

S E C T I O N - I I

Effectiveness of Survey and Demarcation of Lakes



Chapter IV

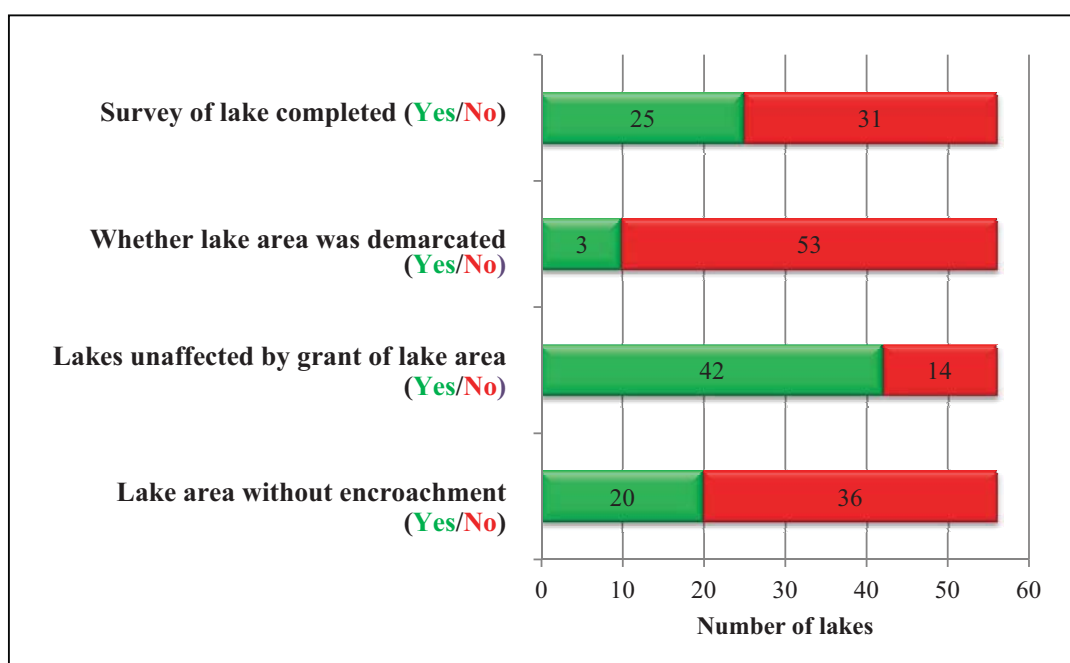
Effectiveness of survey and demarcation of lakes

4 Survey and demarcation of lakes

The primary task for conservation and restoration of lakes was survey and demarcation of the area of a lake. This was necessary to ensure that no encroachments take place in lake area. This chapter deals with the status of the survey and demarcation of lakes. It also contains audit findings on irregular grant of lake land, encroachments upon lakes, reduction of lake area, *etc.*

Issues on effectiveness of survey, demarcation and removal of encroachments in the 56 test-checked lakes as observed by Audit are depicted in **Chart 3** below:

Chart 3: Issues on effectiveness of survey and status of encroachments in the test-checked lakes



4.1 Status of survey in Bengaluru and other Urban Local Bodies

The State Government directed the Revenue Department as early as in 1988 to conduct the survey of the area of all lakes in the State. The bye-laws of LDA stipulated (2002) that survey of lake area needs to be carried out. The necessity of survey was also reiterated by the State Government during April 2010 and in May 2013. However, Audit observed that out of 56 test-checked lakes, survey of only 25 lakes was carried out by the Revenue

Department. Of these, survey maps in respect of two⁹ lakes, were not certified by the concerned jurisdictional Tahsildar¹⁰ of the Revenue Department.

The State Government (UDD) replied (March 2015) that action has been initiated to get the survey done for all the lakes.

4.2 Non-demarcation of lake area

As part of survey, boundary stones in concrete are to be fixed in three to four corners of the lakes to facilitate easy identification of the area for future re-survey of the lake, if need be. The survey should also record latitude and longitude values of the corner stones, so fixed, by using Global Positioning System (GPS).

During test-check of 34 lakes in Bengaluru, only three¹¹ lakes were found to be demarcated. Sign boards displaying details of the lakes including its area were seen only in seven¹² lakes.

4.3 Variations in lake area as per different records

Area of a lake is mainly determined by the water spread area which has a direct correlation with the height of the waste weir (full tank level) of the lake. Reduction in height or breach of waste weir would result in shrinkage of water spread area of the lake.

Audit observed in JPV that during restoration works of Rachenahalli Lake, the height of the waste weirs was reduced to 883.20 metre (approximately) from the existing full tank level of 884.40 metre above Mean Sea Level (as per DPR). This effectively reduced the area of the lake from 168 acres (as per survey map) to 128 acres (as per DPR). In another lake (Doddanekundi) the waste weirs which existed on both sides of the bund were breached and allowed out flow of water, resulting in reduction in area of the lake by 24 acres¹³.

Audit also observed that the implementing agencies and LDA were not using satellite data for ascertaining the actual lake area. A comparative study of the lake area for 33 test-checked lakes in Bengaluru from the recent records of Revenue Department, Survey maps, Shri. N. Lakshman Rau Committee Report, DPRs, UDD and KRSAC showed that there were inconsistencies in lake area as per these different records and the more recent records in many cases indicated reduction in the area of the lake. This was mainly due to construction of roads, infrastructure and residential layouts, and change in land use. Details are indicated in **Appendix 6**.

⁹ Chinnappanahalli and Kasavanahalli

¹⁰ Authorised signatory on the survey maps

¹¹ Dasarahalli, Kasavanahalli and Vibhuthipura

¹² Amruthahalli, B.Channasandra, Chinnappanahalli, Gangashetty, Garebhavipalya, Kaigondanahalli and Kasavanahalli

¹³ 135 acres as per 2006 Survey map of Revenue Department and 111 acres as per DPR

The State Government (UDD) accepted (March 2015) that there was difference in area of the lake with reference to the records and survey conducted. It also stated that the difference in area of the lake with reference to land records and certified sketch would be brought to the knowledge of jurisdictional revenue authorities for necessary action. The LDA stated (April 2015) that it was taking help from Indian Space Research Organisation (ISRO) to assess the actual area of lake. However, no documentary evidence was furnished to substantiate the reply.

4.4 Grant of lake land in violation of the Rules

The doctrine of Public Trust is an important canon of Environmental Law which primarily rests on the principle that certain resources like air, sea, water and forests have such great importance to the people as a whole that it would be unjustified to make them a subject of private ownership.

The National Water Policy, 2002 also states that encroachments and diversion of water bodies (like rivers, lakes, tanks, ponds, *etc.*) and drainage channels (irrigated area as well as urban area drainage) must not be allowed and wherever it has taken place, it should be restored to the extent feasible and maintained properly.

The provisions of Karnataka Land Revenue Rules prohibit grant of areas of tanks/lakes/water bodies to any person. Scrutiny of records of the test-checked lakes revealed that lake land had been granted irregularly to various Government bodies, private parties and others in violation of these provisions. This had resulted in reduction of lake area. Illustrative cases are as under:

i) Rachenahalli Lake: The lake land of 43.17¹⁴ acres had been granted out of 76.05 acres in Survey No.82 to Government bodies and private parties in violation of Rule 108-I of the Karnataka Land Revenue Rules.

ii) Jakkur-Sampigehalli Lake: The Revenue Department had granted lake land of 41 acres to BWSSB for establishing a Sewage Treatment Plant (STP) and staff quarters. Audit observed during JPV that except for about 10 acres of land for establishing STP, the remaining area was fenced by BWSSB without any development. No efforts were made by the Revenue Department to take back the lake area, which was granted by the Government in violation of the rules.

iii) Allalassandra Lake: Lake area to the extent of 14,289.36 sq ft in Allalassandra Lake (Survey No.15) had been granted to unauthorised occupants under Section 94 (C)¹⁵ of Karnataka Land Revenue Act, 1964. This was in contravention to Rule 108-I of the Karnataka Land Revenue Rules, 1966 read with Section 4 of Karnataka Regularisation of Unauthorised Construction in

¹⁴ 20 acres to Mahatma Gandhi Institute of Rural Energy Development, 16.54 acres to Jawaharlal Nehru Centre for Advance Scientific Research, three acres to Ms. M.K. Indira and others, three acres to Wakf Board, 0.63 acre to BBMP for formation of road and gas line

¹⁵ 94(C) - grant of Government land to unauthorised occupants prior to 1998

Urban Areas Act, 1991 which stipulated that unauthorised construction in tank bed should not be regularised.

iv) In five¹⁶ lakes, the lake area had been granted during the period from 1991 to 2010 to various entities such as National Highways Authority of India, BDA and Karnataka Industrial Area Development Board (KIADB) for formation of residential layouts, road works, *etc.*

The State Government (UDD) replied (March 2015) that the above issues of grant of lake land were under consideration with the Revenue Department.

Recommendation 6: The State Government needs to review all cases of grant of lake land post 1988 and take steps to reclaim the land.

4.5 Encroachments in lake area

Audit observed that the Revenue Department had not maintained a database on lakes including the area under encroachments.

Audit scrutiny revealed that encroachment of lake area had caused choking/blocking of catchment drains, loss of foreshore area and wetland, thereby leading to shrinkage in water spread area. Despite repeatedly pointing out the need for removal of encroachments in lake area by the State Government since 1988, the removal of encroachments was not complete. During the JPV and review of records of test-checked lakes, Audit came across cases of encroachments which are listed in **Appendix 7**.

The State Government (UDD) stated (March 2015) that the jurisdictional revenue officers had been instructed to evict encroachments and action would be taken to fence all the lakes soon after the completion of survey. It was also stated that the issue of recording of GPS reading is under consideration of Government.

4.6 Change in land use leading to conversion of lake areas

According to the provisions of the Karnataka Town and Country Planning Act, 1961, the Comprehensive Development Plan (CDP)/Revised Master Plan (RMP) shall include the areas reserved for parks, play grounds and other recreational uses, public open spaces, public buildings and institutions and areas reserved for such other purposes, *etc.* The Act does not explicitly describe the area preserved as tanks or lakes in the CDP/RMP.

Scrutiny of records and information furnished by the Town Planning Wing of BDA in respect of 27 out of 34 lakes test-checked in Bengaluru revealed that there was change in status of lake area (residential, roads, agricultural land, *etc.*) as per the RMP of 2015 when compared to the CDP of 2005 which described the status of lake area as tanks, parks and valleys. The change in

¹⁶ B.Narayanapura Lake granted to BDA, Dasarahalli Lake to KIADB for road, Mestripalya Lake to BDA (1991); Shivanahalli Lake to National Highways for road; Vengaihanakere to National Highways for road

land use/status of lake area in RMP of 2015 for formation of roads, residential layouts, etc., led to reduction in lake area.

Instances of the change in land use pattern as per the CDP 2005 and RMP 2015 and as observed by Audit during JPV of test-checked lakes are described in **Table 1** below:

Table 1: Details of change in land use pattern as per CDP 2005, RMP 2015 and as noticed during JPV

Sl. No.	Name of the Lake	Status as per CDP 2005	Status as per RMP 2015	Status of lake noticed during JPV
1	Allalassandra	Tank, park	Lake, partly residential	Lake bed encroached by slum and Forest Department.
2	Dasarahalli (Chokkasandra)	Tank, park	Lake, partly park, partly residential	The lake area encroached, reduced due to formation of roads.
3	Garebhavipalya	Park and Tank	Lake and residential area, 67 metre road	The lake area covered with industrial and residential layouts.
4	Kowdenhalli	Tank	Lake, mainly residential, industrial and 18 metre road, High tension line	Lake bed area granted for Educational Institutions and market place. BBMP road in the lake area.
5	Rachenahalli	Tank	Residential, roads measuring 18 metre road	New road formation/Park on lake bed.
6	Shivanahalli	Lake, road, railway line	Lake, railway line, 45 metre road, mainly residential with 12 metre, 15 metre road	Formation of National Highway and railway line.
7	Yelahanka	Green belt, Tank	Residential mainly, and partly lake	Graveyard noticed in lake area.

Source: Information furnished by BDA

The State Government (UDD) accepted (March 2015) that lake areas of Bellanduru, B.Channasandra, B.Narayanapura, Chinnappanahalli, Mestripalya, Mahadevapura and Shivanahalli lakes had been shown as residential, road, railway line in the RMP 2015 and the error would be rectified in the RMP 2035 which was under preparation. The reply is not acceptable as the lapse on the part of BDA in changing the land use would facilitate use of lake land for other purposes.

Recommendation 7: All cases where lake area has been revised/reduced in the Revised Master Plan 2015 be restored to its pre-RMP 2015 status with immediate effect.