost: a. Project Cost b. Cost of Report
1					
2					
3					
4					
5					

## Details of Laboratories Utilized

Sl. No.	Name of the laboratory with complete address	Accreditation/Recognition status with Scope		
		NABL accredited / MOEFCC recognized	GW Analysis/ Basic Parameters	Valid till
1				
2				
3				

**Note:**

- Also mention the details of assessment conducted recently for which results are awaited.
- For SA application details to be furnished between IA and SA and for RA application between SA and RA.

### Project Coordinator – Experience since last approval

1) Name: .....

2) Area approved (mention exact description as in NABET certificate/ letter):

Sl. No.	Name of Area	Vide NABET MoM dated
1		
2		
3		
4		
5		

3) Work carried out since last assessment

Hydrogeological Reports involved in			
Sl. No.	Area	Name of project, client, capacity	Site visits No. and duration (days) Field log book if any (Maintained & Presented during Assessment)
<b>Work carried out for the present ACO</b>			
1			

**NOTE:** (\*) Details to be provided for each area in separate rows



### Technical Area Expert – Experience since last approval

1) Name: .....

2) Area/s approved (mention exact description as in NABET certificate/ letter):

Sl. No.	Name of Area	Vide NABET MoM dated
1		
2		
3		
4		
5		

3) Work carried out since last assessment

Hydrogeological Reports involved in			
Sl. No.	Area	Name of project, client, capacity	Site visits No. and duration (days) Field log book if any (Maintained & Presented during Assessment)
<b>Work carried out for the present ACO</b>			
1			

**NOTE:** (\*) Details to be provided for each area in separate rows

**Declaration by Experts contributing to the Hydrogeological Report**

I, hereby, certify that I was a part of the team in the following capacity that developed the above Hydrogeological Report

Project coordinator (GW): .....

Name: .....

Signature and Date:.....

Period of involvement:.....

Contact information: .....

Functional area experts:

S. No.	Area	Name of the expert/s	Involvement (period and task**)	Signature and date
1				
2				
3				
4				

\*One TM against each TAE may be shown

\*\*Please attach additional sheet if required

**Declaration by the Head of the accredited consultant organization/ authorized person**

I, ....., hereby, confirm that the above-mentioned experts prepared the Hydrogeological Report ..... I also confirm that Project coordinator (GW) has gone through the report, and the consultant organization shall be fully accountable for any misleading information.

It is certified that no unethical practices, plagiarism involved in carrying out the work and external data / text has not been used without proper acknowledgement while preparing this Hydrogeological Report.

Signature: .....

Name:

Designation:.....

Name of the consultant organization: .....

NABET Certificate No. & Issue Date: .....

### Self-Assessment Checklists

To judge the readiness of an organization for applying and subsequent assessment by NABET assessors including interactions with candidates proposed, a Self- assessment checklist has been developed for IA, SA and RA for use by the applicant organisation -

#### 1) Initial Accreditation –

##### a. Application process –

- i. Have information pertaining to the organization's profile been included in Application Form?
- ii. Is the **Annexure 2** for all candidates proposed been properly filled?
- iii. Has the application form and all CVs submitted are duly signed?
- iv. Does the organization have minimum three eligible in-house/empanelled experts (1 PC and 2 TAE) as per the requirements of the Scheme?
- v. Do all proposed candidates for PC fulfil the criteria of NABET Scheme?
- vi. Do all proposed candidates for TAE fulfil the criteria of NABET Scheme?
- vii. Do the candidates proposed as PC have the requisite experience?
- viii. Do the candidates proposed as TAE have the experience in the Technical area/s?
- ix. Has any candidate been proposed for more than one technical area?
- x. Has any full-time employee with other organizations (except from university, institution and NGO) been proposed as an PC or TAE?
- xi. Does the organization have NABL accredited or MoEFCC recognized in-house/external laboratory for water quality analysis data?
- xii. Does the organization have the valid certificate of accreditation/Notification for the lab?
- xiii. Does the organization have valid MoU signed with the external lab?
- xiv. Does the QMS address the procedures given in **Appendix B** of the Scheme?

##### b. Assessment process

- i. Is the Organization ready for office assessment by NABET – have all candidates read the NABET scheme specially the assessment criteria including the aspects on which the PC and TAEs will be assessed, field investigation requirements (sampling, preservation, laboratory processes) and expected functions of PCs and TAEs?
- ii. Are the candidates aware of the QMS developed by the organization? Is the implementation of QMS documented?
- iii. Does the organisation have arrangements for improving the knowledge/skills of its personnel through trainings/exposures?

- iv. Does the organization have all necessary documentary evidence to be shown to NABET assessors during assessment?

**Self-Assessment Result**

If all questions answered/followed	Apply right now	Ready for applying and assessment
If 50% of questions answered/followed	Apply after addressing the unanswered ones.	Partially ready.
If less than 50% questions are answered/followed	Need To focus on the accreditation guidelines	Not ready for applying and assessment

**2) Surveillance Assessment –**

The Questions of the IA process as mentioned above are valid, as appropriate. In addition, the following Questions may be answered –

**a. Application process –**

- i. Have all NC’s and observations raised during IA been properly closed? Are sufficient documentary evidences available for the same?
- ii. Does the Organization have complete details for PCs and TAEs as per **Annexure 4C and 4D** for inclusion in the SA application?
- iii. Has the Organization used NABL accredited or MoEFCC recognized Lab for the Studies carried out after IA?
- iv. Have all conditions of accreditation as mentioned in NABET’s letter, been complied with?
- v. Has NABET been informed on time of any approved expert leaving the organization and arranged replacement?
- vi. Has a clear list been prepared of experts approved in IA and subsequently and those proposed with the SA application?
- vii. Has the organization used any unapproved person or approved experts after initial accreditation?
- viii. Has the signed declaration of experts involved and countersigned by the CEO in the prescribed format been included in the reports?
- ix. Does the organization have the quality assurance procedures for collection, preservation and transfer of samples and have implemented the same?
- x. Does the organization have procedure and followed the same for ensuring that the NABL accredited/MoEF recognized lab follows its quality control process to ensure correctness of the tests carried out?

**b. Accreditation process -**

- i. Have experts visited site and does the organisation have proper log books for the site visits?
- ii. Has the organisation filled complete details of all laboratories utilized after IA?
- iii. Does the organization have quality assurance procedure for primary and secondary data collection and implemented the same?
- iv. Has the organization-maintained copy of an internal QMS audit report and the last Management Review of the QMS?
- v. Does the organization have programs for capacity building for PCs/TAEs in terms of (a) training programmes attended, (ii) upgrading the educational qualification, (iii) others
- vi. Does the organization have record of NABET AC MoM of all approved candidates?

#### Self-Assessment Result

If all questions answered/followed	Apply right now	Ready for applying and assessment
If 50% of questions answered/followed	Apply after addressing the unanswered ones.	Partially ready.
If less than 50% questions are answered/followed	Need To focus on the accreditation guidelines	Not ready for applying and assessment

### 3) Reaccreditation -

The Questions of the IA process as mentioned above will be valid, as appropriate. In addition, the following questions may be answered –

- i. Have all NCs and observations of SA have been closed?
- ii. Does the organization have all information asked for about laboratories used after SA?
- iii. Does the organization have required information on how the experts are keeping their knowledge updated?
- iv. Does the organization have requisite details of the earlier assessments of experts?
- v. Has the organization made all payments due to NABET?
- vi. Has the organization taken steps towards capacity building for PCs/TAEs/ lab technicians through trainings, improved facilities etc
- vii. Has the organization implemented QMS and made improvements in the same?
- viii. Did the organization use only approved experts for Hydrogeological Report?
- ix. Did the organization check its overall performance from IA to till now?

If all questions answered/followed	Apply right now	Ready for applying and assessment
If 50% of questions answered/followed	Apply after addressing the unanswered ones.	Partially ready.
If less than 50% questions are answered/followed	Need To focus on the accreditation guidelines	Not ready for applying and assessment

**Declaration of Accepting NABET's Code of Conduct**

**C.E.O. / Head of Consultant Organisation**

This is to confirm that I ....., working as CEO/ Head of .....agree with the Code of Conduct (Section 5.3 of Scheme), conditions of accreditation of NABET and give an undertaking that I would abide by the stated conditions for all activities pertaining to Consultancy Services/ Activities. I also understand that awarding/ continuation of accreditation of my organization is subject to continual compliance to conditions of accreditation.

Signatures	_____
Name (Authorized Signatory)	_____
Designation	_____
Organization	_____
Date	_____



(Annexure VIII of “MINISTRY OF WATER RESOURCES, RIVER DEVELOPMENT AND GANGA REJUVENATION” CENTRAL GROUND WATER AUTHORITY, NOTIFICATION Dated: 12th December, 2018 “Guidelines to regulate and control Ground Water Extraction in India”)

### Outline of Hydrogeological Report for obtaining NOC

1. Brief about the proposed project giving location details, coordinates, google/ toposheet maps, aquifer characteristics, ground water flow direction etc. demarcating the project area.
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.
3. Details of the tube wells/ bore wells proposed to be constructed. This includes the drilling depth, diameter, tentative lithological log, details of pump to be lowered, H.P. of pump, tentative discharge of tube wells/ bore wells, etc.

Locations to be marked on the site plan/ map. Location of proposed piezometers.

4. Details of Exploratory Geophysical studies carried out in and around the project area. Ground water resources computation of the block in which the project falls.
5. Approved Mine plan and detailed dewatering plan in case of mines.
6. Proposed usage of pumped water in case of mining/ infrastructure dewatering projects.
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.
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 STP/ ETP/ CETP 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.
  - Ground water level fluctuations, artificial recharge, ground water resource valuation.
10. Any other details pertaining to the project.

To submit your application or for further details contact:  
**National Accreditation Board for Education & Training**

Institute of Town Planners India

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