MANUAL
FOR
DATA COLLECTION

IN

CENSUS OF WATER BODIES

GOVERNMENT OF INDIA
MINISTRY OF WATER RESOURCES,
RIVER DEVELOPMENT & GANGA REJUVENATION
MINOR IRRIGATION (STATISTICS) WING

CONCEPT AND DEFINITION OF WATER BODY

Water bodies are areas of water, both salty and fresh, large and small, which are distinct from one another in various ways. The largest water bodies are oceans, while the smallest are brooks or ponds. Smaller accumulations of water, such as puddles or swimming pools are not usually referred to as water bodies in the geographical sense.

Definition of Water Body to be used in the Census of Water body and 6th MI Census:

Water body: All natural or man-made units bounded on all sides **with some or no masonry work used for storing water for irrigation or other purposes (e.g. industrial, pisciculture, domestic/drinking, recreation, religious, ground water recharge etc.) will be treated as water bodies in this Census.** These are usually of various types known by different names like tank, reservoirs, ponds and bundhies etc.

A structure where water from ice-melt, streams, springs, rain or drainage of water from residential or other areas is accumulated or water is stored by diversion from a stream, nala or river will also be treated as water body.

Type of Water bodies: Following type of water bodies are included. (The list is indicative but not exhaustive).

1. **Ponds:** A small body of water usually earthen though masonry dykes are also included and shallow made through excavations which represent a restricted environment. Ponds usually describe small bodies of water generally no one would require a boat to cross.

2. **Lakes:** A lake is a large area filled with water that is surrounded by land. Lakes lie on land and are not part of the ocean and therefore are distinct from lagoons, and are also larger and deeper than ponds.

3. **Tanks:** A shallow water unit usually larger than a pond created by constructing earthen or masonry barricades which receives water either from tube wells or rains.

4. **Reservoirs:** A large man made impoundment of varying magnitude created by erecting, bunds, dams, barrages or other hydraulic structures across streams or rivers serving one or more purposes such as irrigation, power generation, flood control or other water resource development projects.

5. **Water conservation Schemes:** Water conservation schemes are aimed at improving moisture regime of the adjoining fields downstream for raising of post monsoon crops without irrigation.
   This may include percolation tanks and check dams. Both result in increased percolation of water in the sub-soil with consequent increase of the ground water supply.

Following type of water bodies are excluded:

i. Ocean, lagoons.
ii. River, Stream, spring, waterfalls, canals etc. which are free flowing without any bounded storage of water.
iii. Swimming Pool.
iv. Covered Water tank created for specific purpose by any individual family or household for their sole consumption.
v. Water tank constructed by any factory owner for consumption of water as raw material or consumable.
vi. Temporary water bodies created by digging for mining, brick kilns, and construction activities. These may get filled up during rainy season.
vii. Pucca open water tank created only for drinking for cattle.

Importance of Census of Water Bodies

The Parliamentary Standing Committee on Examination of Demand for Grants of the Ministry of Water Resources, River Development and Ganga Rejuvenation recommended the conduct of Census of Water Bodies along-with the Minor Irrigation Census in order to capture information on important parameters of the water bodies like their number, size, condition, type of use, storage capacity etc. Accordingly, Census of Water Bodies is being conducted along with 6th Minor Irrigation Census. The Water Body Census will cover all water bodies (both in rural and urban area) irrespective of their use. A sound data base on water bodies is essential for effective planning and Policy formation.

GENERAL INSTRUCTIONS FOR FILLING WATER BODY SCHEDULE

All Water bodies, as explained in definition of Water bodies, are to be covered in this Census irrespective of their uses, whether for irrigation or other purposes (e.g. industrial, pisciculture, domestic/ drinking, recreation, religious, ground water recharge etc.). The Water Body schedule is to be filled in both Rural as well as Urban areas. All water bodies in the villages as well as towns are to be listed and enumerated. It has to be ensured that no water body is left out. If any water body spreads in more than one village, it will be treated as one water body and only one schedule has to be canvassed for it.

The provision for capturing photograph along with its latitude and longitude is also kept in Census of Water bodies. The mobile friendly app/software would be sent to States to capture photograph, latitude/ longitude of the water body. Thus, it may be ensured by the enumerator that the photograph has been taken through mobile app. The same photograph has to be attached with concerned water body schedule through on line software. The name of the photograph file would be 21 Digit unique Identification and 12 Digit latitude and longitude number of the concerned water body for easy identification of photograph and same file to be uploaded through on line software with water body schedule data.

I – IDENTIFICATION PARTICULARS:

If the water body is in rural area, then code 1 may be reported, otherwise code 2 for urban may be given.

The name of the State/ District/ Block (Tehsil)/ Village or State/District/Town/Ward whatever applicable will be recorded with respective codes as updated by States/ UTs and sent to NIC. The name and codes given in updated directory for the State has to be used. Since Water body Schedule contain information of Rural or Urban, it may be ensured that if Water Body is in Rural area, it has information of Tehsil and Village code and if Water body is in Urban area the information relating to Urban i.e. Name of Town and their code with Ward number is reported in relevant item.

These Water Body information are to be compiled in Village Schedule or Urban Schedule by type of water body by Rural/Urban bifurcation. It may be ensured that the water body is to be reported either in Village Schedule or in Urban Schedule as per their area.

Serial number of the Water body: The water bodies in a village or town should be given running serial numbers. This will serve as an identification no. of that particular water body in that village. While giving serial no. of the water body, it is to be noted that data collection work has to be started from North-west corner of the concerned village and moving in serpentine way, serial numbers are to be given starting from 001. The serial number has to be given starting from 001 separately for water bodies in each village or town.

Date of enumeration: Date of enumeration has to be recorded in the format dd/mm/yy

Unique Identification key for water body: : This has been kept to have the unique code for identification of water body. 21 Digit code starting from rural/ Urban to serial number of the water body is to be given which will be combination of code for rural/ urban, State,

District, Tehsil/ town/ block, village/ ward and its serial number. It may be noted that for urban area, code of town and their ward number is to be reported. For rural areas, the Block/Tehsil code and Village code is to be reported. No box should be left blank. Leading zeroes may be put. For example, if the Tehsil or block code is only four digits, then leading two zeroes to be added to make it six digit code.

II - SPECIFIC INFORMATION:

Item 1.1(a): Name of the Water body, if any, with specific permanent land marks: If there is any name of the water body, the same may be written, otherwise, permanent land mark nearby water body may be written for easy identification of water body.

Item 1.1(b): Name of Basin & Sub-basin in which water body is situated: The name of Basin and Sub-basin in which water body is situated may be recorded in this item. The code, if available, may also be reported in the boxes provided in the schedule.

Item 1.2(a): Type of Water body: The type of the water body is to be recorded in this item in terms of code. The codes are:

Pond-1, Tank-2, Lake-3, Reservoir-4, Water Conservation Scheme/percolation tank/check dam -5, Others-9.

Code 1 will be given in case of Ponds which are smallest in size. Code 2 may be given for tanks. A tank is neither very small nor very large but it may require a ferry or boat to cross it while ponds are small water bodies mostly kutcha in nature and do not require a ferry or boat for crossing from one side to the other. The lake may be little bigger than tank. The concept and definition may be looked in before assigning any code.

Item 1.2(b): If code in item 1.2(a) is 9 i.e. 'others', then the nature of storage may clearly be specified here.

Item 1.3 Khasra No./ Plot No./ Survey No. in which the water body is located:

Khasra no./ Plot no./ Survey number, in which the water body is located, shall be noted against this item for physical verification etc. which may be needed at a later date. If the water body is spread in more than one village or town, khasra number/ plot number/ survey number of that village or town will be recorded in which maximum area of the water body exists.

Item 2 and 3: Latitude and Longitude (In degree, minutes, seconds): The six digit latitude and longitude of the water body has to be captured by the hand held device (mobile or other device) and has to be recorded in these items. The latitude and longitude of the water body may be preferably taken at its North West corner.

Item 4: Whether located in DPAP/ Tribal/ DDP/ Flood prone/ Naxal affected area:

Appropriate code as per the location of water body may be given.

Code 1 is for Drought Prone Area Programme (DPAP)-1. The basic objective of the DPAP programme is to minimize the adverse effects of drought on production of crops and livestock and productivity of land, water and human resources ultimately leading to drought

proofing of the affected areas. The programme also aims to promote overall economic development and improving the socio-economic conditions of the resource poor and disadvantaged sections inhabiting the programme areas.

Code 2 is for Tribal area.

Code 3 is for Desert Development Programme (DDP). DDP was started both in hot desert areas of Rajasthan, Gujarat and Haryana and the cold deserts of Jammu & Kashmir and Himachal Pradesh in 1977-78. From 1995-96, the coverage has been extended to a few more districts in Andhra Pradesh and Karnataka.

Code 4 is to be given for flood prone area. The main flood prone areas are:

Ganga Basin: The Ganga Basin gets flooded mostly in the northern part by its northern tributaries. The badly affected states of the Ganga basin are West Bengal, Bihar and Uttar Pradesh. Besides the Ganga, rivers like Sarada, Rapti, Gandak and Ghagra cause flood in eastern part of Uttar Pradesh. The Yamuna is famous for flooding Haryana and Delhi. Bihar experiences massive dangerous flood every year. River Burhi, Bagmati, Gandak, Kamla along with many small rivers contribute to that. In West Bengal, rivers like Mahananda, Bhagirathi, Damodar, Ajay etc. cause floods because of tidal effects and insufficient river channels.

Brahmaputra and Barak Basins: The river banks of Brahmaputra and Barak get flooded due to the surplus water found in the Brahmaputra basin and the Barak basin. These rivers along with their tributaries flood the northeastern states like West Bengal, Assam and Sikkim. Jaldakha, Teesta and Torsa in northern West Bengal and rivers in Manipur often overflow their banks.

Central India and Deccan Rivers Basin: In Orissa, spilling over of river banks by Mahanadi, Baitarni and Brahmani causes havoc. The deltaic area formed by these three rivers is thickly populated. Even some small rivers of Kerala and mud stream from the nearby hills add on to the destruction. Southern and Central India observe floods caused by Narmada, Godavari, Tapi, Krishna and Mahanadi due to heavy rainfall. Cyclonic storms in the deltaic regions of Godavari, Mahanadi and Krishna even floods the coastal regions of Andhra Pradesh, Orissa and Tamil Nadu occasionally.

Code 5 is for naxal affected area and rest of the area can be given as code 9 i.e. others.

Appropriate code may be given depending upon the location of the water body. Above information/ list is illustrative not exhaustive. Thus, the information may be taken from authorised or knowledgeable person before recording it in the schedule.

Item 5: Ownership: The owner of the water body may be Government or Private. The appropriate code applicable may be given. The codes are:

State WRD/ State Irrigation-1, Co-operative-2, Panchayat-3, Municipal authority-4, Other Govt. agency-5, Individual-6, Group of Individuals-7, other private body-9.

Item 6(1): Whether water body is in use: Yes-1, No-2: If the water body is being used for any purpose like irrigation, industrial, pisciculture, domestic/drinking, recreation, religious

or ground water re-charge, it should be treated as in use irrespective of their use and code 1 may be recorded. In case, there is no use of water body or no physical existence of water body, then code 2 may be reported.

Item 6(2): If in use i.e. code 1 in item 6(1) above: If the water body is in use i.e. code 1 in item 6(1) above, then appropriate code for its use has to be reported in this item. If the water body is used for more than one type of use, maximum of three codes of use may be recorded in the order of preference of its use. For example, if a water body is primarily used for irrigation, but is also used for domestic purpose, code will be recorded as 1 in the 1st box and 4 in the 2nd box.

6(3) If water body is "in use" for irrigation i.e. code 1 in item 6(2) , the CCA and IPC of Water body: If the Water body is "in use" and is being used for Irrigation purpose then its Culturable Command Area (CCA) and Irrigation potential created (IPC) may be reported in hectares. If the information of CCA and IPC is not directly available from any records, the same information may be ascertained from local knowledgeable person like Patwari/Sarpanch/Gram Sevak. In addition, CCA and IPC of the schemes installed on the Water Body can also be utilized to derive CCA and IPC of water body. If the water body is spread in more than one village, efforts may be made to include all the area for arriving at CCA and IPC.

Item 6(4) If not in use i.e. code 2 in item 6(1) above: If the water body is not in use i.e. code 2 in item 6(1) above, appropriate code for its reason is to be reported in this item as applicable. The codes are:

Dried up-1, Construction-2, Siltation-3, destroyed beyond repair-4, Salinity-5, due to industrial effluents-6, others-9.

The status of its use/ not in use should be as on the date of survey. Code 1 will be reported only when code 2 to 6 is not applicable.

Item 7(1): Type of water body by nature: If the water body is natural code 1 may be reported. For the man made water body (Dam, weir, constructed new pond/ tank in MGNREGA, etc.), code 2 is to be reported.

Item 7(2): If man made i.e. code 2 in item 7(1): As per the nature of water body in terms of type of its construction i.e. whether it is earthen, made of concrete or masonry work is done, the applicable code is to be reported in this item. Otherwise code 9 may be reported. If water body is constructed only from earthen kutcha material, code 1 may be reported. If water body is Pucca from Cement or concrete, code 2 may be given. If the water body is made up of bricks with masonry work, code 3 can be given. For rest of cases code 9 may be given.

Item 8: Year of construction and cost (only for manmade): If water body is manmade i.e. code 2 in item 7(1), the original cost incurred (in Rs.) at the time of its construction and year in which, it was made, is to be reported in this item.

Item 9: Year of renovation/ repair (for all water bodies): If any renovation or repair work of the water body has been done, the cost of latest renovation/ repair done (in Rs.) and year of latest renovation/ repair has to be recorded in this item.

Item 10: Whether water body is under repair/ renovation/ restoration: If the water body is presently under repair/ renovation/ restoration, code 1 will be reported else code 2 will be reported in this item. Information for items 10(1) to 10(6) will be recorded if water body is presently under repair/ renovation/ restoration.

In item 10(1), name of the scheme is to be written under which the water body is under repair/ renovation or restoration. Year of inclusion under the scheme, targeted year of completion and estimated cost will be accordingly recorded in items 10(2), 10(3) and 10(4) respectively. The target of potential revival and Irrigation Potential revived may also be collected in item 10(5) and Item 10 (6) in hectare. The target of Potential revival relates to improvement and it will indicate additional potential likely to be increased due to repair/renovation/restoration. Similarly, the Irrigation Potential revived will indicate additional potential revived so far.

Item 11: Water spread area of the water body (in Ha): Water spread area of the water body has to be reported in hectares up to **three** decimal points. If the water body is spread in more than one village, efforts may be made to include all the area for arriving at water spread area. It is clarified that water spread area will have the meaning of area covered by water i.e. land occupied by water (submerged area).

Item 12: Maximum depth of water body when fully filled up (in meters): The maximum depth (in meters) of water body is to be recorded in this item. Even if the water body is not fully filled up at the time of survey, depth would be recorded presuming it to be fully filled.

Item 13: Storage capacity of water body in cu. meters: The original storage capacity and present storage capacity of the water body in cubic meters is to be reported in this item. Designed storage of all the tanks / ponds / reservoirs in the village may be obtained from the records if available for original otherwise with the help of surface area and the average depth of tank and their sum total may be estimated and recorded here. The designed capacity of the reservoir may be available in records as these are generally owned by public sector, i.e. owned by cooperatives/ govt. department and information may be taken from the records. In case of ponds/ tanks owned by individual farmers, its approximate volume in terms of cubic meters may be estimated after conversion from local units as obtained from the owner.

Item 14: **Filled up Storage (during 2017-18):** The information for this item has to be collected for the reference year 2017-18 and appropriate code has to be recorded. Codes for this item are:

Full -1, up to 3/4 - 2, up to 1/2 -3, up to 1/4 - 4 , Nil/Negligible filled up – 5.

Item 15: Status of filling up of storage space (based on around 50% filling up of storage during last 5 years): The appropriate code will be decided based on the information based on 50% filling up of storage in last 5 years. The codes are:

Filled up every year - 1,
Usually filled up - 2,
Rarely filled up - 3,
Never filled up - 4.

Item 16(1): Number of Cities/ towns/ villages benefitted: The number of cities/towns and number of villages benefitted by the water body under coverage has to ascertained and recorded in this item separately.

Item 16(2): Number of people directly benefited by Water Body: The number of people directly benefited by the Water body is to be reported in this item. In case, there is any problem in collecting exact number, the estimated number may be ascertained from local knowledgeable person and recorded.

Item 17(1): Whether water Users Association (WUA) is formed(Except individual Ownership): If the Water body users association is formed or associated for taking decisions on matters relating to utilization of water of the water body under consideration, code 1 will be recorded and code 2 if no. Efforts should be made to get the information. However, if the information is not available despite best efforts, then code 3 i.e. not known may be recorded. For the Water Bodies whose Ownership is Individual i.e code 6 in item 5 this has to be left blank.

Item 17(2), If yes i.e. code 1 in item 17(1): If in item 17(1) information is yes i.e. code 1, it may be possible that some area of Water body is not covered by Water Users Association. Thus, if the Water Users Association covers entire area of water body then code one can be given i.e Full area covered in item 17(2)(a), otherwise code 2 i.e Partially area coverage can be given. Item 17(2)(b) relates to total number of Water Users Association (WUA)formed in a Water Body.

Item 18: Whether water body included in District Irrigation Plan (DIP)/ State Irrigation Plan (SIP): If the water body under survey is covered in District Irrigation Plan (DIP) or State Irrigation Plan (SIP), code 1 has to be recorded in this item else code 2 will be recorded.

Item 19(1): Whether any area of water body is encroached (Yes-1, NO-2): If the water body or any part/ area of it has been encroached, code 1 has to be recorded else code 2 is to be recorded in this item.

Item 19(2) and Item 19(3): If Yes in item 19(1) : If it is observed that the area of water body has been encroached then it has to be ascertained whether the encroachment area can be assessed approximately (percentage). If Yes, than approximate percentage of area encroached may be given in item 19(3) in two digit without decimal. To assess the area of encroachment, for water body owned by Public, the original water spread area can be enquired from the authority under which the Water Body is functioning.

Name of Enumerator, designation, mobile number and remarks (if any) should be written in CAPITAL letters clearly and signature should be with date.

Name of Supervisor, designation, mobile number and remarks (if any) should be written in CAPITAL letters clearly and signature should be with date.

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GENERAL INSTRUCTIONS FOR FILLING URBAN SCHEDULE

This is to be filled up for each Town in the district. Some general information about the town is to be written. The items are self explanatory.

I. IDENTIFICATION:

The name of the State/ District/ Town will be recorded with respective codes as updated by States/ UTs. The name and codes given in updated directory for the State has to be used.

Date of enumeration: Date of enumeration has to be recorded in the format dd/mm/yy

II. SPECIFIC INFORMATION:

Item 1: Total number of wards in the town: Total number of wards in the town under survey has to be recorded in this item.

Item 2: Ward wise and type wise number of water bodies as per water body schedules filled:

This information should be recorded after canvassing all the water body schedules in the town. The number of various types of water bodies has to be tabulated ward wise. If required, additional sheet of paper may be used for tabulating ward wise, type wise number of water bodies and attached with the urban schedule. The grand total in col. 8 of item 2 i.e. total number of water bodies should tally with the number of water body schedules canvassed, for ensuring completeness at data processing stage.

Name of Enumerator, designation, mobile number and remarks (if any) should be written in CAPITAL letters clearly and signature should be with date.

Name of Supervisor, designation, mobile number and remarks (if any) should be written in CAPITAL letters clearly and signature should be with date.

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