Chapoli, M.I. Tank

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Carambolim Lake

REPORT ON
FIRST CENSUS OF WATER BODIES
(With reference year 2017-18)
GOA STATE

Mayem Lake

Salaulim Dam

GOVERNMENT OF GOA
DIRECTORATE OF PLANNING, STATISTICS AND EVALUATION
PORVORIM-GOA

REPORT ON 1ST CENSUS OF WATER BODIES

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PREFACE

Water is a priceless natural resource covering three fourths of the earth's surface but unfortunately accounts for a small fraction of fresh water content essential for life sustenance. Considering the importance and sustainable management of water resources, for the first time, the Ministry of Jal Shakti, Department of Water Resources, River Development and Ganga Rejuvenation, Government of India has introduced the 1st Census of Water Bodies (CWB) along with the 6th Minor Irrigation Census (MIC) under the Centrally Sponsored Scheme "Irrigation Census" in the country with the objective to develop a national database for all water bodies by collecting exhaustive data on all important aspects of the water bodies including nature, size, condition, status of use and encroachments, storage capacity, ownership etc.

Goa has had the privilege of participating in this census with reference year 2017-18 which was conducted by the Directorate of Planning, Statistics and Evaluation as per the guidelines of the Ministry of Water Resources, Government of India under the guidance of the ex - Director, Dr. Y. Durga Prasad. The efforts of the team of Enumerators, Supervisors, BDO Level Statistical Assistants/Coordinators involved in the timely completion of fieldwork of the Census and support provided by the State Water Resources Department is appreciated.

This Census report is the team work of the staff of the Minor Irrigation Census Cell of the Coordination Division of this Directorate, Shri Rajesh Veluskar, Statistical Assistant and Ms. Neumani M. Rodrigues, Dy, Director under the overall supervision of the Cesus Commissioner/Director, Shri Vijay B. Saxena.

The data in this census report will be extremely useful for planners, researchers, scholars, agricultural and water scientists, policymakers and administrators towards development, preservation, restoration, conservation and safeguarding the State's water bodies from pollution and misuse.

Shri. Vijay B. Saxena

Director& Minor Irrigation Census Commissioner

Porvorim,
Dated: July, 2024.

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HIGHLIGHTS

1. The initiative of conducting the 1st Census of Water Bodies concurrently with the 6th MI Census resulted in substantial savings in respect of planning, training of field staff, data entry, validation etc. because the coverage area of both the censuses in rural area was the same. The 1st Census of Water Bodies also covered urban areas and took into account all types of uses of water bodies like irrigation, industry, pisciculture, domestic/drinking, recreation, religious purpose, ground water recharge and other purposes.
2. The photograph of the water bodies along with the latitude and longitude was captured by a mobile app developed for this purpose.
3. A total 24,24,250 nos. of water bodies have been enumerated in the Country, out of which 97.10% (23,55,055 nos.) are in rural areas and only 2.90% (69,485 nos.) are in urban areas. Goa accounts for 0.06% of the water bodies enumerated in the Country.
4. 59.50% (14,42,993 nos.) of water bodies are ponds, followed by tanks (15.70%, i.e. 3,81,805 nos.), reservoirs(12.10%, i.e. 2,92,280 nos.), Water conservation schemes/percolation tanks/check dams (9.3%, i.e. 2,26,217 nos.), lakes(0.9%, i.e. 22,361 nos.) and others (2.50%, i.e.58,884 nos.)
5. In the State of Goa, 1,463 nos. of water bodies have been enumerated, out of which 96.10% (1,406 nos.) are in rural areas and only 3.90% (57 nos.) are in urban areas.
6. 59.05% (864 nos.) of water bodies are ponds, followed by tanks (13.67%, i.e. 200 nos.), reservoirs (1.16%, i.e. 17 nos.), water conservation schemes/percolation tanks/ open type bandharas/check dams (21.05%, i.e. 308 nos.), lakes (3.15%, i.e. 46 nos.) and others (1.92%, i.e. 28 nos.).
7. South Goa District has the highest number of Water Bodies (61.31% i.e. 897 nos.) compared to North Goa District (38.69% i.e. 566 nos.). Out of the total 864 nos. of Ponds in the State, South Goa District accounts for 621 nos. of Ponds (71.88%) compared to 243 nos. of Ponds in North Goa District (28.12). Out of the total 200 nos. of Tanks, a major chunk of the Tanks (93% i.e. 186 nos.) are concentrated in North Goa District compared to South Goa District (7% i.e.14 nos.).Out of total 308 nos. of Water Conservation Schemes(bandharas)/Percolation Tanks/Check Dams, South Goa District has the highest count (69.48% i.e. 214 nos.) compared to North Goa District (30.52% i.e. 94 nos.). The total 46 nos. of Lakes are equally located in both the districts (50% i.e. 23 lakes in each district). Out of the total 17 nos. of reservoirs, North Goa District has

the highest numbers (64.70% i.e. 11 nos.) compared to South Goa District (35.30% i.e. 6 nos.). Out of the total 28 nos. listed in "other water bodies" South Goa District has the highest number (67.85% i.e. 19 nos.) compared to North Goa District (32.15% i.e. 9 nos.).

8. A major portion of water bodies i.e., 75.39% (1103 nos.) are in use whereas the remaining 24.61% (360 nos.) are not in use on account of drying up, construction activity, siltation, destroyed beyond repair, salinity intrusion and other reasons.
9. Most of the water bodies are used for irrigation followed by religious purposes, domestic/drinking, pisciculture, ground water recharge and recreation.
10. 58.30% (853 nos.) of water bodies are owned by private entities whereas 41.70% (610 nos.) of water bodies are in public domain. Out of all the Government owned water bodies, maximum water bodies are owned by the State Water Resources Department followed by Panchayats. Out of all the private owned water bodies, maximum ownership is in the hands of group of individuals followed by other private bodies and individual owner/farmer.
11. 50.78% (743 nos.) of enumerated water bodies are man-made whereas the remaining 49.22% (720 nos.) are natural water bodies.
12. In terms of storage capacity, 41.71% (698 nos.) of water bodies have storage capacity between 0 to 100 cubic meters, 37.80% (553 nos.) have storage capacity between 100 to 1000 cubic meters, 11.62% (170 nos.) have storage capacity between 1000 to 10,000 cubic meters whereas only 2.87 (42 nos.) have storage capacity of more than 10,000 cubic meters.
13. Out of the total 1,463 enumerated water bodies, the information on 'water spread area' has been reported in respect of 1,460 nos. of water bodies. 84.52% (i.e. 1,234 nos.) of water bodies have water spread area of less than 0.5 Ha, 9.17% (i.e. 134 nos.) have water spread area between 0.5 to 1.0 Ha. 5% (i.e. 73 nos.) of the water bodies have water spread area between 1 to 5 Ha., 0.34% (i.e. 5 nos.) have water spread area between 5 to 10 Ha., 0.34 (i.e. 5 nos.) have water spread area between 10 Ha. to 50 Ha., and 0.62% (i.e. 9 nos.) have water spread area of more than 50 Ha.
14. 90.48% of the 'in use' water bodies are fulfilling the water requirement needs of up-to 100 people, whereas 9.52% water bodies are meeting the needs of more than 101 to 10,000 people. In terms of benefits to city/town/village, 88.57% water bodies are benefiting one city/town/village, 10.87% are benefiting 2-5 towns/villages whereas remaining 0.54% are benefitting more than 5 towns/villages.

15. For the first time, information on encroachment of water bodies is collected under the 1st Census of Water Bodies. Out of the total nos. of 1463 nos. of water bodies enumerated water bodies, 8 nos. are reported to be encroached and all are in rural areas (5 nos. of ponds, 1 no. tank and 2 nos. of water conservation schemes). Out of the encroached water bodies, 37.5% (i.e. 3 nos.) water bodies in South Goa district have less than 25% area under encroachment, 1 water body in North Goa district (i.e.12.5%) has encroachment between 25% to 50% whereas 1 no. of water body in South Goa district has more than 75% area under encroachment.
16. Out of all water bodies, 128 nos. are covered in the State Irrigation Plan. Among these, 14 nos. are ponds, 8 nos. are tanks, 1 lake, 5 nos. are reservoirs, 97 nos. are water conservation schemes and 3 nos. are other water bodies.
17. The information on 'filled up storage capacity' has been collected for 1,127 nos. of water bodies which are ponds/tanks/lakes/reservoirs. Out of these water bodies, 38.33% (432 nos.) of water bodies have fully filled up storage capacity, 23.95% (270 nos.) have filled up storage capacity up-to half, 23.78% (i.e. 268 nos.) have storage capacity filled up-to three fourth level, 11.54% (i.e. 130 nos.) have filled up storage capacity up-to one fourth level and 2.40% (27 nos.) have negligible storage capacity.

CHAPTER 1

GENERAL BACKGROUND

Introduction

Water is a precious natural resource and essential for sustaining life on the planet. Water is as fundamental as breathing and is linked to every aspect of development be it economic growth, healthy ecosystems, agriculture, industry, animal husbandry, generation of electricity, recreation and for endless purposes. Only less than 3 percent of the total water available on the earth is fresh water, out of which, about 75.2 percent lies frozen in polar regions and the other 22.6 percent is present as ground water. The rest is available in lakes, rivers, atmosphere, moisture, soil and vegetation. In fact, a small proportion of fresh water is available for human use.

Although, water is a recyclable resource, its availability is limited and the gap between the supply and demand is widening over time. Climate change at the global scale will also add to the water stress conditions. Considering the declining availability of freshwater and increasing demand, the need of the hour is conservation, effective management and judicious use of this life-line resource for sustainable development by encouraging initiatives like watershed development, rainwater harvesting, water recycling and reuse, and conjunctive use of water for sustaining water supply in the long run.

India had abundant supply of water resources. Unfortunately, from being a water abundant country India is steadily progressing towards water scarcity due to increasing population pressure and urbanization. At present, it is sustaining 18 percent of the world population with only 4 percent of global water resources. Therefore management of global water resources has assumed great importance. Today availability of water resources is a major issue and is a big challenge facing our country.

Agriculture is the primary occupation of the rural population of India and contributes a considerable share in the GDP of the country. Despite large scale of industrialization, emphasis has been given on increasing agricultural production. One of the major setbacks for intensive agricultural activity is the dependency on rainfall which is uncertain and there is a lack of assured and dependable water supply throughout the year. Hence development of agriculture sector is highly depended on availability of water for irrigation purpose.

Water bodies are an integral part of fresh water resources. The landscape of India is dotted with large number of water bodies. Traditionally, these water bodies have played an important role in supply of drinking water, for domestic use as well as served as the major source of Minor Irrigation (MI) system for sustaining agriculture in India. In urban areas also water bodies play an important role as a source of drinking water, absorption of flood water and for recharging ground water. Therefore, it becomes imperative to assess where freshwater resources exists, how they are used, and how climate, technology, policy and people can play important role in conservation/restoration of these water bodies for healthy and sustainable development.

1.1 Need for Water Bodies Census(WBC) and its Importance

The need for conducting a separate census of water bodies was pointed out by the Parliamentary Standing Committee on Water Resources on the subject "Repair, Renovation and Restoration of Water Bodies – Encroachment on water bodies and steps required to remove encroachment and restore the water bodies". The Department of Water Resources (DoWR), Ministry of Jal Shakti had maintained database of only those water bodies which were being provided Central Assistance under the Scheme of Repair, Renovation and Restoration (RRR) of water bodies, thus confining its monitoring role to only such water bodies. The Committee recommended that in order to enable an objective assessment of water bodies and these condition, there should be a separate census of water bodies and thereby creating a Central database on water bodies. As recommended by the Standing Committee, the first Census of water bodies was launched by the Department of Water Resources, River Development & Ganga Rejuvenation in 2017-18 in convergence with the 6th Minor irrigation Census.

The data on water bodies will serve the following purposes:

- The water bodies' census data will serve as an authentic dataset for estimation of recharge of ground water.
- Information obtained from MI census and water bodies' census will be highly useful in implementation of various water resources related schemes, preparation of water budgets, preparation of realistic water security plan and planning various supply/demand side measures through convergence of ongoing schemes. Block/Gram Panchayat level data related to MI structures and water bodies will help in convincing the community of the actual groundwater conditions at the local level and take corrective measures.

- The information can be used for analysis of distribution of abstraction structures coordinates (Longitude and Latitude) and assessment of ground water draft.
- The census will provide an opportunity to get ground information on farm level water trading from bore wells. The information will be relevant to State Governments involved in farm level irrigation and water management.
- The census data will also be useful for the Department of Fisheries for planning and implementing the central scheme, "Pradhan Mantri Matsya Sampada Yojana"(PMMSY)

The Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti, Government of India, has been conducting the quinquennial census of minor irrigation structures, under the Centrally Sponsored Scheme "Irrigation Census" with 100% Central assistance to States/UTs. The scope of Irrigation Census Scheme was widened by launching the Census of Water Bodies in convergence with the 6th Minor Irrigation Census to cover all types of water bodies in both rural and urban areas and to collect all the important parameters of each water body such as number, size, condition, functional status, storage capacity, type of use, water spread area, ownership status etc. in order to create a sound data base on water bodies which is essential for effective planning and policy formation.

CHAPTER 2
WATER BODIES COVERED UNDER THE PURVIEW OF THE CENSUS, CONCEPTS AND DEFINITIONS

A brief understanding of the basic concepts, terminology and definitions associated with the MIC is given below:

2.1 Definition of a Water Body

Water Bodies are areas of water, both salty and fresh, large and small, which are different from one another in various ways. The largest water bodies are oceans followed by seas, lakes etc. while the smallest are brooks and ponds. Accumulations of water such as puddles or swimming pools are not usually referred to as water bodies in the geographical sense.

2.2 Definition of a Water Body for the purpose of Census of Water Bodies

For the purpose of the census, 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.) were to be treated as water bodies. These included tanks, reservoirs, ponds, water harvesting structures, dams etc. A structure where water is accumulated from ice-melt, streams, springs, rain or drainage of water from residential/other areas or water is stored by diversion from a stream, nallah or river was also to be treated as a water body.

2.3 Type of Water Bodies and their indicative definitions

- Ponds: A small shallow natural or excavated water body usually earthen or with masonry dykes. Generally one would not require a boat or canoe to cross it.
- Lakes: A large area filled with water surrounded by land. Lakes are larger and deeper than ponds and are not part of the ocean and hence, are distinct from lagoons.
- Tanks: A shallow water body usually larger than a pond created by constructing earthen or masonry barricades and gets water sourced from tube wells, springs, rains etc.
- Reservoirs: A large man made structure to impound water by erecting bunds, dams, barrages or any other hydraulic structures across rivers, streams etc. usually serving multi-purposes such as irrigation, recreation, power generation, flood control or any other water resource development projects.

- Water Conservation Schemes: These schemes are aimed at improving the moisture of the fields downstream and promote ground water recharge for facilitating raising of post monsoon crops without irrigation. Water conservation schemes may include percolation tanks and check dams. In Goa, these are referred as bandharas.

Basically, all free flowing water bodies without any bounded storage of water were excluded from the purview of the 1st census of water bodies as under:

- Oceans, Seas and Lagoons
- Rivers, Streams, Springs, Waterfalls, Canals etc.
- Swimming Pools
- Covered Water Tanks created for a specific purpose by any individual family or household for their sole consumption.
- Water Tanks constructed by any factory of industry for consumption of water as raw material or consumable.
- Temporary water bodies such as pits created by digging for mining, brick kilns or construction activities. These usually get filled with rain water during the monsoons.
- Open water tanks built as troughs specially for drinking for cattle.

CHAPTER 3

METHODOLOGY ADOPTED FOR CONDUCT OF WATER BODY CENSUS

3.1 Mechanism of Conduct of Water Bodies Census

The First census of Water Bodies was conducted along with the census of 6th minor irrigation structures with the reference year 2017-18 covering all water bodies in urban as well as rural areas irrespective of their use. The Water Body schedules were designed by the Ministry of Jal Shakti, New Delhi accordingly and were filled in both rural as well as urban areas.

The Ministry had finalized the statistical instruments for conducting the census like questionnaire, guidelines etc. in consultation with the stakeholders. The software for data entry and the mobile app for capturing latitude, longitude and photograph of the water bodies were developed by National Informatics Center (NIC). Thereafter, the Ministry conducted the regional trainings and data processing workshops were conducted to train the trainers in States/UTs for familiarizing them with the process of conducting the census along with hands-on training on the data entry software and mobile app.

Thereafter, the States conducted training at district and block level for enabling the field level functionaries to collect the data. After, completing all the preparatory work, the field work of the First Census of Water Bodies in convergence with the 6th Minor Irrigation Census was launched in the States/UTs.

3.2 Methodology of Data Collection

The traditional methodology i.e. paper based schedules were canvassed both for rural and urban areas. Three schedules namely ‘Village schedule’, ‘Urban schedule’ and ‘Water Body schedule’ were canvassed in the census. Data was collected on real time basis and a smart phone was used by the field functionaries to capture latitude, longitude and photograph of water bodies.

After the States/UTs had completed the field work, data entry and validation work, the validated data was again examined at the central level before generation of final table. The tabulated data was again shared with States for final confirmation about their reported data.

Since the water bodies census was conducted concurrently with the 6 thMinor Irrigation Census (MIC), the data was collected through canvassing the enumeration schedules by the same

enumerator who canvassed schedules for Minor Irrigation schemes in Villages. For urban areas also, the same enumerators canvassed the water body schedules.

While the field work was in progress, supervision and checking was done by:

i. Enumerator's Supervisor
ii. Block level Officers
iii. District level Officers
iv. State level Officers as per the norms prescribed.

In the census of water bodies, the captured photograph along with the latitude and longitude of the water body were uploaded on the online portal along with the schedule of the concerned water body. For easy identification of photograph, a 21 Digit Unique identification number of the water body and its latitude and longitude was assigned as the name of photograph file.

3.3 Coordination Mechanism

A Steering Committee was constituted at the Central level under the Chairmanship of Secretary and members from NITI Aayog, Central line Ministries like Ministry of Agriculture, Rural Development, Panchayati Raj, Housing and Urban Affairs, Home Affairs, Statistics and Programme Implementation; State Governments of Rajasthan, Uttar Pradesh, Telangana, Haryana, West Bengal and Sikkim; Central Water Commission and Central Ground Water Board to guide and advise about the conduct of 6th MIC and first WBC.

A Steering Committee was also formed in each State with Secretary of the Nodal Department as Chairman and members from the State Departments of Revenue, Irrigation, Water Resources, Panchayati Raj, State Planning, Directorate of Economics and Statistics, Rural Development and State head of National Sample Survey Office (Field Operations Division).

Further, a Technical Sub Committee was formed under the Chairmanship of Regional Chief Engineer of CWC in charge of the State to provide technical inputs and guide the State Nodal Statistical Cell during the census operations. The Regional Chief Engineer of Central Water Commission and a representative from regional Office of Central Ground Water Board were also members of this Committee, wherever possible.

3.4 Training Programme for Data Collection

To ensure quality of data collection, a training- cum-Workshop for the Trainers was organized during March 2018 at the Central level in New Delhi in which officers from each States/ UT participated.

The next level of training on schedules/ instructions for 6th MIC and WBC was imparted through Six regional training Workshops organized by the Ministry in association with six host States of Uttarakhand, Telangana, Sikkim, Goa, Himachal Pradesh, Odisha from June to August 2018.

Four Regional Workshops for Data Processing were also organized during December, 2018 to January, 2019 to impart training on data processing modules of the software along with mobile App developed by NIC for 6th MIC and Census of Water Bodies. These were organized at Aurangabad, Chennai, Guwahati and Lucknow. Further, State/ District/Block level trainings were organized by respective States.

3.5 Field Work

The first Census of Water bodies was conducted under the overall charge of Census Commissioner who was a Senior Officer of the Nodal department of the concerned State/UT. The fieldwork was either undertaken by the Nodal department itself or entrusted/outsourced to some other agencies as per the prerogative of the State/UT Government, keeping in view the infrastructure available. However, for the entire census operation, Census Commissioner of the State /UT was the pivotal point as far as Government of India is concerned.

3.6 Supervision and Inspection

The primary work of collection of data was carried out by the enumerators both in rural and urban areas. They were village level workers or Patwaries or any other official designated by the State/UT Government in rural and urban area.

The primary enumerators, while canvassing the schedules, visited the owner of the water bodies or its next neighbour and collected information on the basis of personal enquiry from him. The purpose of the census was explained to the farmers/owners to win over their confidence in revealing the specific information in respect of water bodies as the case may be. Assurance that the data furnished by them would be kept confidential was given to the owners. Certain information relating to the water bodies was collected by the enumerators by physical

examination of the scheme. After filling up the schedules, the enumerators deposited all completed schedules along with their summary in the prescribed format to their immediate supervisor for scrutiny.

The work of supervision was entrusted to higher supervisor level officers of the field agency. The Supervisors were advised to submit all schedules to the Block development Officer/Officer-in-charge at the block level. However, the overall quality of field work was monitored by Block/District level/State Officers, who in order to ensure the correctness of data, conducted frequent site visits of the schemes and checked the entries made by primary enumerators.

The objective of the additional scrutiny by the officer next in hierarchy to the enumerators was for improvement in quality of data starting right from the village/urban unit identified.

3.7 Sample Check

For census of water bodies, 25% of schedules were scrutinized by the immediate supervisor of the enumerator and 10% schedules of water bodies were scrutinized by the block level officer. The block level officer had to visit atleast 5 villages in his block and physically verify the water bodies covered, quality of census and the extent of coverage of water bodies in the village and scrutinize atleast 10% or 300 schedules, whichever is maximum, in order to ensure the correctness of data collected. On completion of the scrutiny and after the field visits, block level officer was required to fill up the supervisor's report form and submit all the schedules to the district level officer concerned (with copy to State Nodal Office).

Atleast 1% of the total schedules or 100 Schedules, whichever is maximum, were selected at random and scrutinized by the district level officer. The district level officer visited atleast 5 villages in 5 separate blocks to physically verify the quality and coverage of the water body schedules.

After the completion of inspection of the field work and scrutiny of the schedules; the supervisor's report form was to be filled up by the district level officer and submitted to the State Nodal office with a copy to the Centre.

The Monthly Progress Reports on the Census sent by the State adequately reflected scrutiny/inspection details sent by Block/District level Officer along with field work. Frequent inspections and sample checks were also conducted by officers from the State Statistical Cells

along with field visits by Central team from the Department of Water Resources, River Development and Ganga Rejuvenation (RD & GR).

3.8 Computerization of Census Data

The water body census data computerized by State/UTs was stored in a Central database server located in New Delhi, developed and maintained by National Informatics Centre (NIC), Department of Water Resources, RD& GR. The real-time Progress Monitoring module on the portal helped in viewing the progress in data entry and taking timely corrective action both at the Central as well as State /UT level, thereby reducing delays.

In addition, the software had different modules for data entry, validation and up-dating by States /UTs apart from tabulation and other useful reports. Central and State Government officials in the Nodal Department were provided separate user credentials for accessing the software as per requirements. The schedules were handed over by the State Nodal Office to the selected agency for data entry, in the prescribed format.

The Census data entered in the online portal by the States/UTs was again scrutinized at the Central level and observations/queries thereon were referred to States /UTs for corrections/clarifications. Online tables were generated on the portal on the basis of data fed by the States/UTs.

3.9 Financial Aspects

As a token of appreciation for work entrusted to various officials in addition to their normal duties and not as compensation or remuneration for additional work, the officials who were involved in field work, scrutiny, inspection of field work and schedules at the State/District/ Block/Village levels were paid suitable honorarium as per the operational guidelines for the Census of Water Bodies. Funds for printing of schedules, data entry & validation and contingency were also earmarked separately. Separate funds were kept for conduct of census of water bodies in urban areas also.

3.10 Monitoring Process

The States/ UT Governments were required to submit Monthly Progress Report both for census of water bodies in the prescribed format to the Ministry. Besides that, real time progress of data entry and validation was accessed online through the software provided by the Ministry. This helped in monitoring the progress of census work and taking remedial measures whenever

required. In addition to the monthly progress reports, a report regarding completion of field work from all villages/towns was submitted by the States/ UTs duly ensuring completion of field work at enumerator/supervisor/block and district level.

CHAPTER 4

GOA – A PROFILE

Introduction

Goa, a former Union Territory attained Statehood on May 30th, 1987 to join as the 25th State of India. Hailed as the land of sun, sea and song, Goa is famed for its picturesque beaches and is popularly known as the 365 days tourist destination of the world. Goa still exhibits the religious and cultural influence of the Portuguese who ruled it from 1510 to 1961 with its unique architecture, churches and temples, feasts and festivals.

Panaji is the State Capital of Goa and is governed by the Corporation of the City of Panaji. Margao is the Commercial Capital of Goa and Ponda is considered as the Cultural Capital of Goa. Vasco the Gama is the largest city of the State. The smallest of all States in India by area and the fourth smallest by population, Goa is one of India's richest States and tops for the best quality of life.

4.2 Location and Topography

Goa is a maritime State on the Arabian Sea coast bounded on the North by the State of Maharashtra and on the East and South by Karnataka. Goa lies between $15^0$48' 00" N and $14^0$53' 54" N Latitude and $74^0$20' 13" E and $73^0$40' 33" E Longitude.

Located on the west coast of India, Goa forms part of the larger Sahyadri eco system covering a geographical area of 3,702 km^2. Broadly, the State comprises 4 distinct geographical divisions viz. (a) the Eastern Hilly region i.e. Sahyadri ranges (which separates the State from the Deccan plateau further East) encompassing the talukas in the Western Ghats areas like Sanguem, Sattari, Canacona and Dharbandora (b) the Central Plains comprise plateaus at elevations between 30 mts. to 300 mts. above mean sea level, making up the talukas of Pernem, Bicholim, eastern Sanguem and Quepem. (c) the Flood Plains constituting the coastal plains and undulating uplands and (d) the Coastal Plains are alluvial lowlands formed by the estuaries at the mouths of the rivers draining into the Arabian Sea and make up the talukas of Mormugao, Tiswadi, Salcete and Bardez. The major rivers flowing through Goa originate from the thickly wooded Western Ghats.

4.3 Administrative Structure

For administrative purpose, Goa is divided into 2 districts viz. North Goa District and South Goa District comprising 12 Talukas/Tehsils. There are 5 talukas in the North Goa District viz. Bardez, Bicholim, Pernem, Sattari and Tiswadiand 7 talukas in South Goa District viz. Canacona, Mormugao, Salcette, Sanguem, Quepem, Ponda and Dharbandora. The State comprises of 425 nos. of revenue villages including 14 nos. of urban blocks governed by 191 Village Panchayats, 13 nos. of Municipal Councils and 1 Corporation respectively. Pernem Taluka in North Goa District occupies the highest coverage of 15.94 Kms of the total area whereas Dharbandora Taluka in South Goa occupies the least area i.e. 1.20%.

4.4 Climate

Being in the tropical zone, the climate in Goa is generally hot and humid. Barring the months from December to mid-February which are pleasantly cooler, the maximum temperatures stay in the range of 20^0C to 35^0C throughout the year. Summers are hottest in May. Being located on the west coast of India, the State receives copious annual rainfall of about 2,500 to 5,000 mm from South-West monsoons for a short period of four months from June to September. Rainfall pattern is heaviest on the mountain ranges and its western slopes i.e. 5000 mm and it gradually reduces towards the coastal plains i.e. 2500 mm. Relative humidity averages at 76% rising to as high as 89% in August.

4.5 Soils

The undulating topography of Goa with diverse soil conditions especially on its eastern side, is intersected by a number of rivers flowing westwards, which provides a network of internal waterways. The soils in the State can be categorized into three types viz. i) Lateritic ii) Alluvial and iii) Sandy to Sandy loams. About 81 per cent of Goa's soils (2,75,900 Ha.) are lateritic and are sandy loam to silt loam in texture, fairly rich in organic matter and nitrogen but very deficient in Phosphate and Potash. The area along the sea coast and estuaries constituting about 11% are sandy to sandy loams and the remaining 8% of the soils are alluvial in nature. Soils in the Khazans and adjoining areas are alluvial, subject to saline water inundation and have high water table. Khazan lands are unique to Goa and consist of low lying areas, often below sea level, along the estuaries. An estimated 18,000 Ha. of land in Goa comprises Khazans and is basically utilized for cultivation of saline water resistant monsoon paddy crops followed by Rabi vegetables.

4.6 Demography

As per the decennial Population Census 2011, Goa has a populace of 14,58,545 with a density of 394 persons per sq. km. which is higher than the national average of 382 persons per sq. km. The decadal population growth rate in the State has dropped down from 15.21 percent in the year 2001 to 8.23 percent in the year 2011, the lowest since liberation of the State. Among the different Talukas of the State, the density of population is highest in Mormugao Taluka with 1406 persons per sq.km, followed by Salcete with 1005 persons per sq.km. Sanguem Taluka has the lowest density of 75 persons per sq.km. Out of the total population, 62.17% is found to be residing in urban areas.

As per the 2011 Census, the sex ratio in Goa is 973 females per 1000 males, which is above the national average of 960. Similarly, the literacy rate in Goa for the same period is 88.70 %.

4.7 Economy

Goa is regarded as one of the most developed Indian States in terms of literacy (88.70% as per Census 2011) and public infrastructure. It is well connected by rail, road, air and waterways.

Presently, tourism and fisheries are the important sectors of the Goan economy. Mining which was the backbone of the Goan economy has taken a backseat as there has been a blanket ban on mining from the year 2012 resulting in tremendous pressure on the economy. As far as industries are concerned, pharmaceutical industries have a strong foothold.

Even though the State is naturally gifted with agricultural land and water resources, agriculture is registering a declining trend and the population engaged in agriculture has declined from 14% in 1971 to about 4% in 2011. As more and more people are veering away from agriculture towards tourism related activities, Goa is dependent on neighboring States to supplement its need for food grains, vegetables and fruits. However, with Government interventions, agriculture is again steadily picking up. As per the 10th Agriculture census 2015-16, there were 74,563 operational land holders in Goa with a total area of 82,085 Ha. of operational land holdings. The average size of a land holding in Goa is small i.e. a mere 1.10 Ha. The proportion of land holdings below 1 Ha. is about 80%.

In spite of the odds, Goa is considered as one of the richest States in India with a GSDP per capita which is more than 3 times that of the country. The per capita income of the State for the year 2017-18 was Rs.4,54,172/-.Though agriculture proper is not the predominant sector in the State, its contribution to the Gross State Domestic Product (GSDP) of Goa for the year 2017-18

as prepared by the Directorate of Planning, Statistics and Evaluation on the basis of standard methodology recommended by the National Statistics Office of the Government of India, works out to Rs.2151.91crores at current prices which represents 3.50% of the total gross regional income.

4.8 Land Utilization

The following table gives the details of land utilization in Goa during 2017-18.

Sl. No.	Land Use Category	Area in Ha.	Percentage to total geographical area
1	**2**	**3**	**4**
1.	Total reported area according to village papers for land utilization	3,61,113	100.00
2.	Area under Forest	1,25,473	34.75
3.	Land not available for cultivation	37,137	10.28
4.	Other uncultivable land		
	i) Permanent Pastures & other grazing lands	1,305	0.36
	ii) Land under miscellaneous tree crops and groves not included in net area sown	580	0.16
	iii) Cultivable waste including fallow land and current fallow	67,487	18.69
5.	Net area sown	1,29,131	35.76
6.	Area sown more than once	22,826	-
7.	Gross cropped area	1,51,957	-

Source: Directorate of Agriculture

Although the total geographical area according to the Survey of India is 3,70,200 Ha., as per the Settlement and Land Records Department (Land Survey Department), the total reported area according to village papers for land utilization is 3,61,113 Ha. More than 34% of the State's area is under forest cover, which comprises seven sanctuaries, protected forests, evergreen forests in the Western Ghats, mangroves, strand vegetation and plateau vegetation. Out of the total geographical area, only 35.76% is under cultivation.

CHAPTER – 5

WATER BODIES IN GOA

Introduction

Goa has a 103 Kms. long coastline stretching along the Arabian Sea offering picturesque beaches, estuaries and tidal zones. These coastal areas are essential for tourism, fishing and maintaining the delicate balance of marine ecosystem.

5.1 River Basin System in the State

In the State of Goa, the river basins are very small (geographical area of Goa is only 3,702 sq. kms) compared to the larger river basins and hence they have been clubbed together with all the west flowing rivers from Tapi (Gujarat State) to Tadri (Karnataka State). The total basin area of Tapi to Tadri is 55,940 sq. kms. When compared to the basin area of Tapi to Tadri, the Goa State is 6.617% and compared with the national river basins the Goa State is only 0.115%.

The river basin system in Goa consists of nine river basins as under:

Sr. No.	River Basin	Basin Area (Sq. kms)	% Area of Goa State	Length of river within the State of Goa (km)	Length within salinity zone (km)
1.	Terekhol	71	1.92	27.00	27.00
2.	Chapora	255	6.89	32.00	28.00
3.	Baga	50	1.35	10.00	10.00
4.	Mandovi/ Madei	1580	42.68	76.00	46.00
5.	Zuari	973	28.28	87.00	61.00
6.	Sal	301	8.13	40.00	22.00
7.	Saleri	149	4.02	11.00	5.00
8.	Talpona	233	6.29	41.00	7.00
9.	Galjibag	90	2.03	14.00	4.00

Source: State Water Resources Department

Out of the nine rivers in Goa, six rivers originate and flow exclusively within the State boundaries and do not have any Inter-State implications. However, out of the other three rivers, Terekhol and Chapora originate in Maharashtra State and Mandovi and Zuari which originate in Karnataka State are the main and biggest rivers, which drain about 70% of the run-off

generated in the State. These rivers are not significant for their ecological value but also play a crucial role in the State's cultural heritage.

Plain land in the State is restricted to a few kilometers from the coastal line and since rivers flowing through the plain lands have very flat slopes at the estuarine reaches, acting as back waters of the sea, the tidal effect is felt right up to the foothills of the Western Ghats. Short lengths of rivers, deep marine ingress, steep slopes in the Western Ghats and reserved forests pose constraints for large storage structures. Due to thin soil cover and highly rugged configuration of the topography, heavy rainfall leads to high run off rendering the period from November to May dry. However, the State has provided adequate storage dams to meet the domestic, industrial, irrigation and other water supply needs of the State.

5.3 Organization of Water Resources in Goa

The State Water Resources Department, Goa, has the jurisdiction for the overall development and management of water at source. The State has published the State Water Policy in the year 2000 to regulate, manage and develop the available water resources of the State and its integrated and judicious utilization in a scientific manner. This also includes provision of infrastructure facilities and other related inputs.

Under Water Resources Development Program, the State has introduced a suitable scheme of interlinking of rivers by transferring/diverting water from surplus rivers to deficient rivers to attain stability in combination with construction of a series of bandharas in an attempt to evolve post monsoon harvesting and also to help in ground water recharge development.

5.3 Dams and Tanks

The State has constructed several storage structures as detailed below:

1. Major and Medium Dams

There are 3 nos. of dams viz. Salaulim, Anjunem and Tillari. Out of these, 2 nos. of dams viz. Salaulim dam (major) with culturable command area of 9,686 Ha and the Anjunem dam (medium) with culturable command area of 2,100 Ha, are located in Goa and are functioning successfully. The Tillari dam (major), with culturable command area of 14,521 Ha, an inter-State joint venture of the Governments of Maharashtra and Goa is located at Tillariwada in Sindhadurga district of Maharashtra and the canal networks are shared in both the States. The dam meets the irrigation, domestic, industrial and other non-agricultural needs of the State.

2. Minor Tanks/Reservoirs

At the time of Goa's liberation in 1961, there were several water bodies to meet the minor irrigation needs as well as domestic needs of the State such as lakes, ponds, wells, springs etc. There were also two small water reservoirs built by constructing dams at Khandepar across the river Khandepar and at Paroda across the river Kushavati, with canal distribution systems, irrigating approximately 200 Ha. and 380 Ha. of land respectively. However, post liberation, with the implementation of various developmental activities, water sources have increased considerably such minor irrigation tanks, canals, lift irrigation schemes, bandharas and post monsoon water harvesting structures which are undertaken as per feasibility.

Sl.No	Dam	Location (Taluka)	Storage (mcm)	Command Area
1.	Tillari Dam (inter-State project)	Sindhudurg District, Maharashtra	447.29	14521 Ha
2.	Salaulim Dam	Sanguem	227.16	9686 Ha
3.	Anjunem Dam	Sattari	44.83	2100 Ha
4.	ChapoliTank	Canacona	10.72	212.00 Ha
5.	PanchwadiTank	Ponda	4.36	150.00 Ha
6.	AmthaneTank	Bicholim	5.81	160.00 Ha
7.	Gavnem Tank	Canacona	1.77	100.00 Ha.

Source: Water Resources Department, Government of Goa

5.4 Bandharas/Post Monsoon Water Harvesting Structures

In order to overcome the precarious water shortage situations arising due to monsoon failures as well as to augment the future water requirement in the State, the State undertakes inter-linking of rivers by transferring water from surplus rivers to deficient rivers and also by constructing series of bandharas (eco-friendly structures) for augmentation of water sources to water treatment plants especially during the lean season. A bandhara is an environment friendly structure constructed across the river/nallah with piers and openings which are provided with removable gates or needles. The bandharas are either constructed for diversion of water or for creating storages within the river banks by retarding the interflow of ground water into the riverine system as well as to help in ground water re-charge. Over 300 nos. of bandharas (permanent diversions and water conservation structures) have been constructed on various rivers/ nallahs.

Beneficial effects of this scheme have been felt in a tangible and substantial way and agriculture has vastly benefited due to the uninterrupted supply of irrigation water thereby opening up innumerable avenues for growth and prosperity of the farmers. Under this scheme, the riverine system has been cascading water for the full length of the river and the ground water reserve in the basins has also been built up through recharge providing a tremendous boost to irrigation and drinking water supply in the local remote areas.

5.5 Wetlands

Wetlands are neither aquatic nor terrestrial. Goa boasts a variety of wetlands which are vital ecosystems that support diverse flora and fauna. As of now, 14 nos. of wetlands have been notified under the Central Government's Wetlands (Conservation and Management) Rules, 2017. Among these, the Bondvol lake in Santa-Cruz, Tiswadi Taluka is the largest, covering an area of approximately 76,000 sq. mts. Identification of more water bodies as potential wetlands is underway.

5.6 Lakes and Ponds

Goa has several lakes and Ponds, of which the Mayem lake is famed for its scenic beauty and recreation activities whereas, the Carambolim lake is well known for visits from migratory birds. Besides, the Dudsagar waterfalls and the Aravalem waterfalls are tourist hotspots.

As per the national guidelines, the Water Bodies Census does not cover any free flowing water bodies like seas, rivers, waterfalls and springs.

CHAPTER 6

CONDUCT OF 1st WATER BODY CENSUS IN GOA

Capacity Building for Data Collection

In Goa, the Directorate of Planning, Statistics & Evaluation (DPSE), is the Nodal Department for implementation of the centrally sponsored scheme viz. Rationalization of Minor Irrigation Statistics (RMIS). The main objective of the RMIS scheme is to build up a comprehensive and reliable database in the Minor Irrigation (MI) sector for effective planning and policymaking. The major activity under RMIS in the State is the conduct of census of all ground and surface water Minor Irrigation schemes.

A State Statistical Cell has been created in the Nodal Department HQs (DPSE) to organize, co-ordinate and supervise the Minor Irrigation Census (MIC) and Census of Water Bodies as and when planned by the Central Ministry. The Statistical Cell also collects and compiles physical and financial data/statistics related to minor irrigation schemes/projects from the State Agriculture Department and the Department of Water Resources and furnishes to the Ministry, the quarterly and annual physical and financial consolidated progress reports. The Ministry had sanctioned posts for the State Statistical Cell in Goa for the period from 2017-18 to 2019-20 that of an Assistant Director, a Research Assistant and a peon for which the Ministry releases 100% central funds.

As per the decision of the Ministry of Jal Shakti, the 1st Census of Water Bodies was conducted in Goa in convergence with the 6th MIC.

6.1 Organization of Work of 1st Water Bodies Census

Keeping in view the objectives of the Water Bodies Census as elaborated in Chapter 3, this Directorate has conducted the Water Bodies Census in Goa concurrently with the 6th MIC with reference year 2017-18, as per the methodology, guidelines and timeline of the Government of India, Ministry of Water Resources, River Development and Ganga Rejuvenation, Minor Irrigation Statistics Wing, New Delhi. For the purpose of the census, the Director DPSE was designated as the Commissioner for Census of Water Bodies.

A State Level Steering Committee was constituted vide Notification No. DPSE/IV/6th MIC/2017/3925 dated 04/07/2018 with Secretary (Planning) i.e. Secretary of the Nodal Department (DPSE) as Chairman and members from the State Departments of Water

Resources, Panchayats, Rural Development Agency, State Regional National Sample Survey Office (NSSO) Field Operations Division (FOD) and Central Ground Water Board, Bangalore. The Director (DPSE/Census Commissioner) was the Member Secretary. The Committee was responsible for monitoring and looking into all aspects related to the smooth conduct of both the MIC and CWB.

So also, vide Notification No. DPSE/IV/6th MIC/2017/3926 dated 04/07/2018, a State Level Technical Sub-Committee (SLTSC) was constituted under the chairmanship of the Regional Director/Representative of Central Ground Water Board, Bangalore and having as its members the Chief Engineer (State Water Resources Department), Project Director (State Rural Development Agency) and Director(DPSE/Census Commissioner) as the Member Secretary to to plan, advise, guide and provide technical inputs for the conduct of the MIC and WBC in Goa.

For the purpose of monitoring both the censuses, two Dy. Directors from the Nodal Department (DPSE) were designated as District Level Census Officers for the two districts i.e. North Goa District and South Goa District. Block Development Officers (BDOs) of the twelve Talukas/Tehsils were designated as Taluka Level Census Officers with the responsibility to appoint and allocate duties to the field enumerators as also to monitor the completion of field work in their respective blocks.

The primary work of data collection was entrusted to the Gram Sevaks/Talathis/Panchayat Secretaries and staff from other State Departments. Statistical Assistants from DPSE posted in various State Government Departments were appointed as Supervisors to oversee, monitor and assist the enumerators to iron out any difficulties encountered during the course of the fieldwork. Around 350 nos. of field functionaries were appointed and the entire work was completed under the overall guidance and supervision of the Census Commissioner within the stipulated timeline of the Ministry

6.2 Training

In February 2018, the Ministry had shared the enumeration Schedules of WBC, Instruction Manuals, Operational guidelines, guidelines for inspection and scrutiny of schedules and Tables and Performa for submission of monthly progress reports.

In order to ensure quality of data collection, training for the 6th MIC 2017-18 and 1st WBCwas formally launched with the All India Training cum Workshop for the Trainers in New Delhi, on 16th March 2018 for all States/UTs in order to discuss various modalities and preparedness

of the States, administrative guidelines, enumeration schedules, instruction manuals, monthly progress report formats and supervisor's report formats, guidelines for inspection etc.

A two days' Western Zonal Regional Training cum Workshop was organized by the Ministry in July 2018 which was hosted in Goa for around 40 nos. of participants from 5 nos. of States including Goa. The Participants were senior Officers who were appointed as Master Trainers for the 6th MIC and 1st WBC. From the State of Goa, along with the concerned Officers from DPSE, Officers from the State Water Resources Department (WRD) also attended the workshop. A field visit (which was part of the itinerary) was organized for the participants in coordination with the State Water Resources Department wherein the different types of water bodies and MI schemes in Goa were shown in urban & rural areas and their details were explained by competent Officers from WRD.

In the above workshop, discussions were focused on new initiatives taken in the census, an in-depth technical session on village and urban body schedules, data processing plan, app for 6th MIC and WBC with special emphasis on real-time monitoring module of data entry/validation by States and generation of Tables for publishing reports.

The regional workshop was followed by the State level Training for all the various Charge Officers and Block/Taluka level trainings for the field enumerators and the supervisors at the lowest level through Power Point Presentations provided by the Ministry and which were customized to suit the needs of Goa State.

The training manuals highlighting important guidelines and definitions concerning water bodies for use of field level officers and the schedules for collecting the data which were printed in advance in accordance with the Ministry's guidelines were made available to the field staff during the trainings.

Subsequently, the Ministry had organized a Regional Data Processing Workshop cum Review Meeting in Aurangabad in December 2018 for 7 nos. of States which included Goa.

6.3 Methodology of Data Collection

As a prelude to the field work updated Master Data (Urban and Rural Directory) on Municipal Wards and Villages was collected from the Departments of Municipal Administration and Revenue and forwarded to the Ministry.

As per the Ministry's methodology, the field work was conducted during the period of January 2019 to March 2021 in all the 404 nos. of revenue villages and 14 nos. of Municipal/Urban

towns. The fieldwork had to be stalled for some period from March2019 due to the COVID 19 pandemic.

Before the start of the field work, preparatory work was done by the RMIS Statistical Cell of the Nodal Department (DPSE). Details of the geographical area of all the revenue villages was requisitioned from the State Directorate of Land Records and made available to the enumerators.

All water bodies in the villages as well as towns were listed by ensuring that no water body is left out by taking inputs and guidance from the State Water Resources Department. Any water body that spread in more than one village, it was treated as one water body and only one schedule was canvassed for it. All water bodies, irrespective of their uses, whether for irrigation or other purposes (e.g. industrial, pisciculture, domestic/ drinking, recreation, religious, ground water recharges etc.) were covered in the census.

6.4 Instructions for filling up of Schedules

The model/specimen of the schedules and Instruction Manual for conducting the Water Bodies Census as well as the soft copy of the Presentation on instructions/guidelines to be followed in the conduct of fieldwork were provided by the Ministry of Water Resources, Minor Irrigation Division, Government of India. Based on the material provided by the Ministry, the Directorate of Planning, Statistics & Evaluation drafted the Instruction Manuals for the State of Goa.

For the census of water bodies, traditional methodology i.e. paper based schedules were canvassed both for rural and urban areas. Three schedules namely Village schedule, 'Urban schedule' and 'Water Body schedule' were canvassed in the census on real time basis and a smart phone was used by the field functionaries to capture latitude, longitude and photograph of the water bodies. The format of these schedules is provided at **Annexure A.**

Since the Minor Irrigation Census and Water Bodies Census were conducted concurrently, the data for both the censuses was collected through canvassing the enumeration schedules by the same enumerator. For urban areas also, the same enumerators canvassed the water body schedules.

The schedules to be canvassed by the enumerators were discussed thoroughly during the trainings. In order to obtain complete and realistic data, Press Notes were released through the Directorate of Information and Publicity in the local dailies giving general information about the conduct of the Census, personnel engaged, type of enquiry proposed, etc. in order to

sensitize and solicit co-operation from the respondents to give the required information correctly.

6.5 Fieldwork

The fieldwork of the Census of Water Bodies was undertaken by the Nodal department itself i.e. DPSE. As mentioned at 6.1 above, the primary work of data collection was entrusted to the Gram Sevaks/Talathis/Panchayat Secretaries and staff from other State Departments. However, for the entire census operation, Census Commissioner of the State i.e.the Director DPSE was the pivotal point as far as Government of India is concerned.

The primary enumerators, while canvassing the schedules, visited the owner of the water bodies or its next neighbour and collected information on the basis of personal enquiry from him. The purpose of the Census was explained to the farmers/ owners to win over their confidence in revealing the required information in respect of water bodies. Assurance that the data furnished by them would be kept confidential was given to the owners. Certain information relating to the water bodies was collected by the enumerators by physical examination of the scheme. In the census of water bodies, the captured photograph along with the latitude and longitude of the water body were uploaded on the online portal along with the schedule of the concerned water body. For easy identification of photograph, a 21 Digit Unique identification number of the water body and its latitude and longitude was assigned as the name of photograph file.

After filling up the schedules, the enumerators deposited all completed schedules along with their summary in prescribed format to their immediate supervisor for scrutiny.

6.6 Supervision and Inspection

Statistical Assistants from the Nodal Department i.e. DPSE posted in various State Government Departments were appointed as Supervisors to oversee, monitor and assist the enumerators to iron out any difficulties encountered during the course of the fieldwork, also by periodically accompanying the enumerators on field visits to address any issues faced on field. 60 nos. of Supervisors were appointed and they were advised to submit all schedules to the Block Development Officer/Officer-in-charge at the block level.

Periodical Inspection of field work was carried out by the Block Development Officers (BDOs) who were designated as Taluka level Charge Officers to monitor the overall quality of the

fieldwork and to ensure correctness of the data collected. The Statistical Assistants from DPSE posted at the block level assisted the Taluka level Charge Officers in checking the data collected and the proper filling up of the schedules.

However, the overall quality of field work was monitored by the District and State level officers, who in order to ensure the correctness of data, conducted site visits of the schemes and checked the entries made by primary enumerators. The entire work was completed under the overall guidance and supervision of the Census Commissioner within the stipulated timeline of the Ministry.

6.7 Monitoring/Reporting on Progress of the Census

As per the operational guidelines of the census, the Monthly Progress Reports on the progress of the various phases of census work (in addition to the financial reports) were sent by Officers from the State Statistical Cell of the Nodal Department (DPSE) to the Ministry of Jal Shakti in the prescribed format for Water Bodies which reflected the scrutiny /inspection details sent by Block/District level officer along with progress of field work. Besides that, real time progress of data entry and validation was accessed online through the software provided by the Ministry. This helped in monitoring the progress of census work and taking remedial measures whenever required. In addition to the monthly progress report, a report regarding completion of field work from all villages/ Municipal areas was submitted to the Ministry duly ensuring completion of field work at enumerator/ supervisor/block and district level.

During the course of the fieldwork, the physical as well as financial progress of the census was reviewed and monitored by the Ministry at periodic intervals through video conferencing.

6.8 Sample Check, Scrutiny and Validation of Census Data

As per the guidelines laid down by the Ministry of Water Resources, Government of India, 25% of schedules were scrutinized by the immediate supervisor of the enumerator and 10% of schedules by the concerned Block Level Officers (BDO) for which they were assisted by the Statistical Assistants from DPSE posted at the block level. The BDO had to visit atleast 5 villages in his block and physically verify the water bodies covered, quality of census and the extent of coverage of water bodies in the village and scrutinize at least 10% or 300 schedules, whichever is maximum, in order to ensure the correctness of data collected. On completion of the inspection of the field work and scrutiny, BDOs were required to fill up the supervisor's report form and submit all the filled-in schedules to the District Level Officer concerned (with copy to State Nodal Department i.e. DPSE). In Goa, since the District Level Officers were

appointed from the Nodal Department itself, the schedules were submitted directly to the Nodal Department.

Further, the Nodal Department had to conduct a random sample check of at least 1% of the total schedules. These inspections and sample checks were conducted by officers and staff from the State RMIS Statistical Cell during the course of the fieldwork whenever it was felt necessary. On receipt of the filled-in schedules, the data received was scrutinized, verified and rectified by the Co-ordination staff of the Department. Wherever it was felt to re-confirm the data, field visits were conducted for ensuring quality and correctness of data collected, coverage of field work etc. Thereafter, trainings were imparted to the Co-ordination staff of the Nodal Department to take up the work of data entry in-house in addition to their normal office duties.

6.9 Computerization of Census Data

The water body census data was computerized on-line by the Co-ordination staff of the Department State in the web-based software developed by the NIC, Ministry of Water Resources, Government of India which eliminated the need for separate installation of software in the States. This initiative facilitated real time monitoring by viewing the progress of data entry both by the State and the Centre which was not only time saving but also helped in taking timely corrective action. Further, on-line data entry also eliminated the need for physical transmission of data to the Ministry. The real time census data as available in the tabulation reports was re-scrutinized at the national level and referred back to the State for comments and rectifications using software wherever necessary. State Government officials in the Nodal Department were provided separate user credentials for accessing the software as per requirements. After confirmation of the data from the State, the validated data was again examined at the central level and the tabulated data was again shared with States for final confirmation before generation of final tables. Thereafter, the data was frozen for bringing out the All India Report.

6.9 Financial Aspects

Water Bodies Census being a 100% Central Sector scheme, funds were released by the Ministry for various activities related to the census which were utilized in accordance with the Ministry’s guidelines and all the Utilization Certificates were submitted in time.

All the staff engaged in the conduct of the census viz. field work, scrutiny, inspection of field work and schedules at the State/District/ Block/ Village levels were paid suitable honorarium as per the operational guidelines for the Census of Water Bodies as a token of appreciation for completing the work entrusted to them in addition to their normal duties.

Chapter 7

Results, Silent Findings and Analysis

The 1st Census of Water Bodies was conducted with reference year 2017-18 across the country in 33 States/UTs except Daman and Diu, Dadra and Nagar Haveli and Lakshadweep. This Census covered 24,24, 540 nos. of water bodies in the country under the overall supervision of State Nodal Departments for compilation of data related to water bodies. The census was conducted by using mobile app. (capturing photograph of water body along with its latitude and longitude). In Goa, the census was conducted in line with the guidelines of the Ministry from the year January, 2019 onwards, in all the 404 nos. of Rural (Revenue) Villages and 14 nos. of Urban Towns (Municipalities). A total of 1463 nos. of water bodies were enumerated by deploying 300 nos. Field enumerators to the tune of were involved in the collection of data in app. mode under the supervision of 60 nos. of Supervisors from the State Government Departments.

7.1 Key Findings of the Census in Goa

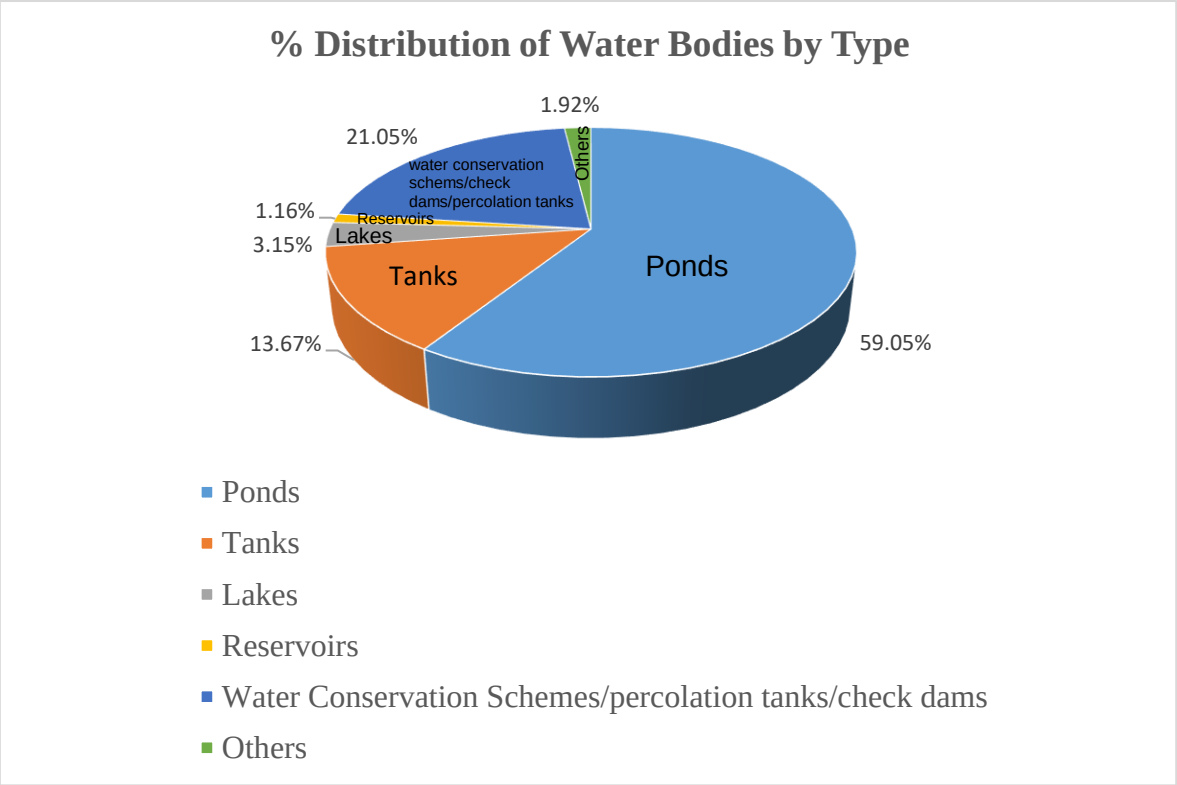
- 1463 nos. of water bodies have been enumerated in the State of Goa, out of which 96.10% (1406 nos.) are in rural areas and only 3.90% (57 nos.) are in urban areas.
- South Goa District has highest number of Water Bodies (61.31% i.e. 897 nos.) compared to North Goa District (38.69% i.e. 566 nos.).
- 50.78% (743 nos.) of enumerated water bodies are man-made whereas the remaining 49.22% (720 nos.) are natural water bodies.
- 59.05% (864 nos.) of water bodies are ponds, followed by tanks (13.67%, i.e. 200 nos.), reservoirs (1.16%, i.e. 17 nos.), water conservation schemes/percolation tanks/check dams (21.05%, i.e. 308 nos.), lakes (3.15%, i.e. 46 nos.) and others (1.92%, i.e. 28 nos.).

- A major portion of water bodies i.e., 75.39% (1103 nos.) are in use whereas remaining 24.61% (360 nos.) are not in use on account of drying up, construction, siltation, destroyed beyond repair, salinity and other reasons.
- Out of the 'in use' water bodies, only 3.64% i.e. 40 nos. are located in Municipal/urban areas (18 nos. in North Goa District and 22 nos. in South Goa District).
- 90.48% of the 'in use' water bodies are meeting the requirements of up-to 100 people, whereas 9.52% water bodies are fulfilling the requirements of people in the range of 101 to 10,000 people.
- In terms of benefits to city/towns, 88.57% water bodies are benefiting one city/town/village, 10.87% are benefiting 2-5 city/town/village whereas remaining 0.54% are benefiting more than 5 cities/towns/villages.
- 58.30% (853 nos.) of water bodies are owned by private entities whereas 41.70% (610 nos.) of water bodies are in the domain of public ownership.
- Out of total number of in use water bodies i.e. 1103 nos. (100%), 63% of water bodies are used for irrigation purpose, followed by Religious (11%), Domestic/Drinking and others (7%) each, Pisciculture (6%), Ground water recharge (3%), recreation (2%), and Industrial purpose (1%) respectively.
- Ponda taluka has highest numbers of water bodies 312 nos. (21.33%) followed by Salcete taluka 267 nos. (18.25%), Pernem taluka 170 nos.(11.62%), Bicholim taluka 169 nos.(11.55%), Bardez taluka 116 nos.(7.93%), Canacona taluka 111nos.(7.59%), Sattari taluka 96 nos.(6.56%), Quepem taluka 63 nos. (4.31%), Mormugao taluka 58nos. (3.96%), Sanguem taluka 44 nos. (3.01%), Dharbabdora 42 nos. (2.87%) and Tiswadi taluka 15 nos. (1.03%) respectively.
- Out of 1463 nos. of water bodies, 84.52% of water bodies have water spread area which is less than 0.5 Ha. 9.17% have water spread area between 0.5 to 1.0 Ha., 5% have water spread area between 1 hectare to 5 Ha., 0.34% have water spread area between 5 Ha. to 10 Ha., 0.34 have water spread area between 10 Ha. to 50 Ha., and 0.62% have water spread area of more than 50 Ha.
- Out of 1127 nos. of water bodies according to 'filled up storage capacity' comprising ponds/tanks/lakes/reservoirs, 38.33% water bodies have fully filled up storage capacity, 23.95% have filled up storage capacity up-to ½, 23.78% have storage capacity filled up-to three fourth level, 11.54% have filled up storage capacity up-to ¼ whereas 2.40% of water bodies have nil/negligible storage capacity.

7.2 Parameter-wise Analysis of Water Bodies

1. Analysis of all Water Bodies by Type

- Major chunk of water bodies are ponds i.e. 864 nos. (59.05%). Tanks account for 13.67% (200 nos.) of the water bodies whereas 21.05%, 3.15%, 1.92% and 1.16% water bodies are water conservation schemes/check dams/percolation tanks (308 nos.), lakes (46 nos.), reservoirs (17 nos.), and others (28 nos.) respectively as shown in the pie-chart given below.



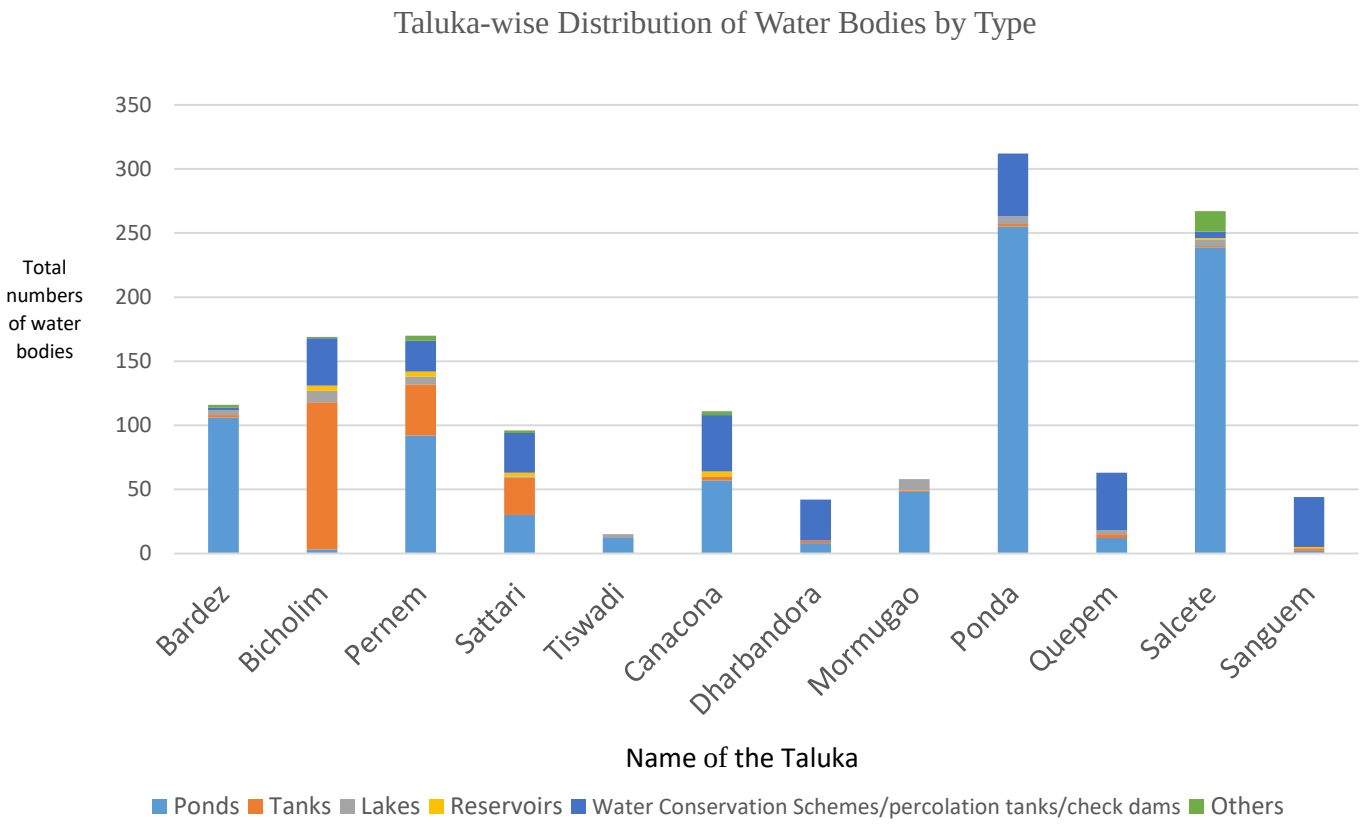
2. Taluka-wise analysis of Water Bodies by Type

- Out of the total 864 nos. of Ponds, Ponda taluka has the highest number of Ponds (255 nos.), followed by Salcete taluka (239 nos.), Bardez taluka (106 nos.) Pernem taluka (92 nos.), Canacona taluka (57 nos.) and Mormugao taluka (48 nos.) which accounts for 92.24% of the total and the remaining 6 talukas account for 7.76% of Ponds in their respective taluka.

- Out of total 308 nos. of Water Conservation Schemes/Check dams/Percolation dams, Ponda taluka has (49 nos.) water conservation schemes followed by Quepem taluka (45

nos.), Canacona taluka (44 nos.), Sanguem taluka (39 nos.) Bicholim taluka (37 nos.), Dharbandora taluka (32 nos.), Sattari taluka (31 nos.), Pernem taluka (24 nos.) which makes up 97.72% of the total and the remaining 4 talukas have only 2.28% of the total Water Conservation Schemes/Check dams/Percolation dams.

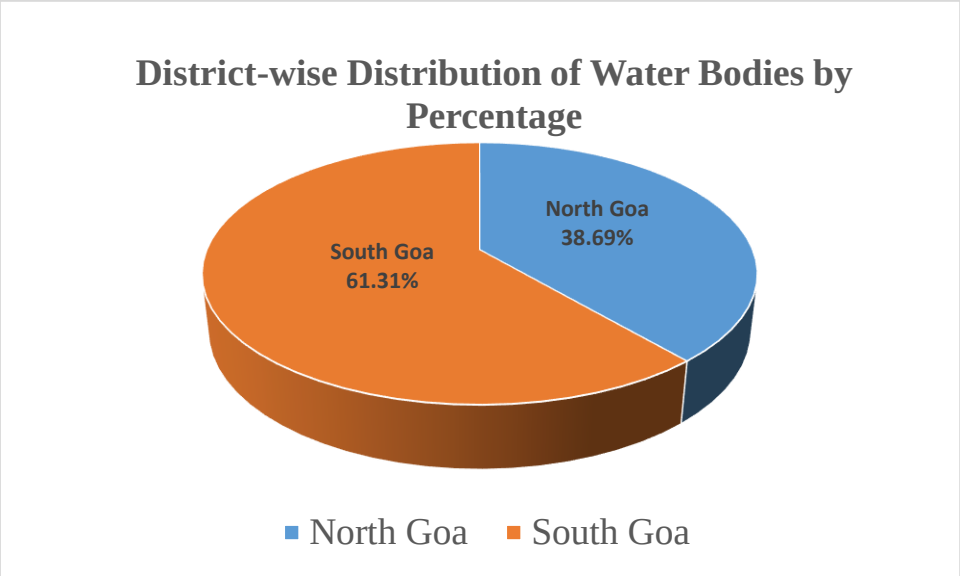
- Out of total 200 nos. of Tanks, Bicholim taluka has recorded the highest number of Tanks (115nos.), followed by Pernem (40 nos.) and Sattari (29 nos.) which is 92% of the total and remaining 9 talukas have only 8% of Tanks in their respective talukas.
- 93.77% of the total 1463 (100%) number of water bodies comprise Ponds, Water Conservation Schemes/Check dams/Percolation dams and Tanks and remaining 6.23% comprise of Lakes (3.15%), Others (1.92%) and Reservoirs (1.16%) respectively.

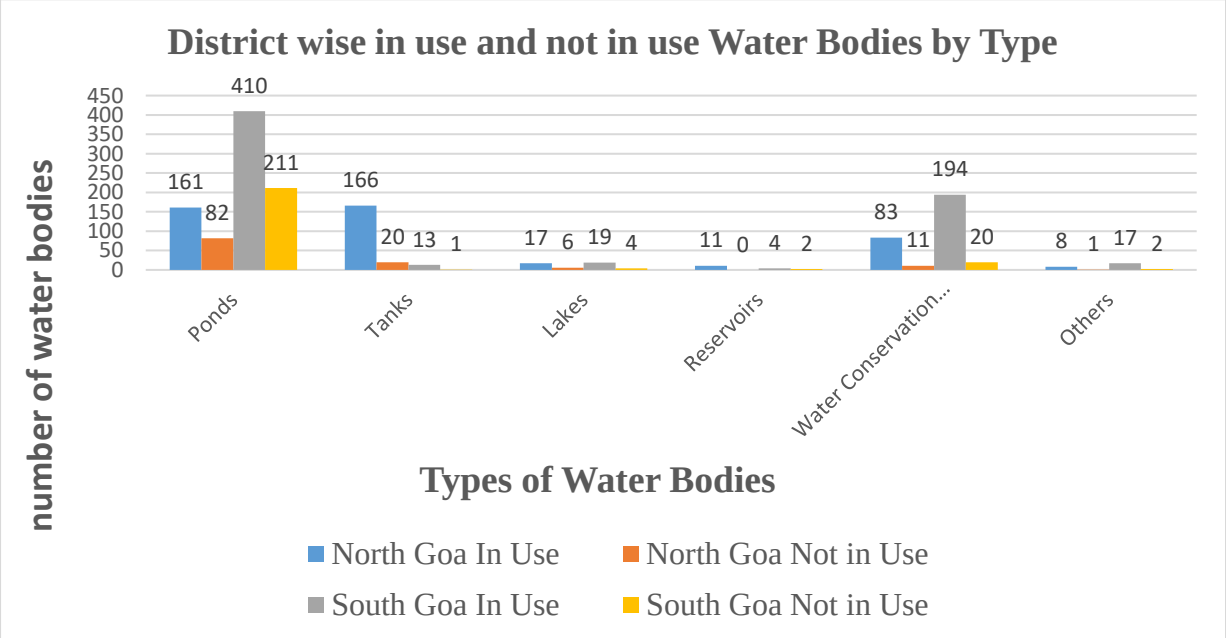


3. District-wise distribution of Water Bodies by Percentage

- Out of the total 1463 nos. (100%) water bodies in the State, South Goa District has 897 nos. **(61.31%)** which comprises of Ponds 621 nos. **(69.24%)**, Tanks 14 nos. **(1.56%)**, Lakes 23 nos. **(2.56%**), Reservoirs 6 nos. **(0.66%),** Water Conservation Schemes/Check dams/Percolation dams 214 nos. **(23.86%)** and Others 19 nos.**(2.12%)**,

- Whereas, out of the total 1463 nos. (100%) water bodies in the State, North Goa District accounts for 566 nos. **(38.69%)** which comprises of Ponds 243 nos. **(42.93%)**, Tanks 186 nos. **(32.86%)**, Lakes 23 nos. **(4.06%)**, Reservoirs 11 nos. **(1.95%)**, Water Conservation Schemes/Check dams/Percolation dams 94 nos. **(16.60%)** and Others 9 nos. **(1.60%)** of water bodies.



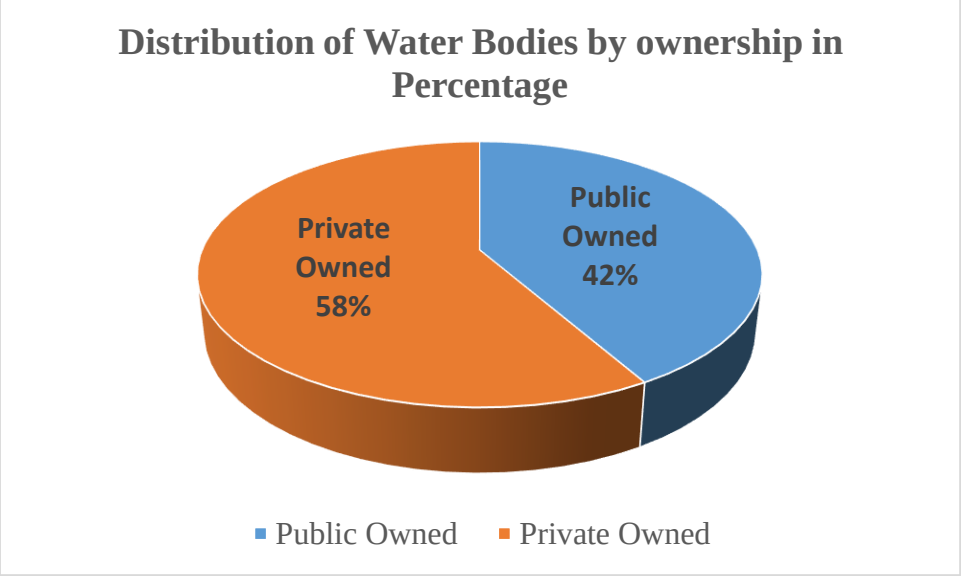


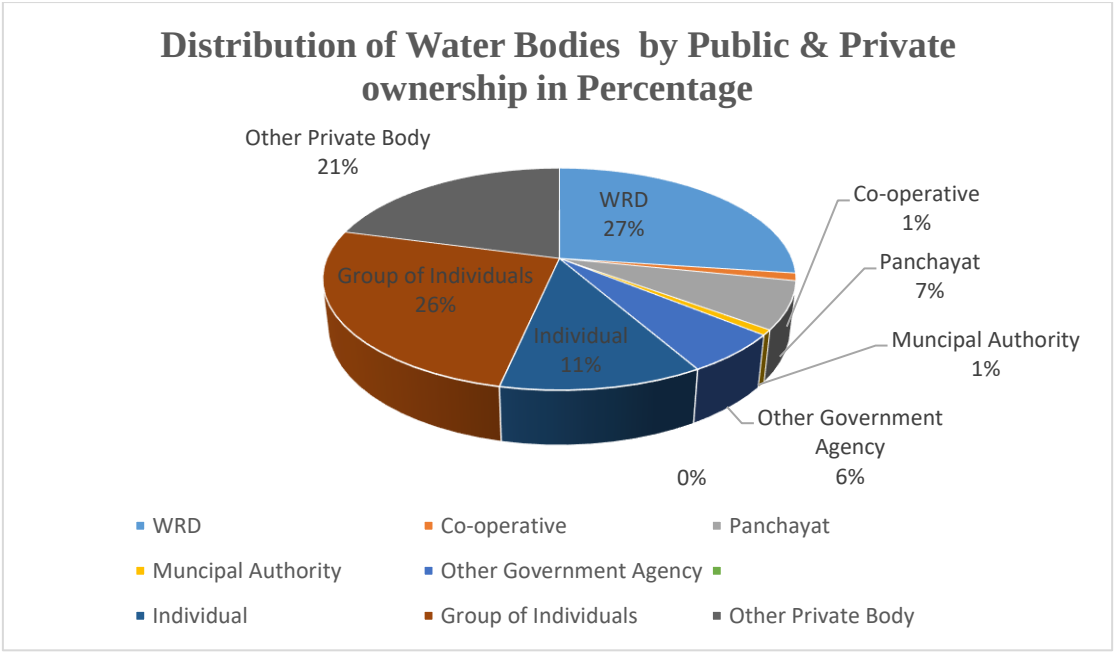
4. Analysis of Water Bodies by Ownership

- 58% (853 nos.) water bodies are under Private Ownership whereas 42% (610 nos.) water bodies are in the Public domain.

- Out of all public water bodies 42% (610 nos.), 27% (397 nos.) water bodies are owned by the Goa State Water Resources Department, 7% (101 nos.) are owned by Local Bodies (Village Panchayats) and 6% (85 nos.) are owned by Other Government Agencies. Municipal Councils and Co-operative Societies own 1% each (11 nos.) and (16 nos.) respectively.

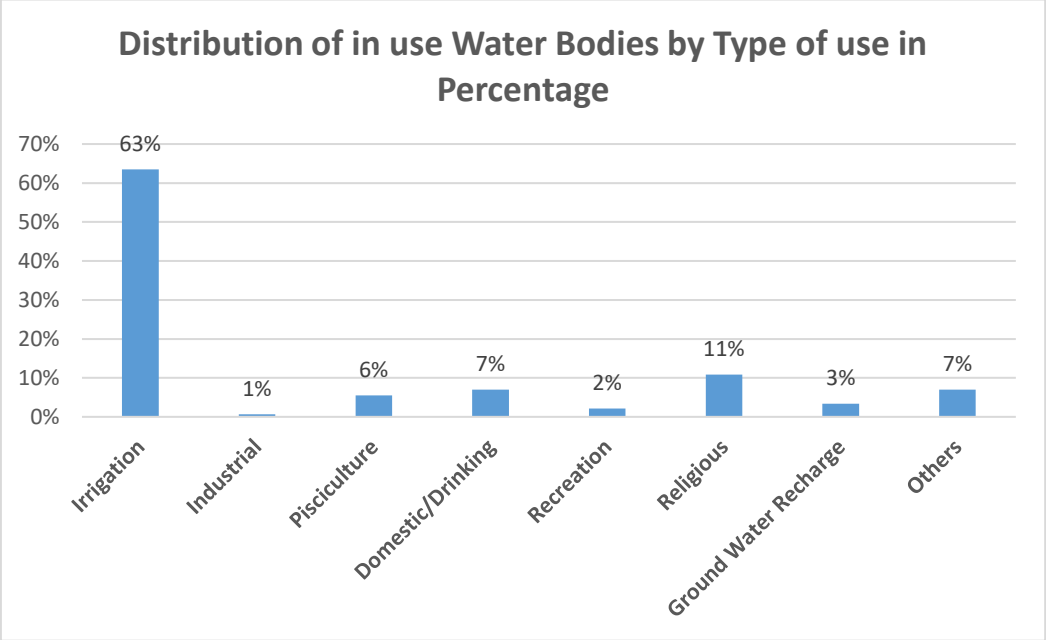
- Out of all Private owned water Bodies 58% (853 nos.), 26% (377 nos.) water bodies are owned by Groups of Individuals, followed by 21% (305 nos.) owned by Other Private Bodies. Ownership of only 11% (171 nos.) water bodies lies in the hands of Individuals.




Distribution of Water Bodies by Public & Private ownership in Percentage
Other Private Body 21%
WRD 27%
Co-operative 1%
Panchayat 7%
Muncipal Authority 1%
Other Government Agency 6%
0%
Individual 11%
Group of Individuals 26%
WRD
Co-operative
Panchayat
Muncipal Authority
Other Government Agency
Individual
Group of Individuals
Other Private Body

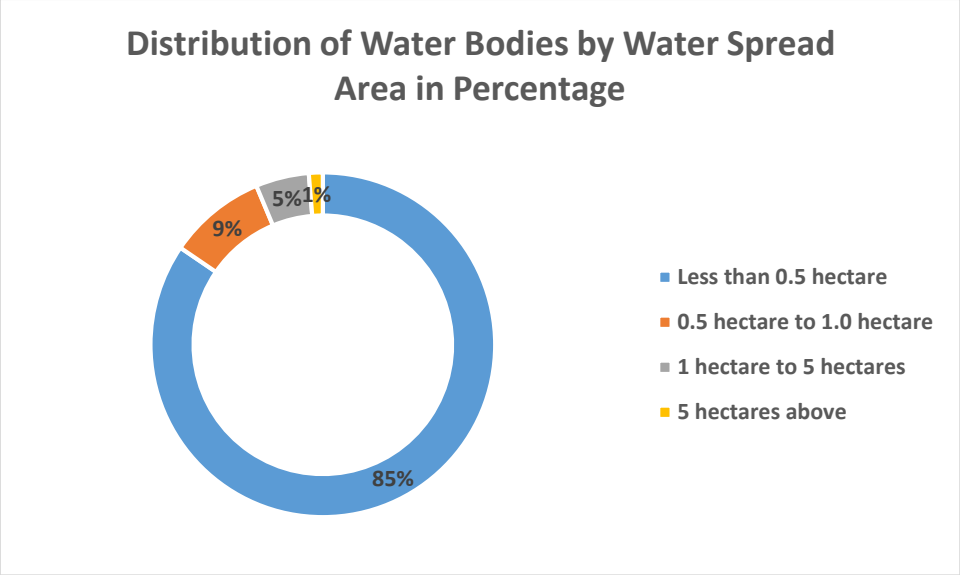
5. Analysis of Water Bodies by its Use

- Out of total number of in use water bodies i.e. 1103 nos. (100%), 63% of water bodies are used for irrigation purpose, followed by religious (11%), domestic use/drinking and others (7%) each, pisciculture (6%), ground water recharge (3%), recreation (2%) and Industrial purpose (1%) respectively.



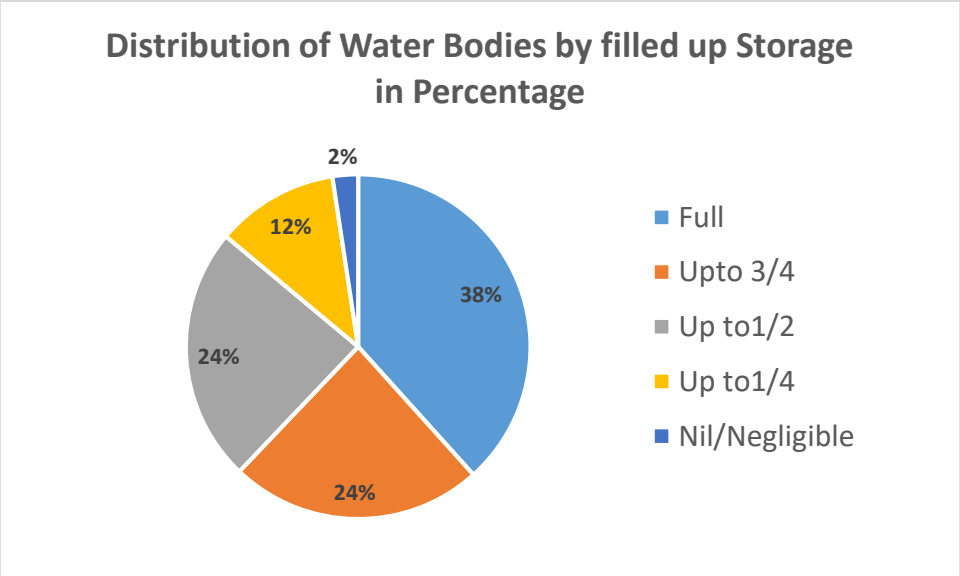
6. Analysis of Water Bodies by Water Spread Area in Percentage

- The information on water spread area was reported in respect of 1460 nos. of water bodies. Out of these water bodies, 85% (1234 nos.) have water spread area of less than 0.5 Ha., 9% (134 nos.) have water spread area between 0.5 -1 Ha., 5% (73 nos.) have water spread area between 1 to 5 Ha. and remaining 1% (19 nos.) of water bodies have water spread area more than 5 Ha.



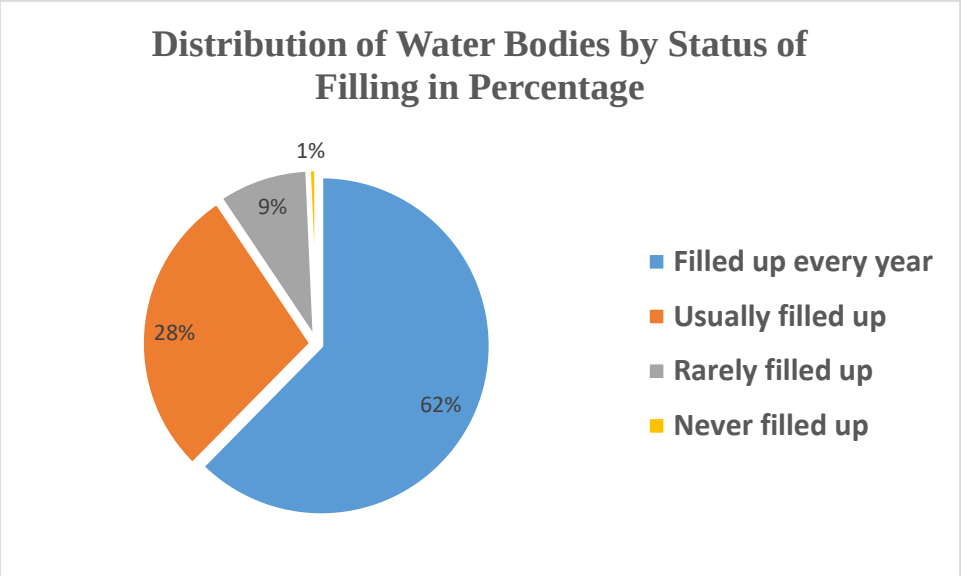
7. Analysis of Water Bodies by filled up storage capacity in percentage.

- The information on 'filled up storage capacity'' was collected only for 1127 nos. of water bodies which are ponds/tanks/lakes/reservoirs. Out of these water bodies, 38% (432 nos.) had fully filled up storage capacity, 24% (268 nos.) water bodies had storage capacity filled up to three fourth level, 24% (270 nos.) water bodies had storage capacity filled up to half level, 12% (130 nos.) water bodies had water storage capacity to one fourth level and whereas, remaining 2% (27 nos.) water bodies had less than one forth level of storage capacity as shown in the pie-chart given below.



8. Analysis of Water Bodies by status of filling in percentage.

- The information on 'status of filling' was collected only for 1127 nos. of water bodies which are ponds/tanks/lakes/reservoirs. Out of these 62% of water bodies are found to be filled up every year, 28% of water bodies are usually filled up, 9% are rarely filled up, and 1% water bodies are never filled up.



STATISTICAL TABLES

TABLE 1(A): TALUKA WISE DISTRIBUTION OF WATER BODIES – RURAL

Sl.No.	Name of District	Name of Taluka	No. of Villages	Number of Water Bodies						
				Ponds	Tanks	Lakes	Reservoirs	Water Conservation Schemes/Percolation Tanks/Check Dams	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	North Goa	Bardez	26	106	2	4	0	2	2	116
2		Bicholim	28	3	111	9	4	36	1	164
3		Pernem	22	84	38	6	4	21	3	156
4		Sattari	30	29	29	1	3	31	2	95
5		Tiswadi	9	11	0	3	0	0	0	14
		Total	**115**	**233**	**180**	**23**	**11**	**90**	**8**	**545**
6	South Goa	Canacona	7	43	3	0	4	44	3	97
7		Dharbandora	12	8	2	0	0	32	0	42
8		Mormugao	9	48	1	5	0	0	0	54
9		Ponda	29	254	2	6	0	49	0	311
10		Quepem	18	12	3	3	0	43	0	61
11		Salcete	39	234	1	5	1	1	15	257
12		Sanguem	15	2	2	0	1	34	0	39
		Total	**129**	**601**	**14**	**19**	**6**	**203**	**18**	**861**
	Goa State		**244**	**834**	**194**	**42**	**17**	**293**	**26**	**1406**

TABLE 1(B): TALUKA WISE DISTRIBUTION OF WATER BODIES – URBAN

Sl.No.	Name of District	Name of Taluka	No. of Towns/Cities	Number of Water Bodies						
				Ponds	Tanks	Lakes	Reservoirs	Water Conservation Schemes/Percolation Tanks/Check Dams	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	North Goa	Bardez	0	0	0	0	0	0	0	0
2		Bicholim	1	0	4	0	0	1	0	5
3		Pernem	1	8	2	0	0	3	1	14
4		Sattari	1	1	0	0	0	0	0	1
5		Tiswadi	1	1	0	0	0	0	0	1
		Total	**4**	**10**	**6**	**0**	**0**	**4**	**1**	**21**
6	South Goa	Canacona	1	14	0	0	0	0	0	14
7		Dharbandora	0	0	0	0	0	0	0	0
8		Mormugao	1	0	0	4	0	0	0	4
9		Ponda	1	1	0	0	0	0	0	1
10		Quepem	1	0	0	0	0	2	0	2
11		Salcete	2	5	0	0	0	4	1	10
12		Sanguem	2	0	0	0	0	5	0	5
		Total	**8**	**20**	**0**	**4**	**0**	**11**	**1**	**36**
	Goa State		**12**	**30**	**6**	**4**	**0**	**15**	**2**	**57**

TABLE 1(C): TALUKA WISE DISTRIBUTION OF WATER BODIES – ALL

Sl.No.	Name of District	Name of Taluka	No. of Villages/ Towns	Number of Water Bodies						
				Ponds	Tanks	Lakes	Reservoirs	Water Conservation Schemes/Percolation Tanks/Check Dams	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	North Goa	Bardez	26	106	2	4	0	2	2	116
2		Bicholim	28	3	115	9	4	37	1	169
3		Pernem	22	92	40	6	4	24	4	170
4		Sattari	31	30	29	1	3	31	2	96
5		Tiswadi	10	12	0	3	0	0	0	15
		Total	**117**	**243**	**186**	**23**	**11**	**94**	**9**	**566**
6	South Goa	Canacona	7	57	3	0	4	44	3	111
7		Dharbandora	12	8	2	0	0	32	0	42
8		Mormugao	9	48	1	9	0	0	0	58
9		Ponda	29	255	2	6	0	49	0	312
10		Quepem	18	12	3	3	0	45	0	63
11		Salcete	39	239	1	5	1	5	16	267
12		Sanguem	15	2	2	0	1	39	0	44
		Total	**129**	**621**	**14**	**23**	**6**	**214**	**19**	**897**
	Goa State		**244**	**864**	**200**	**46**	**17**	**308**	**28**	**1463**

TABLE 1(D): DISTRICT WISE DISTRIBUTION OF"IN USE" WATER BODIES – ALL

Sl.No.	Name of District	Number of Water Bodies						
		Ponds	Tanks	Lakes	Reservoirs	Water Conservation Schemes/Percolation Tanks/Check Dams	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	North Goa	161	166	17	11	83	8	**446**
2	South Goa	410	13	19	4	194	17	**657**
	Goa State	**571**	**179**	**36**	**15**	**277**	**25**	**1103**

TABLE 1(E): DISTRICT WISE DISTRIBUTION OF"NOT IN USE" WATER BODIES – ALL

Sl.No.	Name of District	Number of Water Bodies						
		Ponds	Tanks	Lakes	Reservoirs	Water Conservation Schemes/Percolation Tanks/Check Dams	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	North Goa	82	20	6	0	11	1	**120**
2	South Goa	211	1	4	2	20	2	**240**
	Goa State	**293**	**21**	**10**	**2**	**31**	**3**	**360**

TABLE 2: BASIN WISE DISTRIBUTION OF WATER BODIES

Sl.No.	Name of Basin	Number of Water Bodies						
		Ponds	Tanks	Lakes	Reservoirs	Water Conservation Schemes/Percolation Tanks/Check Dams	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Tapi Basin	1	0	0	0	0	0	**1**
2	West flowing rivers South of Tapi Basin	860	200	43	17	308	28	**1456**
3	Structures not included in the above basin	3	0	3	0	0	0	**6**
	Total	**864**	**200**	**46**	**17**	**308**	**28**	**1463**

TABLE 3: DISTRICT WISE DISTRIBUTION OF WATER BODIES BY LOCATION

Sl.No.	Name of District	Number of Water Bodies						
		DPAP	Tribal	DDP	Flood Prone	Naxal affected area	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	North Goa	0	1	0	2	0	563	**566**
2	South Goa	0	83	0	0	0	814	**897**
	Goa State	**0**	**84**	**0**	**2**	**0**	**1377**	**1463**

TABLE 4: DISTRICT WISE DISTRIBUTION OF WATER BODIES BY OWNERSHIP

(in numbers)

Sl. No	Name of District	Public Owned					Private Owned			
		State Water Resources Dept.	Co-operative	Panchayat	Municipal Authority	Other Govt. Agency	Individual	Group of Individuals	Other Private Body	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	North Goa	138	4	42	1	38	91	132	120	**566**
2	South Goa	259	12	59	10	47	80	245	185	**897**
	Goa State	**397**	**16**	**101**	**11**	**85**	**171**	**377**	**305**	**1463**

TABLE 5: DISTRICT WISE DISTRIBUTION OF WATER BODIES IN USE/NOT IN USE- RURAL AND URBAN

(in numbers)

Sl.No.	Name of the District	In use			Not in use			Total		
		Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	North Goa	428	18	**446**	117	3	**120**	545	21	**566**
2	South Goa	635	22	**657**	226	14	**240**	861	36	**897**
	Goa State	**1063**	**40**	**1103**	**343**	**17**	**360**	**1406**	**57**	**1463**

TABLE 6(A): DISTRICT/TALUKA WISE CLASSIFICATION OF "IN USE" WATER BODIES BY TYPE OF USE –RURAL

(in numbers)

Sl. No.	District/ Taluka	Number of 'in use'Water Bodies	Type of Use								
	North Goa		**Irrigation**	**Indus -trial**	**Pisci- culture**	**Domestic/ Drinking**	**Recreation**	**Religious**	**Ground Water Recharge**	**Others**	**Total**
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
1	Bardez	69	23	0	4	7	3	26	0	6	69
2	Bicholim	142	69	1	3	29	3	35	1	1	142
3	Pernem	122	86	0	13	4	1	17	1	0	122
4	Satari	93	88	0	0	0	0	3	1	1	93
5	Tiswadi	2	2	0	0	0	0	0	0	0	2
	Total	**428**	**268**	**1**	**20**	**40**	**7**	**81**	**3**	**8**	**428**
	South Goa										
6	Canacona	76	41	0	0	16	0	11	2	6	76
7	Dharbandora	42	18	0	0	5	16	1	2	0	42
8	Mormugao	23	2	3	2	1	1	0	0	14	23
9	Ponda	287	247	0	3	6	0	12	4	15	287
10	Quepem	40	21	0	0	0	0	2	15	2	40
11	Salcete	128	59	1	36	2	0	0	6	24	128
12	Sanguem	39	35	2	0	1	0	0	1	0	39
	Total	**635**	**423**	**6**	**41**	**31**	**17**	**26**	**30**	**61**	**635**
	Goa State	**1063**	**691**	**7**	**61**	**71**	**24**	**107**	**33**	**69**	**1063**

TABLE 6(B): DISTRICT/MUNICIPAL WISE CLASSIFICATIONOF "IN USE" WATER BODIES BY TYPE OF USE –URBAN

(in numbers)

Sl. No.	District/ Block	Number of 'in use' Water Bodies	Type of Use								
	North Goa		**Irrigation**	**Industrial**	**Pisci-culture**	**Domestic/ Drinking**	**Recreation**	**Religious**	**Ground Water Recharge**	**Others**	**Total**
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
1	Bardez- Mapusa	0	0	0	0	0	0	0	0	0	0
2	Bicholim	5	0	0	0	4	0	1	0	0	5
3	Bicholim -Sanqelim	0	0	0	0	0	0	0	0	0	0
4	Pernem	12	2	0	0	2	0	7	0	1	12
5	Sattari-Valpoi	1	1	0	0	0	0	0	0	0	1
6	Tiswadi - Panaji	0	0	0	0	0	0	0	0	0	0
	Total	**18**	**3**	**0**	**0**	**6**	**0**	**8**	**0**	**1**	**18**
	South Goa										
7	Canacona	5	2	0	0	0	0	1	0	2	5
8	Mormugao - Vasco	2	0	0	0	0	0	1	0	1	2
9	Ponda										
10	Quepem	2	1	0	0	0	0	0	0	1	2
11	Quepem – Curchorem/ Cacora	3	1	0	0	0	0	0	0	2	3
12	Salcete -Margao	5	1	0	0	0	0	3	1	0	5
13	Salcete -Cuncolim	4	0	0	0	0	0	0	3	1	4
14	Sanguem	1	1	0		0	0	0	0	0	1
	Total	**22**	**6**	**0**	**0**	**0**	**0**	**5**	**4**	**7**	**22**
	Goa State	**40**	**9**	**0**	**0**	**6**	**0**	**13**	**4**	**8**	**40**

TABLE 6(C): DISTRICT/TALUKA WISE CLASSIFICATION OF "IN USE" WATER BODIES BY TYPE OF USE –ALL

(in numbers)

Sl.No.	District/ Taluka	Number of 'in use'Water Bodies	Type of Use								
	North Goa		**Irrigation**	**Industrial**	**Pisci-culture**	**Domestic/ Drinking**	**Recreation**	**Religious**	**Ground Water Recharge**	**Others**	**Total**
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
1	Bardez	69	23	0	4	7	3	26	0	6	69
2	Bicholim	147	69	1	3	33	3	36	1	1	147
3	Pernem	134	88	0	13	6	1	24	1	1	134
4	Satari	94	89	0	0	0	0	3	1	1	94
5	Tiswadi	2	2	0	0	0	0	0	0	0	2
	Total	**446**	**271**	**1**	**20**	**46**	**7**	**89**	**3**	**9**	**446**
	South Goa										
6	Canacona	76	41	0	0	16	0	11	2	6	76
7	Dharbandora	42	18	0	0	5	16	1	2	0	42
8	Mormugao	23	2	3	2	1	1	0	0	14	23
9	Ponda	287	247	0	3	6	0	12	4	15	287
10	Quepem	40	21	0	0	0	0	2	15	2	40
11	Salcete	128	59	1	36	2	0	0	6	24	128
12	Sanguem	39	35	2	0	1	0	0	1	0	39
	Total	**657**	**429**	**6**	**41**	**31**	**17**	**31**	**34**	**68**	**657**
	Goa State	**1103**	**700**	**7**	**61**	**77**	**24**	**120**	**37**	**77**	**1103**

TABLE 7(A):DISTRICT/TALUKA WISE CLASSIFICATION OF 'IN USE' PONDS BY TYPE OF USE

(in numbers)

Sl. No.	DISTRICT	TALUKA	Type of Use								
			Irrigation	Industrial	Pisci-culture	Domestic/ Drinking	Recreation	Religious	Ground Water Recharge	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	North Goa	Bardez	22	0	3	4	2	25	0	6	62
2		Bicholim	1	0	0	0	0	2	0	0	3
3		Pernem	38	0	11	4	0	14	0	0	67
4		Satari	28	0	0	0	0	1	0	0	29
5		Tiswadi	0	0	0	0	0	0	0	0	0
		Total	**89**	**0**	**14**	**8**	**2**	**42**	**0**	**6**	**161**
6	South Goa	Canacona	8	0	0	9	0	12	0	4	33
7		Dharbandora	3	0	0	3	2	0	0	0	8
8		Mormugao	1	2	0	0	0	0	0	14	17
9		Ponda	195	0	3	6	0	12	3	13	232
10		Quepem	5	0	0	0	0	0	0	0	5
11		Salcete	55	1	22	1	0	3	7	24	113
12		Sanguem	2	0	0	0	0	0	0	0	2
		Total	**269**	**3**	**25**	**19**	**2**	**27**	**10**	**55**	**410**
	Goa State		**358**	**3**	**39**	**27**	**4**	**69**	**10**	**61**	**571**

TABLE 7(B): DISTRICT/TALUKA WISE CLASSIFICATION OF 'IN USE' TANKS BY TYPE OF USE

(in numbers)

Sl. No.	DISTRICT	TALUKA	Type of Use								
			Irrigation	Industrial	Pisci-culture	Domestic/ Drinking	Recreation	Religious	Ground Water Recharge	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	North Goa	Bardez	0	0	0	0	1	0	0	0	1
2		Bicholim	44	1	1	24	2	27	1	1	101
3		Pernem	27	0	0	1	0	7	1	0	36
4		Satari	27	0	0	0	0	1	0	0	28
5		Tiswadi	0	0	0	0	0	0	0	0	0
		Total	**98**	**1**	**1**	**25**	**3**	**35**	**2**	**1**	**166**
6	South Goa	Canacona	1	0	0	2	0	0	0	0	3
7		Dharbandora	0	0	0	1	0	1	0	0	2
8		Mormugao	0	0	0	1	0	0	0	0	1
9		Ponda	0	0	0	0	0	0	0	1	1
10		Quepem	2	0	0	0	0	0	1	0	1
11		Salcete	0	0	0	1	0	0	0	0	1
12		Sanguem	2	0	0	0	0	0	0	0	2
		Total	**5**	**0**	**0**	**5**	**0**	**1**	**1**	**1**	**13**
	Goa State		**103**	**1**	**1**	**30**	**3**	**36**	**3**	**2**	**179**

TABLE 7(C): DISTRICT/TALUKA WISE CLASSIFICATION OF 'IN USE' LAKES BY TYPE OF USE

(in numbers)

Sl.No.	DISTRICT	TALUKA	Type of Use								
			Irrigation	Industrial	Pisci-culture	Domestic/ Drinking	Recreation	Religious	Ground Water Recharge	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	North Goa	Bardez	1	0	0	2	0	1	0	0	4
2		Bicholim	1	0	1	3	0	3	0	0	8
3		Pernem	0	0	0	1	1	0	0	0	2
4		Satari	0	0	0	0	0	1	0	0	1
5		Tiswadi	2	0	0	0	0	0	0	0	2
		Total	**4**	**0**	**1**	**6**	**1**	**5**	**0**	**0**	**17**
6	South Goa	Canacona	0	0	0	0	0	0	0	0	0
7		Dharbandora	0	0	0	0	0	0	0	0	0
8		Mormugao	1	1	2	0	1	1	0	1	5
9		Ponda	5	0	0	0	0	0	0	1	6
10		Quepem	0	0	0	0	0	1	0	0	1
11		Salcete	4	0	1	0	0	0	0	0	5
12		Sanguem	0	0	0	0	0	0	0	0	0
		Total	**10**	**1**	**3**	**0**	**1**	**2**	**0**	**2**	**19**
	Goa State		**14**	**1**	**4**	**6**	**2**	**7**	**0**	**2**	**36**

TABLE 7(D): DISTRICT/TALUKA WISE CLASSIFICATION OF 'IN USE' RESERVOIRS BY TYPE OF USE

(in numbers)

Sl.No.	DISTRICT	TALUKA	Type of Use								
			Irrigation	Industrial	Pisci-culture	Domestic/ Drinking	Recreation	Religious	Ground Water Recharge	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	North Goa	Bardez	0	0	0	0	0	0	0	0	0
2		Bicholim	3	0	0	0	0	1	0	0	4
3		Pernem	2	0	2	0	0	0	0	0	4
4		Satari	3	0	0	0	0	0	0	0	3
5		Tiswadi	0	0	0	0	0	0	0	0	0
		Total	**8**	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**11**
6	South Goa	Canacona	1	0	0	2	0	0	0	0	3
7		Dharbandora	0	0	0	0	0	0	0	0	0
8		Mormugao	0	0	0	0	0	0	0	0	0
9		Ponda	0	0	0	0	0	0	0	0	0
10		Quepem	0	0	0	0	0	0	0	0	0
11		Salcete	0	0	0	0	0	0	0	0	0
12		Sanguem	1	0	0	0	0	0	0	0	1
		Total	**2**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**4**
	Goa State		**10**	**0**	**2**	**2**	**0**	**1**	**0**	**0**	**15**

TABLE 7(E): DISTRICT/TALUKA WISE CLASSIFICATION OF 'IN USE' WATER CONSERVATION SCHEMES/ PERCOLATION TANKS/CHECK DAMS BY TYPE OF USE

(in numbers)

Sl. No.	DISTRICT	TALUKA	Type of Use								
			Irrigation	Industrial	Pisci-culture	Domestic/ Drinking	Recreation	Religious	Ground Water Recharge	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	North Goa	Bardez	0	0	0	1	0	0	0	0	1
2		Bicholim	19	0	1	6	1	4	0	0	31
3		Pernem	18	0	0	0	0	1	0	1	20
4		Satari	30	0	0	0	0	0	1	0	31
5		Tiswadi	0	0	0	0	0	0	0	0	0
		Total	**67**	**0**	**1**	**7**	**1**	**5**	**1**	**1**	**83**
6	South Goa	Canacona	32	0	0	1	0	0	2	4	39
7		Dharbandora	15	0	0	1	14	0	2	0	32
8		Mormugao	0	0	0	0	0	0	0	0	0
9		Ponda	47	0	0	0	0	0	1	0	48
10		Quepem	16	0	0	0	0	1	14	5	36
11		Salcete	0	0	0	0	0	0	3	1	4
12		Sanguem	31	2	0	1	0	0	1	0	35
		Total	**141**	**2**	**0**	**3**	**14**	**1**	**23**	**10**	**194**
	Goa State		**208**	**2**	**1**	**10**	**15**	**6**	**24**	**11**	**277**

TABLE 7(F): DISTRICT/TALUKA WISE CLASSIFICATION OF 'IN USE' WATER BODIES IN THE CATEGORY OF "OTHERS" BY TYPE OF USE

(in numbers)

Sl. No.	DISTRICT	TALUKA	Type of Use								
			Irrigation	Industrial	Pisci-culture	Domestic/ Drinking	Recreation	Religious	Ground Water Recharge	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	North Goa	Bardez	0	0	1	0	0	0	0	0	1
2		Bicholim	1	0	0	0	0	0	0	0	1
3		Pernem	3	0	0	0	0	1	0	0	4
4		Satari	1	0	0	0	0	0	0	1	2
5		Tiswadi	0	0	0	0	0	0	0	0	0
		Total	**5**	**0**	**1**	**0**	**0**	**1**	**0**	**1**	**8**
6	South Goa	Canacona	1	0	0	2	0	0	0	0	3
7		Dharbandora	0	0	0	0	0	0	0	0	0
8		Mormugao	0	0	0	0	0	0	0	0	0
9		Ponda	0	0	0	0	0	0	0	0	0
10		Quepem	0	0	0	0	0	0	0	0	0
11		Salcete	1	0	13	0	0	0	0	0	14
12		Sanguem	0	0	0	0	0	0	0	0	0
		Total	**2**	**0**	**13**	**2**	**0**	**0**	**0**	**0**	**17**
	Goa State		**7**	**0**	**14**	**2**	**0**	**1**	**0**	**1**	**25**

TABLE 8(A): DISTRICT/TALUKA WISE CLASSIFICATION OF 'NOT IN USE' WATER BODIES BY REASONS-RURAL

(in numbers)

Sl.No.	DISTRICT	TALUKA	REASONS FOR NOT IN USE							
			Dried up	Construction	Siltation	Destroyed beyond repair	Salinity	Due to industrial effluents	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	North Goa	Bardez	7	0	1	0	5	0	34	47
2		Bicholim	3	0	3	1	0	0	15	22
3		Pernem	2	0	4	6	4	0	18	34
4		Satari	0	0	0	0	0	0	2	2
5		Tiswadi	1	0	0	0	5	0	6	12
		Total	**13**	**0**	**8**	**7**	**14**	**0**	**75**	**117**
6	South Goa	Canacona	2	0	0	4	2	0	13	21
7		Dharbandora	0	0	0	0	0	0	0	0
8		Mormugao	0	0	0	0	0	0	31	31
9		Ponda	4	0	0	0	0	0	20	24
10		Quepem	0	1	0	0	0	0	20	21
11		Salcete	40	0	15	2	1	0	71	129
12		Sanguem	0	0	0	0	0	0	0	0
		Total	**46**	**1**	**15**	**6**	**3**	**0**	**155**	**226**
	Goa State		**59**	**1**	**23**	**13**	**17**	**0**	**230**	**343**

TABLE 8(B): DISTRICT/ MUNICIPAL WISE CLASSIFICATION OF 'NOT IN USE' WATER BODIES BY REASONS-URBAN

(in numbers)

Sl.No.	DISTRICT	BLOCK	REASONS FOR 'NOT IN USE'							
			Dried up	Construction	Siltation	Destroyed beyond repair	Salinity	Due to industrial effluents	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	North Goa	Bardez- Mapusa	0	0	0	0	0	0	0	0
2		Bicholim	0	0	0	0	0	0	0	0
3		Bicholim - Sanqelim	0	0	0	0	0	0	0	0
4		Pernem	0	0	1	1	0	0	0	2
5		Sattari -Valpoi								
6		Tiswadi - Panaji	1	0	0	0	0	0	0	1
		Total	**1**	**0**	**1**	**1**	**0**	**0**	**0**	**3**
7	South Goa	Canacona	0	0	0	0	1	0	8	9
8		Mormugao - Vasco	0	0	1	0	0	0	1	2
9		Ponda	1	0	0	0	0	0	0	1
10		Quepem	0	0	0	0	0	0	0	0
11		Quepem – Curchorem/ Cacora	0	0	0	0	0	0	1	1
12		Salcete -Margao	0	0	0	0	0	0	1	1
13		Salcete - Cuncolim	0	0	0	0	0	0	0	0
14		Sanguem	0	0	0	0	0	0	0	0
		Total	**1**	**0**	**1**	**0**	**1**	**0**	**11**	**14**
	Goa State		**2**	**0**	**2**	**1**	**1**	**0**	**11**	**17**

TABLE 8(C): DISTRICT/TALUKA WISE CLASSIFICATION OF'NOT IN USE' WATER BODIES BY REASONS-ALL

(in numbers)

Sl.No.	DISTRICT	TALUKA/ BLOCK	REASONS FOR NOT IN USE							
			Dried up	Construct-ion	Siltation	Destroyed beyond repair	Salinity	Due to industrial effluents	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	North Goa	Bardez	7	0	1	0	5	0	34	47
2		Bicholim	3	0	3	1	0	0	15	22
3		Pernem	2	0	5	1	4	0	18	36
4		Satari	0	0	0	0	0	0	2	2
5		Tiswadi	2	0	0	0	5	0	6	13
		Total	**14**	**0**	**9**	**8**	**14**	**0**	**75**	**120**
6	South Goa	Canacona	2	0	0	4	3	0	21	30
7		Mormugao	0	0	1	0	0	0	32	33
8		Ponda	5	0	0	0	0	0	20	25
9		Quepem	0	1	0	0	0	0	21	22
10		Salcete	40	0	15	2	1	0	72	130
		Total	**47**	**1**	**16**	**6**	**4**	**0**	**166**	**240**
	Goa State		**61**	**1**	**25**	**14**	**18**	**0**	**241**	**360**

TABLE 9(A): DISTRICT/TALUKA WISE CLASSIFICATION OF'NOT IN USE' PONDS BY REASONS

(in numbers)

Sl.No.	DISTRICT	TALUKA	REASONS FOR NOT IN USE							
			Dried up	Construct-ion	Siltation	Destroyed beyond repair	Salinity	Due to industrial effluents	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	North Goa	Bardez	5	0	1	0	4	0	34	44
2		Bicholim	0	0	0	0	0	0	0	0
3		Pernem	2	0	2	6	4	0	11	25
4		Satari	0	0	0	0	0	0	1	1
5		Tiswadi	2	0	0	0	4	0	6	12
		Total	**9**	**0**	**3**	**6**	**12**	**0**	**52**	**82**
6	South Goa	Canacona	1	0	0	4	3	0	16	24
7		Dharbandora	0	0	0	0	0	0	0	0
8		Mormugao	0	0	0	0	0	0	31	31
9		Ponda	5	0	0	0	0	0	18	23
10		Quepem	0	1	0	0	0	0	6	7
11		Salcete	39	0	15	1	1	0	70	126
12		Sanguem	0	0	0	0	0	0	0	0
		Total	**45**	**1**	**15**	**5**	**4**	**0**	**141**	**211**
	Goa State		**54**	**1**	**18**	**11**	**16**	**0**	**193**	**293**

TABLE 9(B): DISTRICT/TALUKA WISE CLASSIFICATION OF'NOT IN USE' TANKS BY REASONS

(in numbers)

Sl. No.	DISTRICT	TALUKA	REASONS FOR NOT IN USE							
			Dried up	Construction	Siltation	Destroyed beyond repair	Salinity	Due to industrial effluents	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	North Goa	Bardez	1	0	0	0	0	0	0	1
2		Bicholim	2	0	3	1	0	0	9	15
3		Pernem	0	0	3	0	0	0	0	3
4		Satari	0	0	0	0	0	0	1	1
5		Tiswadi	0	0	0	0	0	0	0	0
		Total	**3**	**0**	**6**	**1**	**0**	**0**	**10**	**20**
6	South Goa	Canacona	0	0	0	0	0	0	0	0
7		Dharbandora	0	0	0	0	0	0	0	0
8		Mormugao	0	0	0	0	0	0	0	0
9		Ponda	0	0	0	0	0	0	1	1
10		Quepem	0	0	0	0	0	0	0	0
11		Salcete	0	0	0	0	0	0	0	0
12		Sanguem	0	0	0	0	0	0	0	0
		Total	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**
	Goa State		**3**	**0**	**6**	**1**	**0**	**0**	**11**	**21**

TABLE 9(C): DISTRICT/TALUKA WISE CLASSIFICATION OF 'NOT IN USE' LAKES BY REASONS

(in numbers)

Sl.No.	DISTRICT	TALUKA	REASONS FOR NOT IN USE							
			Dried up	Construction	Siltation	Destroyed beyond repair	Salinity	Due to industrial effluents	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	North Goa	Bardez	0	0	0	0	0	0	0	0
2		Bicholim	0	0	0	0	0	0	1	1
3		Pernem	0	0	0	0	0	0	4	4
4		Satari	0	0	0	0	1	0	0	1
5		Tiswadi	0	0	0	0	0	0	0	0
		Total	**0**	**0**	**0**	**0**	**1**	**0**	**5**	**6**
6	South Goa	Canacona	0	0	0	0	0	0	0	0
7		Dharbandora	0	0	0	0	0	0	0	0
8		Mormugao	0	0	1	0	0	0	1	2
9		Ponda	0	0	0	0	0	0	0	0
10		Quepem	0	0	0	0	0	0	2	2
11		Salcete	0	0	0	0	0	0	0	0
12		Sanguem	0	0	0	0	0	0	0	0
		Total	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**4**
	Goa State		**0**	**0**	**1**	**0**	**1**	**0**	**8**	**10**

TABLE 9(D): DISTRICT/TALUKA WISE CLASSIFICATION OF 'NOT IN USE' RESERVOIRS BY REASONS

(in numbers)

Sl. No.	DISTRICT	TALUKA	REASONS FOR NOT IN USE							
			Dried up	Construction	Siltation	Destroyed beyond repair	Salinity	Due to industrial effluents	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	North Goa	Bardez	0	0	0	0	0	0	0	0
2		Bicholim	0	0	0	0	0	0	0	0
3		Pernem	0	0	0	0	0	0	0	0
4		Satari	0	0	0	0	0	0	0	0
5		Tiswadi	0	0	0	0	0	0	0	0
		Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
6	South Goa	Canacona	0	0	0	0	0	0	1	1
7		Dharbandora	0	0	0	0	0	0	0	0
8		Mormugao	0	0	0	0	0	0	0	0
9		Ponda	0	0	0	0	0	0	0	0
10		Quepem	0	0	0	0	0	0	0	0
11		Salcete	1	0	0	0	0	0	0	1
12		Sanguem	0	0	0	0	0	0	0	0
		Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
	Goa State		**1**	**0**	**0**	**0**	**0**	**0**	**1**	**2**

TABLE 9(E): DISTRICT/TALUKA WISE CLASSIFICATION OF 'NOT IN USE' WATER CONSERVATION SCHEMES/PERCOLATION TANKS/CHECK DAMS BY REASONS

(in numbers)

Sl. No.	DISTRICT	TALUKA	REASONS FOR NOT IN USE							
			Dried up	Construction	Siltation	Destroyed beyond repair	Salinity	Due to industrial effluents	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	North Goa	Bardez	1	0	0	0	0	0	0	1
2		Bicholim	1	0	0	0	0	0	5	6
3		Pernem	0	0	0	1	0	0	3	4
4		Satari	0	0	0	0	0	0	0	0
5		Tiswadi	0	0	0	0	0	0	0	0
		Total	**2**	**0**	**0**	**1**	**0**	**0**	**8**	**11**
6	South Goa	Canacona	1	0	0	0	0	0	4	5
7		Dharbandora	0	0	0	0	0	0	0	0
8		Mormugao	0	0	0	0	0	0	0	0
9		Ponda	0	0	0	0	0	0	1	1
10		Quepem	0	0	0	0	0	0	13	13
11		Salcete	0	0	0	0	0	0	1	1
12		Sanguem	0	0	0	0	0	0	0	0
		Total	**1**	**0**	**0**	**0**	**0**	**0**	**19**	**20**
	Goa State		**3**	**0**	**0**	**1**	**0**	**0**	**27**	**31**

TABLE 9(F): DISTRICT/TALUKA WISE CLASSIFICATION OF NUMBER OF 'NOT IN USE' WATER BODIES IN THE CATEGORY OF "OTHERS" BY REASONS

(in numbers)

Sl.No.	DISTRICT	TALUKA	REASONS FOR NOT IN USE							
			Dried up	Construct-ion	Siltation	Destroyed beyond repair	Salinity	Due to industrial effluents	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	North Goa	Bardez	0	0	0	0	1	0	0	1
2		Bicholim	0	0	0	0	0	0	0	0
3		Pernem	0	0	0	0	0	0	0	0
4		Satari	0	0	0	0	0	0	0	0
5		Tiswadi	0	0	0	0	0	0	0	0
		Total	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**
6	South Goa	Canacona	0	0	0	0	0	0	0	0
7		Dharbandora	0	0	0	0	0	0	0	0
8		Mormugao	0	0	0	0	0	0	0	0
9		Ponda	0	0	0	0	0	0	0	0
10		Quepem	0	0	0	0	0	0	0	0
11		Salcete	0	0	0	1	0	0	1	2
12		Sanguem	0	0	0	0	0	0	0	0
		Total	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**2**
	Goa State		**0**	**0**	**0**	**1**	**1**	**1**	**1**	**3**

TABLE 10(A): DISTRICT/TALUKA WISE DISTRIBUTION OF WATER BODIES USED FOR IRRIGATION BY CCA CLASSES

(in numbers)

Sl. No.	DISTRICT	TALUKA	No. of Public Water Bodies by CCA Classes							No. of Private Water Bodies by CCA Classes						
			0 to 100 Ha.	100 to 500 Ha.	500 to 1000 Ha.	1000 to 2000 Ha.	2000 to 5000 Ha.	More than 5000 Ha.	Total	0 to 20 Ha.	20 to 40 Ha.	40 to 100 Ha.	100 to 1000 Ha.	1000 to 2000 Ha.	More than 2000 Ha.	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(1)	(16)	(17)
1	North Goa	Bardez	10	0	0	0	0	0	**10**	13	0	0	0	0	0	**13**
2		Bicholim	18	1	0	0	0	0	**19**	47	3	0	0	0	0	**50**
3		Pernem	41	0	0	0	0	0	**41**	40	3	2	0	0	0	**45**
4		Satari	38	0	0	0	1	0	**39**	49	0	0	0	0	0	**49**
5		Tiswadi	2	0	0	0	0	0	**2**	0	0	0	0	0	0	**0**
			1	0	0	0	0	0	**1**	2	0	0	0	0	0	**2**
		Total	**110**	**1**	**0**	**0**	**1**	**0**	**112**	**151**	**6**	**2**	**0**	**0**	**0**	**159**
6	South Goa	Canacona	33	2	0	0	0	0	35	6	0	0	0	0	0	6
7		Dharbandora	11	4	0	0	0	0	15	3	0	0	0	0	0	3
8		Mormugao	2	0	0	0	0	0	2	0	0	0	0	0	0	0
9		Ponda	45	1	0	0	0	0	46	201	0	0	0	0	0	201
10		Quepem	18	0	0	0	0	0	18	2	1	0	0	0	0	3
11		Salcete	25	0	0	0	0	0	25	34	0	0	0	0	0	34
12		Sanguem	32	2	0	0	0	1	35	0	0	0	0	0	0	0
			5	0	0	0	0	0	5	1	0	0	0	0	0	1
		Total	**171**	**9**	**0**	**0**	**0**	**1**	**181**	**247**	**1**	**0**	**0**	**0**	**0**	**248**
	Goa State		**281**	**10**	**0**	**0**	**1**	**1**	**293**	**398**	**7**	**2**	**0**	**0**	**0**	**407**

TABLE 10(B): DISTRICT/TALUKA WISE DISTRIBUTION OF WATER BODIES USED FOR IRRIGATION BY IPC CLASSES

Sl. No.	District	TALUKA	No. of Water Bodies by IPC Classes (in Ha.)													
			0 to 100 Ha.		100 to 500 Ha.		500 to 1000 Ha.		1000 to 2000 Ha.		2000 to 5000 Ha.		More than 5000 Ha.		Total	
			No.	IPC	No.	IPC	No.	IPC	No.	IPC	No.	IPC	No.	IPC	No.	IPC
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(1)	(16)	(17)
1	North Goa	Bardez	23	33.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	23	33.00
2		Bicholim	68	394.90	1	150.00	0	0.00	0	0.00	0	0.00	0	0.00	69	544.90
3		Pernem	88	559.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	88	559.00
4		Satari	88	237.85	0	0.00	0	0.00	0	0.00	1	2100.00	0	0.00	89	2337.85
5		Tiswadi	2	40.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	40.00
		Total	**269**	**1264.75**	**1**	**150.00**	**0**	**0.00**	**0**	**0.00**	**1**	**2100.00**	**0**	**0.00**	**271**	**3514.75**
6	South Goa	Canacona	41	118.50	2	500.00	0	0.00	0	0.00	0	0.00	0	0.00	43	618.50
7		Dharbandora	14	375.00	4	1200.00	0	0.00	0	0.00	0	0.00	0	0.00	18	1575.00
8		Mormugao	2	38.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	38.00
9		Ponda	246	472.70	1	150.00	0	0.00	0	0.00	0	0.00	0	0.00	247	622.70
10		Quepem	23	147.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	23	147.00
11		Salcete	60	340.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	60	340.00
12		Sanguem	33	260.00	2	468.00	0	0.00	0	0.00	0	0.00	1	9686.00	36	10414.00
		Total	**419**	**1751.20**	**9**	**2318.00**	**0**	**0.00**	**0**	**0.00**	**0**	**0.00**	**1**	**9686.00**	**429**	**13755.20**
	Goa State		**688**	**3015.95**	**10**	**2468.00**	**0**	**0.00**	**0**	**0.00**	**1**	**2100.00**	**1**	**9686.00**	**700**	**17269.95**

TABLE 11(A): DISTRICT/TALUKA WISE DISTRIBUTION OF WATER BODIES – NATURAL/MAN MADE

(in numbers)

Sl.No.	District	Natural			Man Made			Total		
		Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	North Goa	184	6	190	361	15	376	545	21	566
2	South Goa	510	20	530	351	16	367	861	36	897
	Goa State	**694**	**26**	**720**	**712**	**31**	**743**	**1406**	**57**	**1463**

TABLE 11(B): DISTRICT/TALUKA WISE DISTRIBUTION OF MAN MADE WATER BODIES BY TYPE

(in numbers)

Sl.No.	District	Rural					Urban				
		Earthen	Concrete	Masonry	Others	Total	Earthen	Concrete	Masonry	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	North Goa	30	206	115	10	361	0	8	7	0	15
2	South Goa	26	242	73	10	351	4	7	5	0	16
	Goa State	**56**	**448**	**188**	**20**	**712**	**4**	**15**	**12**	**0**	**31**

TABLE 12: DISTRICT/TALUKA WISE DISTRIBUTION OF WATER BODIES BY ORIGINAL COST (ONLY FOR MAN MADE)

(in numbers)

Sl.No.	District	Taluka	Number of Water Bodies							
			Cost of Classes							
			Up to Rs. 50000	Rs.50000 to 1 Lakh	Rs.1 Lakh to 5 Lakhs	Rs.5 Lakhs to 10 Lakhs	Rs.10 Lakhs to 50 Lakhs	Rs.50 Lakhs to 1 Crore	More than 1 Crore	Total (3 to 9)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1.	North Goa	Bardez	29	3	2	0	0	0	0	34
2		Bicholim	79	12	15	2	9	2	0	119
3		Pernem	117	21	6	2	0	0	0	146
4		Satari	25	20	24	0	0	0	1	70
5		Tiswadi	4	3	0	0	0	0	0	7
		Total	**254**	**59**	**47**	**4**	**9**	**2**	**1**	**376**
6	South Goa	Canacona	31	11	6	3	22	9	1	83
7		Dharbandora	7	5	13	1	7	1	0	34
8		Mormugao	10	0	3	0	0	0	0	13
9		Ponda	101	6	10	2	0	1	0	120
10		Quepem	10	4	4	8	22	8	0	57
11		Salcete	18	1	0	1	1	2	0	23
12		Sanguem	8	15	10	0	1	2	1	37
		Total	**185**	**42**	**46**	**15**	**53**	**23**	**2**	**367**
	Goa State		**439**	**102**	**93**	**20**	**62**	**25**	**2**	**743**

TABLE 13 (A): DISTRICT - WISE DISTRIBUTION OF WATER BODIES BY YEAR OF RENOVATION AS PER LAST REPAIR

Sl.No.	District	Number of Water Bodies repaired in the Calendar years													
		Never repaired	After 2018	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	Before 2009	Total (3 to 15)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1	North Goa	264	3	5	19	37	42	14	7	38	8	56	5	68	566
2	South Goa	522	4	8	18	3	295	6	0	2	1	5	0	33	897
	Goa State	**786**	**7**	**13**	**37**	**40**	**337**	**20**	**7**	**40**	**9**	**61**	**5**	**101**	**1463**

TABLE 13 (B): DISTRICT/TALUKA WISE DISTRIBUTION OF WATER BODIES AS PER COST OF LAST REPAIR

Sl.No.	District	Taluka	Number of Water Bodies as per cost of last repair							
			Classes of cost of repair							
			Up to Rs.50000	Rs.50000 to 1 Lakhs	Rs.1 Lakh to 5 Lakhs	Rs.5 Lakhs to 10 Lakhs	Rs.10 Lakhs to 50 Lakhs	Rs.50 Lakhs to 1 Crore	More than 1 Crore	Total (3 to 9)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	North Goa	Bardez	15	2	1	0	2	0	0	20
2		Bicholim	17	0	6	0	1	0	0	24
3		Pernem	150	9	2	3	0	0	0	164
4		Satari	87	0	0	0	0	0	0	86
5		Tiswadi	6	0	0	1	0	0	0	7
		Total	**275**	**11**	**9**	**4**	**3**	**0**	**0**	**302**
6	South Goa	Canacona	21	2	0	0	1	0	0	24
7		Dharbandora	10	0	0	0	0	0	0	10
8		Mormugao	0	0	0	0	0	0	0	0
9		Ponda	25	1	0	0	0	0	0	26
10		Quepem	42	3	1	0	0	0	1	47
11		Salcete	251	2	5	2	1	0	0	253
12		Sanguem	1	0	0	0	0	0	0	1
		Total	**355**	**8**	**6**	**2**	**3**	**0**	**1**	**375**
	Goa State		**630**	**19**	**15**	**6**	**6**	**0**	**1**	**677**

TABLE 14 (A): DISTRICT/TALUKA WISE DISTRIBUTION OF WATER BODIES UNDER REPAIR/RENOVATION

Sl.No.	District	Taluka	Number						
			Ponds	Tanks	Lakes	Reservoirs	Water Conservation Schemes/percolation tanks/check dams	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	North Goa	Bardez	0	0	0	0	0	0	0
2		Bicholim	0	0	0	0	0	0	0
3		Pernem	1	0	0	0	0	0	1
4		Satari	0	0	0	0	0	0	0
5		Tiswadi	0	0	0	0	0	0	0
		Total	**1**	**0**	**0**	**0**	**0**	**0**	**1**
6	South Goa	Canacona	0	0	0	0	0	0	0
7		Dharbandora	0	0	0	0	0	0	0
8		Mormugao	0	0	0	0	0	0	0
9		Ponda	0	0	0	0	7	0	7
10		Quepem	0	0	0	0	0	0	0
11		Salcete	1	0	0	0	0	0	1
12		Sanguem	0	0	0	0	0	0	0
		Total	**1**	**0**	**0**	**0**	**7**	**0**	**8**
	Goa State		**2**	**0**	**0**	**0**	**7**	**0**	**9**

TABLE 14 (B): DISTRICT/TALUKA WISE DISTRIBUTION OF WATER BODIES UNDER REPAIR/RENOVATION AS PER ESTIMATED COST OF REPAIR

Sl. No.	District	Taluka	Number of Water Bodies							
			Classes of Repair/Renovation as per estimated cost of Repair							
			Up to Rs.50000	Rs.50000 to 1 Lakhs	Rs.1 Lakh to 5 Lakhs	Rs.5 Lakhs to 10 Lakhs	Rs.10 Lakhs to 50 Lakhs	Rs.50 Lakhs to 1 Crore	More than 1 Crore	Total (3 to 9)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	North Goa	Bardez	0	0	0	0	0	0	0	0
2		Bicholim	0	0	0	0	0	0	0	0
3		Pernem	0	0	1	0	0	0	0	1
4		Satari	0	0	0	0	0	0	0	0
5		Tiswadi	0	0	0	0	0	0	0	0
		Total	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**
6	South Goa	Canacona	0	0	0	0	0	0	0	0
7		Dharbandora	0	0	0	0	0	0	0	0
8		Mormugao	0	0	0	0	0	0	0	0
9		Ponda	7	0	0	0	0	0	0	7
10		Quepem	0	0	0	0	0	0	0	0
11		Salcete	0	0	0	1	0	0	0	1
12		Sanguem	0	0	0	0	0	0	0	0
		Total	**7**	**0**	**0**	**1**	**0**	**0**	**0**	**8**
	Goa State		**7**	**0**	**1**	**1**	**0**	**0**	**0**	**9**

TABLE 14 (C): DISTRICT/TALUKA WISE DISTRIBUTION OF WATER BODIES UNDER REPAIR/RENOVATION BY TARGET OF IRRIGATION POTENTIAL REVIVAL

(in numbers)

Sl. No.	District	Taluka	Irrigation Potential Revival Classes (in Ha.)								
			0-50	50-100	100-500	500-1000	1000-10000	10000-50000	50000 to 1 lakh	More than 1 Lakh	Total (4 to 11)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	North Goa	Bardez	0	0	0	0	0	0	0	0	0
2		Bicholim	0	0	0	0	0	0	0	0	0
3		Pernem	1	0	0	0	0	0	0	0	1
4		Satari	0	0	0	0	0	0	0	0	0
5		Tiswadi	0	0	0	0	0	0	0	0	0
		Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
6	South Goa	Canacona	0	0	0	0	0	0	0	0	0
7		Dharbandora	0	0	0	0	0	0	0	0	0
8		Mormugao	0	0	0	0	0	0	0	0	0
9		Ponda	7	0	0	0	0	0	0	0	7
10		Quepem	0	0	0	0	0	0	0	0	0
11		Salcete	1	0	0	0	0	0	0	0	1
12		Sanguem	0	0	0	0	0	0	0	0	0
		Total	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**
	Goa State		**9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**

TABLE 14 (D): DISTRICT/TALUKA WISE DISTRIBUTION OF WATER BODIES UNDER REPAIR/RENOVATION BY IRRIGATION POTENTIAL REVIVED

(in numbers)

Sl.No.	District	Taluka	Distribution by Classes of Irrigation Potential revived (in Ha.)								
			0-50	50-100	100-500	500-1000	1000-10000	10000-50000	50000 to 1 lakh	More than 1 Lakh	Total (4 to 11)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	North Goa	Bardez	0	0	0	0	0	0	0	0	0
2		Bicholim	0	0	0	0	0	0	0	0	0
3		Pernem	1	0	0	0	0	0	0	0	1
4		Satari	0	0	0	0	0	0	0	0	0
5		Tiswadi	0	0	0	0	0	0	0	0	0
		Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
6	South Goa	Canacona	0	0	0	0	0	0	0	0	0
7		Dharbandora	0	0	0	0	0	0	0	0	0
8		Mormugao	0	0	0	0	0	0	0	0	0
9		Ponda	7	0	0	0	0	0	0	0	7
10		Quepem	0	0	0	0	0	0	0	0	0
11		Salcete	1	0	0	0	0	0	0	0	1
12		Sanguem	0	0	0	0	0	0	0	0	0
		Total	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**
	Goa State		**9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**

TABLE 15 (A): DISTRICT/TALUKA WISE DISTRIBUTION OF WATER BODIES BY WATER SPREAD AREA-RURAL

(in numbers)

Sl.No.	District	Taluka	Water Spread Area Classes						
			Less than 0.5 Ha.	0.5 Ha.to 1.0 Ha.	1 Ha.to 5 Ha.	5 Ha. to 10 Ha.	10 Ha.to 50 Ha.	More than 50 Ha.	Total (4 to 9)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	North Goa	Bardez	109	7	0	0	0	0	116
2		Bicholim	153	7	2	0	0	1	163
3		Pernem	144	10	0	1	0	1	156
4		Satari	25	45	24	1	0	0	95
5		Tiswadi	11	0	1	0	1	1	14
		Total	**442**	**69**	**27**	**2**	**1**	**3**	**544**
6	South Goa	Canacona	68	11	13	1	1	1	95
7		Dharbandora	32	1	2	1	3	3	42
8		Mormugao	50	4	0	0	0	0	54
9		Ponda	298	7	6	0	0	0	311
10		Quepem	31	13	17	0	0	0	61
11		Salcete	235	20	1	0	0	0	257
12		Sanguem	34	0	4	0	0	1	39
		Total	**748**	**56**	**43**	**2**	**4**	**6**	**859**
	Goa State		**1190**	**125**	**70**	**4**	**5**	**9**	**1403**

TABLE 15 (B): DISTRICT/MUNICIPAL WISE DISTRIBUTION OF WATER BODIES BY WATER SPREAD AREA- URBAN

(in numbers)

Sl. No.	District	Municipal Block	Water Spread Area Classes						
			Less than 0.5 Ha.	0.5 Ha.to 1.0 Ha.	1 Ha.to 5 Ha.	5 Ha. to 10 Ha.	10 Ha.to 50 Ha.	More than 50 Ha.	Total (4 to 9)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	North Goa	Bardez	0	0	0	0	0	0	0
2		Bicholim	5	0	0	0	0	0	5
3		Pernem	14	0	0	0	0	0	14
4		Sattari-Valpoi	1	0	0	0	0	0	1
5		Tiswadi - Panaji	1	0	0	0	0	0	1
		Total	**21**	**0**	**0**	**0**	**0**	**0**	**21**
6	South Goa	Canacona	13	1	0	0	0	0	14
7		Mormugao -Vasco	2	2	0	0	0	0	4
8		Ponda	1	0	0	0	0	0	1
9		Quepem-Curchorem, Cacora	0	4	0	0	0	0	4
10		Quepem	1	0	0	1	0	0	2
11		Salcete -Margao	6	0	0	0	0	0	6
12		Salcete - Cuncolim	0	1	3	0	0	0	4
13		Sanguem	0	1	0	0	0	0	1
		Total	**23**	**9**	**3**	**1**	**0**	**0**	**36**
	Goa State		**44**	**9**	**3**	**1**	**0**	**0**	**57**

TABLE 15 (C): DISTRICT/TALUKA WISE DISTRIBUTION OF WATER BODIES BY WATER SPREAD AREA-ALL

(in numbers)

Sl. No.	District	Taluka	Water Spread Area Classes						
			Less than 0.5 Ha.	0.5 Ha.to 1.0 Ha.	1 Ha.to 5 Ha.	5 Ha. to 10 Ha.	10 Ha.to 50 Ha.	More than 50 Ha.	Total (4 to 9)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	North Goa	Bardez	109	7	0	0	0	0	116
2		Bicholim	158	7	2	0	0	1	168
3		Pernem	158	10	0	1	0	1	170
4		Satari	26	45	24	1	0	0	96
5		Tiswadi	12	0	1	0	1	1	15
		Total	**463**	**69**	**27**	**2**	**1**	**3**	**565**
6	South Goa	Canacona	81	12	13	1	1	1	109
7		Dharbandora	32	1	2	1	3	3	42
8		Mormugao	52	6	0	0	0	0	58
9		Ponda	299	7	6	0	0	0	312
10		Quepem	32	17	17	1	0	0	67
11		Salcete	241	21	4	0	0	0	267
12		Sanguem	34	1	4	0	0	1	40
		Total	**771**	**65**	**46**	**3**	**4**	**6**	**895**
	Goa State		**1234**	**134**	**73**	**5**	**5**	**9**	**1460**

TABLE 16 (A): DISTRICT/TALUKA WISE DISTRIBUTION OF WATER BODIES ACCORDING TO ITS MAXIMUM DEPTH – RURAL

(in numbers)

Sl.No.	District	Taluka	Depth Classes (in meters)								
			0-5	5-10	10-15	15-20	20-25	25-50	50-100	More than 100	Total (4 to 10)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	North Goa	Bardez	113	2	0	0	0	0	0	0	115
2		Bicholim	143	18	2	1	0	0	0	0	164
3		Pernem	133	19	1	1	0	1	0	0	155
4		Satari	69	19	0	0	0	1	1	0	90
5		Tiswadi	14	0	0	0	0	0	0	0	14
		Total	**472**	**58**	**3**	**2**	**0**	**2**	**1**	**0**	**538**
6	South Goa	Canacona	90	4	0	1	1	0	0	0	96
7		Dharbandora	36	3	0	0	0	1	0	0	40
8		Mormugao	54	0	0	0	0	0	0	0	54
9		Ponda	292	8	0	0	0	0	0	0	300
10		Quepem	37	10	3	7	0	4	0	0	61
11		Salcete	228	21	3	0	1	2	0	0	255
12		Sanguem	37	1	0	0	0	1	0	0	39
		Total	**774**	**47**	**6**	**8**	**2**	**8**	**0**	**0**	**845**
	Goa State		**1246**	**105**	**9**	**10**	**2**	**10**	**1**	**0**	**1383**

TABLE 16 (B): DISTRICT/MUNICIPAL WISE DISTRIBUTION OF WATER BODIES ACCORDING TO ITS MAXIMUM DEPTH – URBAN

(in numbers)

Sl.No.	District	Municipal Block	Depth classes (In Meters)								
			0-5	5-10	10-15	15-20	20-25	25-50	50-100	More than 100	Total (4 to 10)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	North Goa	Bardez	0	0	0	0	0	0	0	0	0
2		Bicholim	5	0	0	0	0	0	0	0	5
3		Pernem	13	1	0	0	0	0	0	0	14
4		Sattari-Valpoi	1	0	0	0	0	0	0	0	1
5		Tiswadi-Panaji	1	0	0	0	0	0	0	0	1
		Total	**20**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**21**
5	South Goa	Canacona	14	0	0	0	0	0	0	0	14
6		Cuncolim	4	0	0	0	0	0	0	0	4
7		Curchorem	4	0	0	0	0	0	0	0	4
8		Margao	6	0	0	0	0	0	0	0	6
9		Mormugao	4	0	0	0	0	0	0	0	4
10		Ponda	1	0	0	0	0	0	0	0	1
11		Quepem	0	1	0	0	0	1	0	0	2
12		Sanguem	1	0	0	0	0	0	0	0	1
		Total	**34**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**36**
	Goa State		**54**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**57**

TABLE 16 (C): DISTRICT/TALUKA WISE DISTRIBUTION OF WATER BODIES ACCORDING TO ITS MAXIMUM DEPTH – ALL

(in numbers)

Sl.No.	District	Taluka	Depth Classes (in meters)								
			0-5	5-10	10-15	15-20	20-25	25-50	50-100	More than 100	Total (4 to 10)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	North Goa	Bardez	113	2	0	0	0	0	0	0	115
2		Bicholim	148	18	2	1	0	0	0	0	169
3		Pernem	146	19	1	1	0	1	0	0	168
4		Satari	70	19	0	0	0	1	1	0	91
5		Tiswadi	15	0	0	0	0	0	0	0	15
		Total	**492**	**59**	**3**	**2**	**0**	**2**	**1**	**0**	**559**
6	South Goa	Canacona	104	4	0	1	1	0	0	0	110
7		Dharbandora	36	3	0	0	0	1	0	0	40
8		Mormugao	58	0	0	0	0	0	0	0	58
9		Ponda	293	8	0	0	0	0	0	0	301
10		Quepem	41	11	3	7	0	5	0	0	67
11		Salcete	238	21	3	0	1	2	0	0	265
12		Sanguem	38	1	0	0	0	1	0	0	40
		Total	**808**	**48**	**6**	**8**	**2**	**9**	**0**	**0**	**881**
	Goa State		**1300**	**107**	**9**	**10**	**2**	**11**	**1**	**0**	**1440**

TABLE 17 (A): DISTRICT/TALUKA WISE DISTRIBUTION OF WATER BODIES BY PRESENT STORAGE CAPACITY – RURAL

(in numbers)

Sl.No.	District	Taluka	Storage Capacity Classes					
			NA(0)	0 to 100 cubic mts	100 to 1000 cubic mts	1000 to 10000 cubic mts	More than 10000 cubic mts	Total (4 to 8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	North Goa	Bardez	4	27	66	18	1	116
2		Bicholim	37	69	38	15	5	164
3		Pernem	24	61	49	14	8	156
4		Satari	33	44	13	5	0	95
5		Tiswadi	0	1	9	1	3	14
		Total	**98**	**202**	**175**	**53**	**17**	**545**
6	South Goa	Canacona	47	5	18	22	5	97
7		Dharbandora	32	3	6	1	0	42
8		Mormugao	0	1	17	32	4	54
9		Ponda	49	101	153	8	0	311
10		Quepem	43	17	0	0	1	61
11		Salcete	16	17	165	46	13	257
12		Sanguem	34	2	2	1	0	39
		Total	**221**	**146**	**361**	**110**	**23**	**861**
	Goa State		**319**	**348**	**536**	**163**	**40**	**1406**

TABLE 17 (B):DISTRICT/MUNICIPAL WISE DISTRIBUTION OF WATER BODIES BY PRESENT STORAGE CAPACITY – URBAN

(in numbers)

Sl.No.	District	Municipal Block	Storage Capacity Classes					
			NA(0)	0 to 100 cubic mts	100 to 1000 cubic mts	1000 to 10000 cubic mts	More than 10000 cubic mts	Total (4 to 8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	North Goa	Bardez	0	0	0	0	0	0
2		Bicholim	1	4	0	0	0	5
3		Pernem	4	6	3	1	0	14
4		Sattari- Valpoi	0	1	0	0	0	1
5		Tiswadi -Panaji	0	1	0	0	0	1
		Total	**5**	**12**	**3**	**1**	**0**	**21**
6	South Goa	Canacona	0	1	10	3	0	14
7		Mormugao	0	0	1	1	2	4
8		Ponda	0	1	0	0	0	1
9		Salcete-Margao	1	0	3	2	0	6
10		Salcete-Cuncolim	4	0	0	0	0	4
11		Quepem-Curchorem, Cacora	4	0	0	0	0	4
12		Quepem	2	0	0	0	0	2
13		Sanguem	1	0	0	0	0	1
		Total	**12**	**2**	**14**	**6**	**2**	**36**
	Goa State		**17**	**14**	**17**	**7**	**2**	**57**

TABLE 17 (C):DISTRICT/TALUKA WISE DISTRIBUTION OF WATER BODIES BY PRESENT STORAGE CAPACITY – ALL

(in numbers)

Sl.No.	District	Taluka	Storage Capacity Classes					
			NA(0)	0 to 100 cubic mts.	100 to 1000 cubic mts.	1000 to 10000 cubic mts.	More than 10000 cubic mts	Total (4 to 8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	North Goa	Bardez	4	27	66	18	1	116
2		Bicholim	38	73	38	15	5	169
3		Pernem	28	67	52	15	8	170
4		Satari	33	45	13	5	0	96
5		Tiswadi	0	2	9	1	3	15
		Total	**103**	**214**	**178**	**54**	**17**	**566**
6	South Goa	Canacona	47	6	28	25	5	111
7		Dharbandora	32	3	6	1	0	42
8		Mormugao	0	1	18	33	6	58
9		Ponda	49	102	153	8	0	312
10		Quepem	49	17	0	0	1	67
11		Salcete	21	17	168	48	13	267
12		Sanguem	35	2	2	1	0	40
		Total	**233**	**148**	**375**	**116**	**25**	**897**
	Goa State		**336**	**362**	**553**	**170**	**42**	**1463**

TABLE 17 (D): DISTRICT/TALUKA WISEDISTRIBUTION OF "IN USE" RESERVOIRS/TANKS/PONDS/LAKES/OTHERS WITH PRESENT STORAGE CAPACITY

(Storage capacity in cubic meters)

Sl.No.	District	Taluka	Ponds/Tanks		Lakes		Reservoirs		Others		Total	
			No.	Storage Capacity	No.	Storage Capacity	No.	Storage Capacity	No.	Storage Capacity	No.(4+6+8+10)	Storage Capacity (5+7+9+11)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1	North Goa	Bardez	63	43885	4	35200	0	0	2	0	69	79085
2		Bicholim	103	5993760	8	100855	4	918	32	0	147	6095533
3		Pernem	104	148726	2	42000	4	20710	24	0	134	211436
4		Satari	57	16219	1	100	3	1400	33	0	94	17719
5		Tiswadi	0	0	2	2560001	0	0	0	0	2	2560001
		Total	**327**	**6202590**	**17**	**2738156**	**11**	**23028**	**91**	**0**	**446**	**8963774**
6	South Goa	Canacona	36	586610	0	0	3	78500	42	0	81	665110
7		Dharbandora	10	2728	0	0	0	0	32	0	42	2728
8		Mormugao	18	43810	7	64200	0	0	0	0	25	108010
9		Ponda	233	41925	6	11000	0	0	48	0	287	52925
10		Quepem	8	104	1	50	0	0	36	0	45	154
11		Salcete	114	386602	5	2332	0	0	18	0	137	388934
12		Sanguem	4	4330	0	0	1	14	35	0	40	4344
		Total	**423**	**1066109**	**19**	**77582**	**4**	**78514**	**211**	**0**	**657**	**1222205**
	Goa State		**750**	**7268699 (7268.70)**	**36**	**2815738 (2815.70)**	**15**	**101542 (101.50)**	**302**	**0**	**1103**	**10185979 (10186.00)**

TABLE 17 (E): DISTRICT/TALUKA WISEDISTRIBUTION OF "NOT IN USE" RESERVOIRS/TANKS/PONDS/LAKES/OTHERS WITH PRESENT STORAGE CAPACITY

(Storage capacity in cubic meters)

Sl.No.	District	Taluka	Ponds/Tanks		Lakes		Reservoirs		Others		Total	
			No.	Storage Capacity	No.	Storage Capacity	No.	Storage Capacity	No.	Storage Capacity	No.(4+6+8+10)	Storage Capacity (5+7+9+11)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1	North Goa	Bardez	45	21024	0	0	0	0	2	0	47	21024
2		Bicholim	15	2141	1	240	0	0	6	0	22	2381
3		Pernem	28	7693	4	268	0	0	4	0	36	7961
4		Satari	2	110	0	0	0	0	0	0	2	110
5		Tiswadi	12	4050	1	180000	0	0	0	0	13	184050
		Total	**102**	**35018**	**6**	**180508**	**0**	**0**	**12**	**0**	**120**	**215526**
6	South Goa	Canacona	24	25720	0	0	1	120	5	0	30	25840
7		Dharbandora	0	0	0	0	0	0	0	0	0	0
8		Mormugao	31	87600	2	2700	0	0	0	0	33	90300
9		Ponda	24	3030	0	0	0	0	1	0	25	3030
10		Quepem	7	25072	2	100	0	0	13	0	22	25172
11		Salcete	126	230885	0	0	1	240	3	0	130	231125
12		Sanguem	0	0	0	0	0	0	0	0	0	0
		Total	**212**	**372307**	**4**	**2800**	**2**	**360**	**22**	**0**	**240**	**375467**
	Goa State		**314**	**407325 (407.30)**	**10**	**183308 (183.30)**	**2**	**360 (0.40)**	**34**	**0 (0.00)**	**360**	**590993 (591.00)**

TABLE 18 (A): DISTRICT/TALUKA WISEDISTRIBUTION OF WATER BODIES ACCORDING TO FILLED UP STORAGE DURING THE YEAR 2017-18 – RURAL

(in numbers)

Sl.No	District	Taluka	Filled-up Storage during the Year 2017-18					
			Full	Up-to 3/4	Up-to1/2	Up-to1/4	Nil/Negligible	Total (4 to 8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	North Goa	Bardez	9	51	42	9	1	112
2		Bicholim	14	19	52	36	6	127
3		Pernem	74	18	25	9	6	132
4		Satari	37	18	1	6	0	62
5		Tiswadi	12	1	1	0	0	14
		Total	**146**	**107**	**121**	**60**	**13**	**447**
6	South Goa	Canacona	12	15	13	6	4	50
7		Dharbandora	5	5	0	0	0	10
8		Mormugao	14	29	9	2	0	54
9		Ponda	148	49	53	8	4	262
10		Quepem	10	3	1	4	0	18
11		Salcete	71	51	70	45	4	241
12		Sanguem	2	3	0	0	0	5
		Total	**262**	**155**	**146**	**65**	**12**	**640**
	Goa State		**408**	**262**	**267**	**125**	**25**	**1087**

TABLE 18 (B): DISTRICT/MUNICIPAL WISEDISTRIBUTION OF WATER BODIES ACCORDING TO FILLED UP STORAGE DURING THE YEAR 2017-18 – URBAN

(in numbers)

Sl.No	District	Municipal Block	Filled-up Storage during the Year 2017-18					
			Full	Up-to 3/4	Up-to1/2	Up-to1/4	Nil/Negligible	Total (4 to 8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	North Goa	Bardez	0	0	0	0	0	0
2		Bicholim	0	0	2	2	0	4
3		Pernem	9	0	0	0	1	10
4		Sattari-Valpoi	0	0	0	1	0	1
5		Tiswadi-Panaji	0	0	0	1	0	1
		Total	**9**	**0**	**2**	**4**	**1**	**16**
6	South Goa	Canacona	10	4	0	0	0	14
7		Mormugao	0	2	1	1	0	4
8		Ponda	0	0	0	0	1	1
9		Quepem	0	0	0	0	0	0
10		Salcete - Margao	5	0	0	0	0	5
11		Sanguem	0	0	0	0	0	0
		Total	**15**	**6**	**1**	**1**	**1**	**24**
	Goa State		**24**	**6**	**3**	**5**	**2**	**40**

TABLE 18 (C): DISTRICT/TALUKA WISEDISTRIBUTION OF WATER BODIES ACCORDING TO FILLED UP STORAGE DURING THE YEAR 2017-18 – ALL

(in numbers)

Sl.No	District	Taluka	Filled-up Storage during the Year 2017-18					
			Full	Up-to 3/4	Up-to1/2	Up-to1/4	Nil/Negligible	Total (4 to 8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	North Goa	Bardez	9	51	42	9	1	112
2		Bicholim	14	19	54	38	6	131
3		Pernem	83	18	25	9	7	142
4		Satari	37	18	1	7	0	63
5		Tiswadi	12	1	1	1	0	15
		Total	**155**	**107**	**123**	**64**	**14**	**463**
6	South Goa	Canacona	22	19	13	6	4	64
7		Dharbandora	5	5	0	0	0	10
8		Mormugao	14	31	10	3	0	58
9		Ponda	148	49	53	8	5	263
10		Quepem	10	3	1	4	0	18
11		Salcete	76	51	70	45	4	246
12		Sanguem	2	3	0	0	0	5
		Total	**277**	**161**	**147**	**66**	**13**	**664**
	Goa State		**432**	**268**	**270**	**130**	**27**	**1127**

TABLE 18 (D): DISTRICT/TALUKA WISEDISTRIBUTION OF WATER BODIES ACCORDING TO STATUS OF FILLING UP OF STORAGE SPACE - RURAL

(in numbers)

Sl.No	District	Taluka	Filling up Storage (based on 50% filling up of Storage during last 5 years)				
			Filled up every year	Usually filled up	Rarely filled up	Never filled up	Total (4 to 6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	North Goa	Bardez	16	60	36	0	112
2		Bicholim	108	6	10	3	127
3		Pernem	113	19	0	0	132
4		Satari	36	23	2	1	62
5		Tiswadi	14	0	0	0	14
		Total	**287**	**108**	**48**	**4**	**447**
6	South Goa	Canacona	31	7	10	2	50
7		Dharbandora	10	0	0	0	10
8		Mormugao	20	26	8	0	54
9		Ponda	179	66	15	2	262
10		Quepem	12	6	0	0	18
11		Salcete	127	101	13	0	241
12		Sanguem	4	1	0	0	5
		Total	**383**	**207**	**46**	**4**	**640**
	Goa State		**670**	**315**	**94**	**8**	**1087**

TABLE 18 (E): DISTRICT/MUNICIPAL WISEDISTRIBUTION OF WATER BODIES ACCORDING TO STATUS OF FILLING UP OF STORAGE SPACE - URBAN

(in numbers)

Sl.No	District	Municipal Block	Filling up storage (based on 50% filling up of Storage during last 5 years)				
			Filled up every year	Usually filled up	Rarely filled up	Never filled up	Total (4 to 6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	North Goa	Bardez	0	0	0	0	0
2		Bicholim	4	0	0	0	4
3		Pernem	9	0	1	0	10
4		Sattari-Valpoi	0	1	0	0	1
5		Tiswadi-Panaji	0	0	1	0	1
		Total	**13**	**1**	**2**	**0**	**16**
6	South Goa	Canacona	14	0	0	0	14
7		Mormugao	1	2	1	0	4
8		Ponda	0	0	1	0	1
9		Quepem	0	0	0	0	0
10		Salcete-Margao	5	0	0	0	5
11		Sanguem	0	0	0	0	0
		Total	**20**	**2**	**2**	**0**	**24**
	Goa State		**33**	**3**	**4**	**0**	**40**

TABLE 18 (F): DISTRICT/TALUKA WISEDISTRIBUTION OF WATER BODIES ACCORDING TO STATUS OF FILLING UP OF STORAGE SPACE - ALL

(in numbers)

Sl.No	District	Taluka/Block	Filling up of storage (based on 50% filling up of Storage during last 5 years)				
			Filled up every year	Usually filled up	Rarely filled up	Never filled up	Total (4 to 6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	North Goa	Bardez	16	60	36	0	112
2		Bicholim	112	6	10	3	131
3		Pernem	122	19	1	0	142
4		Satari	36	24	2	1	63
5		Tiswadi	14	0	1	0	15
		Total	**300**	**109**	**50**	**4**	**463**
6	South Goa	Canacona	45	7	10	2	64
7		Dharbandora	10	0	0	0	10
8		Mormugao	21	28	9	0	58
9		Ponda	179	66	16	2	263
10		Quepem	12	6	0	0	18
11		Salcete	132	101	13	0	246
12		Sanguem	4	1	0	0	5
		Total	**403**	**209**	**48**	**4**	**664**
	Goa State		**703**	**318**	**98**	**8**	**1127**

TABLE 19 (A):DISTRICT/TALUKA WISE DISTRIBUTION OF WATER BODIES BY NUMBER OF CITIES/TOWNS/VILLAGES BENEFITTED

(in numbers)

Sl.No.	District	Taluka	Size Class by number of Towns/Cities/Villages benefitted								
			1	2 to 5	6 to 10	11 to 20	21 to 50	5 to 100	101 to 500	More than 500	Total (4 to 11)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	North Goa	Bardez	51	18	0	0	0	0	0	0	69
2		Bicholim	140	7	0	0	0	0	0	0	147
3		Pernem	130	4	0	0	0	0	0	0	134
4		Satari	88	5	0	1	0	0	0	0	94
5		Tiswadi	2	0	0	0	0	0	0	0	2
		Total	**411**	**34**	**0**	**1**	**0**	**0**	**0**	**0**	**446**
6	South Goa	Canacona	69	11	1	0	0	0	0	0	81
7		Dharbandora	6	36	0	0	0	0	0	0	42
8		Mormugao	3	22	0	0	0	0	0	0	25
9		Ponda	286	1	0	0	0	0	0	0	287
10		Quepem	44	0	1	0	0	0	0	0	45
11		Salcete	123	12	0	2	0	0	0	0	137
12		Sanguem	35	4	0	0	0	0	1	0	40
		Total	**566**	**86**	**2**	**2**	**0**	**0**	**1**	**0**	**657**
	Goa State	**Grand Total**	**977**	**120**	**2**	**3**	**0**	**0**	**1**	**0**	**1103**

TABLE 19 (B): DISTRICT/TALUKA WISEDISTRIBUTION OF WATER BODIES BY NUMBER OF PEOPLE DIRECTLY BENEFITTED - RURAL

(in numbers)

Sl.No.	District	Taluka	Size Class of number of People directly benefitted from Water Bodies in Rural Areas								
			Up to 100	101 to 500	501 to 1000	1001 to 5000	5001 to 10000	10001 to 25000	25001 to 50000	More than 50000	Total (4 to 11)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	North Goa	Bardez	66	2	0	0	0	1	0	0	69
2		Bicholim	123	15	2	2	0	0	0	0	142
3		Pernem	100	21	1	0	0	0	0	0	122
4		Satari	92	1	0	0	0	0	0	0	93
5		Tiswadi	1	1	0	0	0	0	0	0	2
		Total	**382**	**40**	**3**	**2**	**0**	**1**	**0**	**0**	**428**
6	South Goa	Canacona	65	9	1	0	1	0	0	0	76
7		Dharbandora	40	1	1	0	0	0	0	0	42
8		Mormugao	23	0	0	0	0	0	0	0	23
9		Ponda	280	7	0	0	0	0	0	0	287
10		Quepem	29	10	0	1	0	0	0	0	40
11		Salcete	108	18	2	0	0	0	0	0	128
12		Sanguem	37	0	1	0	0	0	0	1	39
		Total	**582**	**45**	**5**	**1**	**1**	**0**	**0**	**0**	**635**
	Goa State		**964**	**85**	**8**	**3**	**1**	**1**	**0**	**1**	**1063**

TABLE 19 (C): DISTRICT/MUNICIPAL WISEDISTRIBUTION OF WATER BODIES BY NUMBER OF PEOPLE DIRECTLY BENEFITTED - URBAN

(in numbers)

Sl.No.	District	Block	Size Class of number of People directly benefitted from Water Bodies in Urban Areas								
			Up to 100	101 to 500	501 to 1000	1001 to 5000	5001 to 10000	10001 to 25000	25001 to 50000	More than 50000	Total (4 to 11)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	North Goa	Bardez	0	0	0	0	0	0	0	0	0
2		Bicholim	5	0	0	0	0	0	0	0	5
3		Pernem	7	5	0	0	0	0	0	0	12
4		Sattari-Valpoi	1	0	0	0	0	0	0	0	1
5		Tiswadi	0	0	0	0	0	0	0	0	0
		Total	**13**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**18**
6	South Goa	Canacona	5	0	0	0	0	0	0	0	5
7		Mormugao	2	0	0	0	0	0	0	0	0
8		Ponda	0	0	0	0	0	0	0	0	0
9		Quepem – Curchorem, Cacora	3	0	0	0	0	0	0	0	3
10		Quepem	1	0	0	1	0	0	0	0	2
11		Salcete - Margao	5	0	0	0	0	0	0	0	0
12		Salcete - Cuncolim	4	0	0	0	0	0	0	0	4
13		Sanguem	1	0	0	0	0	0	0	0	1
		Total	**21**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**22**
	Goa State		**34**	**5**	**0**	**1**	**0**	**0**	**0**	**0**	**40**

TABLE 19 (D): DISTRICT/TALUKA WISEDISTRIBUTION OF WATER BODIES BY NUMBER OF PEOPLE DIRECTLY BENEFITTED - All

(in numbers)

Sl.No.	District	Taluka	Size Class of number of People directly benefitted from Water Bodiesin the State								
			Up to 100	101 to 500	501 to 1000	1001 to 5000	5001 to 10000	10001 to 25000	25001 to 50000	More than 50000	Total (4 to 11)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	North Goa	Bardez	66	2	0	0	0	1	0	0	69
2		Bicholim	128	15	2	2	0	0	0	0	150
3		Pernem	107	26	1	0	0	0	0	0	134
4		Satari	93	1	0	0	0	0	0	0	94
5		Tiswadi	1	1	0	0	0	0	0	0	2
		Total	**395**	**45**	**3**	**2**	**0**	**1**	**0**	**0**	**446**
6	South Goa	Canacona	70	9	1	0	1	0	0	0	81
7		Dharbandora	40	1	1	0	0	0	0	0	42
8		Mormugao	25	0	0	0	0	0	0	0	25
9		Ponda	280	7	0	0	0	0	0	0	287
10		Quepem	33	10	0	2	0	0	0	0	45
11		Salcete	117	18	2	0	0	0	0	0	137
12		Sanguem	38	0	1	0	0	0	0	1	40
		Total	**603**	**45**	**5**	**2**	**1**	**0**	**0**	**1**	**657**
	Goa State		**998**	**90**	**8**	**4**	**1**	**1**	**0**	**1**	**1103**

TABLE 20 (A): DISTRICT WISE STATUS OF FORMATION OF WATER USERS ASSOCIATIONS (WUAs) FOR WATER BODIES (EXCEPT INDIVIDUAL OWNERSHIP)

(in numbers)

Sl.No.	District	WUA formed			WUA not formed			Status not known		
		Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	North Goa	1	0	1	210	8	218	243	13	256
2	South Goa	5	0	5	439	15	454	339	19	358
	Goa State	**6**	**0**	**6**	**649**	**23**	**672**	**582**	**32**	**614**

TABLE 20 (B): DISTRICT WISE DISTRIBUTION OF NUMBER OF WATER BODIES FOR WHICH WATER USERS ASSOCIATIONS (WUAs) HAVE BEEN FORMED

(in numbers)

Sl. No.	District	Size Classes of number of Water Users Associations formed												
		Rural				Urban				All				
		1	2 to 5	5 to 10	More than 10	1	2 to 5	5 to 10	More than 10	1	2 to 5	5 to 10	More than 10	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1	North Goa	0	0	0	1	0	0	0	0	0	0	0	1	1
2	South Goa	4	0	0	1	0	0	0	0	4	0	0	1	5
	Goa State	**4**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**2**	**6**

TABLE 21: DISTRICT WISE DISTRIBUTION OF WATER BODIES INCLUDED IN DISTRICT IRRIGATION PLAN/STATE IRRIGATION PLAN

(in numbers)

Sl.No.	District	Number of Water Bodies included in District Irrigation Plan/State Irrigation Plan						
		Ponds	Tanks	Lakes	Reservoirs	Water Conservation Schemes/Percolation Tanks/Check Dams	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	North Goa	2	4	0	1	5	0	12
2	South Goa	12	4	1	4	92	3	116
	Goa State	**14**	**8**	**1**	**5**	**97**	**3**	**128**

TABLE 22 (A): DISTRICT WISE NUMBER OF WATER BODIES ENCROACHED

(in numbers)

Sl.No.	District	Total Water Bodies			Encroached			Out of Encroached, number of Water Bodies whose Encroached Area can be assessed		
		Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	North Goa	545	21	566	3	0	3	1	0	1
2	South Goa	861	36	897	5	0	5	4	0	4
	Goa State	**1406**	**57**	**1463**	**8**	**0**	**8**	**5**	**0**	**5**

TABLE 22 (B): DISTRICT WISE DISTRIBUTION OF WATER BODIES ENCROACHED BY PERCENTAGE OF AREA ENCROACHED

(in numbers)

Sl.No.	District	Size Classes by percentage of Area Encroached											
		Rural				Urban				All			
		Less than 25%	25% to 50%	50% to 75%	More than 75%	Less than 25%	25% to 50%	50% to 75%	More than 75%	Less than 25%	25% to 50%	50% to 75%	More than 75%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1	North Goa	2	1	0	0	0	0	0	0	2	1	0	0
2	South Goa	4	0	0	1	0	0	0	0	4	0	0	1
	Goa State	**6**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**6**	**1**	**0**	**1**

TABLE 22 (C): DISTRICT/TALUKA WISE DISTRIBUTION OF ENCROACHED WATER BODIES (BY TYPE)-ALL

(in numbers)

Sl. No.	District	Taluka	Ponds		Tanks		Lakes		Reservoirs		Water Conservation Schemes/percolation tanks/check dams		Others		Total	
			Total	En-croached	Total	En-croached	Total	En-croached	Total	En-croached	Total	En-croached	Total	En-croached	Total	En-croached
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1	North Goa	Bardez	106	0	2	0	4	0	0	0	2	0	2	0	116	0
2		Bicholim	3	0	115	0	9	0	4	0	37	0	1	0	169	0
3		Pernem	92	1	40	0	6	0	4	0	24	0	4	0	170	1
4		Satari	30	0	29	1	1	0	3	0	31	1	2	0	96	2
5		Tiswadi	12	0	0	0	3	0	0	0	0	0	0	0	15	0
		Total	243	1	186	1	23	0	11	0	94	1	9	0	566	3
6	South Goa	Canacona	57	1	3	0	0	0	4	0	44	1	3	0	111	2
7		Dharbandora	8	0	2	0	0	0	0	0	32	0	0	0	42	0
8		Mormugao	48	0	1	0	9	0	0	0	0	0	0	0	58	0
9		Ponda	255	0	2	0	6	0	0	0	49	0	0	0	312	0
10		Quepem	12	0	3	0	3	0	0	0	49	0	0	0	67	0
11		Salcete	239	3	1	0	5	0	1	0	5	0	16	0	267	3
12		Sanguem	2	0	2	0	0	0	1	0	35	0	0	0	40	0
		Total	621	4	14	0	23	0	6	0	214	1	19	0	897	5
	Goa State	**Grand Total**	**864**	**5**	**200**	**1**	**46**	**0**	**17**	**0**	**308**	**2**	**28**	**0**	**1463**	**8**

REFERENCE YEAR 2017-18
VILLAGE SCHEDULE

Appendix – II

(a)State: _____ **Code :** | | **(b) District:** _____ **Code :** | | | |

(c)Block/Tehsil: Code | | | | | | | **(d)Village:** Code | | | | | | |

Date of Enumeration: (DD/MM/YY) | | - | | | - | | |

II. SPECIFIC INFORMATION:

1. Is Village Tribal/ Non-Tribal ? **Code :** |

Tribal – 1 , Non-Tribal -2

Code : |

Yes -1, No - 2

3. Geographical Area In Whole number | | | | | | **Ha.**

4. Cultivable Area In Whole number | | | | | | **Ha.**

5. Net sown Area In Whole number | | | | | | **Ha.**

In Whole number

(i) During Kharif Season | | | | | | **Ha.**

(ii) During Rabi Season | | | | | | **Ha.**

(iii) For Perennial crops | | | | | | **Ha.**

(iv) During Other Season | | | | | | **Ha.**

| | | | | | **Ha.**

7. Net Area Irrigated (By all sources) In Whole number | | | | | | **Ha.**

8. Average Ground Water level (in Metres)

(i) Pre Monsoon) | | | | **Mtrs**

(ii) Post Monsoon) | | | | **Mtrs**

Yes -1, No -2, Not known-3 Code : |

9. Whether Water Users Association (WUA) formed in the

10. Summary of Number of Water bodies as per water body Schedules filled in the village

Pond	Tank	Lake	Reservoirs	Water conservation Schemes/percolation tanks/check-dams	Others	Total (Col. 1 to 6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)

11. Summary of M I Schemes in the village as per all scheme schedules filled.

(i) Ground Water Schemes No. | | |

(ii) Surface Water Schemes No. | | |

(iii)Total Schemes No. | | |

Remarks, if any:

Name:

Mobile No.:

Name:
Designation of Enumerator :
Mobile No:

CENSUS OF WATER BODIES

URBAN SCHEDULE

(a) State_____ Code | | | (b) District _____ Code | | | |

(C) Town/Municipality _____ Code | | | | | | |

Date of Enumeration (DD/MM/YY) | | | - | | | - | | |

II. Specific Information:

S. No.	Ward No.	Pond		Tank		Lake		Reservoirs		Water conservation Schemes/ percolation tanks/ check-dams		Others		Total col. 3 to 8		
(1)	(2)	(3)		(4)		(5)		(6)		(7)		(8)		(9)		
1																
2																
3																
4																
5																
6																
7																
...																
Total																

Remarks, if any:

Name

Mobile No.

Remarks

Name

Mobile NO.

Remarks

CENSUS OF WATER BODIES
WATER BODY SCHEDULE

Rural-1/Urban-2 ☐

I Identification Particulars (Standard Codes to be used)

(a)State_____ Code ☐☐ (b) District _____ Code ☐☐☐

For Rural

(c) Block/Tehsil _____ Code ☐☐☐ (d) Villages name_____ Code ☐☐☐

For Urban:

(e) Town/Municipality _____ Code ☐☐☐☐ **(f) Ward no** ☐☐☐

Sl.number of water body within village/Town ☐☐☐

Date of Enumeration (DD/MM/YY) ☐☐-☐☐-☐☐

Unique Identification key for Water body (If urban give code for town and ward)

R/U	State		Distt.			Tehsil/Town/block						Village/Ward						Serial No.- within village/town		

II Specific Information:

1.1 (a) Name of Water body (if any)/ with specific permanent land marks

_____

1.1(b) Name of Basin & Sub-basin in which water body is situated:_____

_____

Basin code ☐☐

Sub basin code ☐☐

1.2 (a) . Type of Water Body:Ponds-1, Tank-2, Lakes-3, Reservoirs-4 **Code:** ☐

Water conservation schemes/percolation tanks/check-dams-5, Others-9

1.2(b) If code is "Others" in item 1.2(a) the nature of storage : _____

1.3. Khasra number/plot no/survey no in which the water body is located ____:_____

2. Latitude (In degree, minutes, seconds)

Degree	Minute	Second
☐☐	☐☐	☐☐

3. Longitude (In degree, minutes, seconds)

Degree	Minute	Second
☐☐	☐☐	☐☐

4. Whether located in DPAP-1 /Tribal-2/DDP-3/ **Code:** ☐

Flood prone-4, Naxal affected area 5, Other -9

5. **Ownership**: State WRD/State Irrigation-1,Co-ooperative-2,Panchayat-3,Muncipal authority-4, Other Govt. Agency-5,

Individual-6, Group of Individuals -7, Other private body -9 **Code:** ☐

6(1) Whether Water body is in use: Yes-1, No-2 **Code:** ☐

6(2) If in use i.e. code 1 in item 6(1) above, uses: **Code:** ☐

Irrigation-1, Industrial-2, Pisciculture-3, Domestic/Drinking-4, Recreation-5, Religious -6, **Code:** ☐

Ground Water Recharge-7, Other-9: (up to three codes in order of preference) **Code:** ☐

6(3) If water body is "in use" for Irrigation i.e. code 1 in item 6(2) :

CCA of water body ☐☐☐☐☐☐ Ha.

IPC of water body ☐☐☐☐☐☐ Ha.

6(4) If not

Siltation-3, Destroyed beyond repair-4,Salinity-5, Due to industrial effluents-6, Others-9 **Code:** ☐

7(1). **Type of water body by nature :** Natural-1,Man made (Dam, weir constructed pond etc.)-2 **Code:** ☐

7(2) If code 2 i.e. man made in item 7(1) type : Earthen-1,Concrete-2,Masonary-3,others-9 **Code:** ☐

8. Year of Construction and original cost (only for man made): Year

Original Cost Rs.

9. Year of renovation / repair (for all water bodies) Year

Cost of last repair Rs.

10. Whether, Water body is under repair/renovation/restoration: yes-1, NO-2

10.(1) If yes: Scheme under which revival is being done: _____

10(2) Year of inclusion under the scheme:

10(3) Targeted year of completion:

10(4) Estimated cost Rs.

10(5) Target of potential revival Ha.

10(6) Irrigation potential revived Ha.

11. Water spread area of the water body (in Ha) Ha.

12 Max. depth of water body when fully filled up: (In Meters)

13.Storage Capacity of water body in Cu.meter Original

Present

14. Filled up Storage (During 2017-18) Full-1, up to 3/4 -2, up to 1/2 -3, up to 1/4 -4, Nil/ negligible filled -5. Code:

15 Status of filling up of storage space (based on around 50% filling up of storage during last 5 year) Code:

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

16(1) Number of City/Town/Villages benefited.

Town/Cities

Villages

16(2) Number of people directly benefited by Water body: No.

17 (1) Whether Water Users Association (WUA) is formed(Except Individual ownership):

Yes-1 , No-2, Not known-3 Code:

17(2) If Yes i.e. code 1 in item 17(1): Code:

(a) Extent of area covered by WUA: Full area covered-1, Partial area covered-2

(b) Number of Water Users Association(WUA) formed for this Water Body:

18. Whether water body included in District Irrigation Plan(DIP)/State Irrigation Plan(SIP) Yes-1,No-2 Code:

19 (1) Whether any area of Water Body is encroached: Yes-1, No-2: Code:

19(2) If yes i.e. code 1 in item 19(1), can extent of encroachment be assessed : Yes-1, No-2 Code:

19(3) If yes i.e. code 1 in item 19(2) : Approximate percentage of area encroached %

Remarks, if any:

Checked by Signature of Enumerator

Name Name

****

A State Level Steering Committee was constituted vide Notification No. DPSE/IV/6th MIC/2017/3925 dated 04/07/2018 with Secretary (Planning) i.e. Secretary of the Nodal Department (DPSE) as Chairman and members from the State Departments of Water Resources, Panchayats, Rural Development Agency, State Regional National Sample Survey Office (NSSO) Field Operations Division(FOD) and Central Ground Water Board, Bangalore. The Director (DPSE/Census Commissioner) was the Member Secretary. The Committee was responsible for monitoring and looking into all aspects related to the smooth conduct of both the MIC and CWB.

So also, vide Notification No. DPSE/IV/6th MIC/2017/3926 dated 04/07/2018, a State Level Technical Sub-Committee (SLTSC) was constituted under the chairmanship of the Regional Director/Representative of Central Ground Water Board, Bangalore and having as its members the Chief Engineer (State Water Resources Department), Project Director (State Rural Development Agency) and Director (DPSE/Census Commissioner) as the Member Secretary to to plan, advise, guide and provide technical inputs for the conduct of the MIC CWB in Goa.

For the purpose of monitoring both the censuses, two Dy. Directors from the Nodal Department (DPSE) were designated as District Level Census Officers for the two districts i.e. North Goa District and South Goa District. Block Development Officers (BDOs) of the twelve Talukas/Tehsils were designated as Taluka Level Census Officers with the responsibility to appoint and allocate duties to the field enumerators as also to monitor the completion of field work in their respective blocks.