
(2015) 12 RAJ CK 0015
In the Rajasthan High Court
Case No : Civil Writ Petition No. 6210/2003

Mangal Singh and Others

APPELLANT

Vs

State of Rajasthan and Others

RESPONDENT

Date of Decision : 18-12-2015

Acts Referred:

Citation : (2015) 12 RAJ CK 0015

Hon'ble Judges : Govind Mathur and Jaishree Thakur, JJ.

Bench : Division Bench

Advocate : P.P. Choudhary, Senior Advocate, assisted by Ankur Mathur, for the Appellant; K.L. Thakur, Additional Advocate General, M.S. Singhvi Advocate, assisted by Hemant Dutt and H.S. Sidhu, for the Respondent

Judgement

Govind Mathur, J.—The petitioners, who happen to be marginal farmers of District Jodhpur, are before us to have some remedial measures by the State of Rajasthan to ensure adequate retention of water with Jaswant Sagar Dam, a Dam that was constituted much back in the year 1889 by the Former Rulers of Jodhpur State.

2. The allegations of the petitioners are that:--

(1) in the catchment area of the Dam several illegal constructions including construction of anicuts/check Dams made and that is obstructing free flow of water to the Dam;

(2) several tubewells have been dugged on the bed of the Dam by the farmers having farming rights on bed land and that has damaged water retention potency of the Dam; and

(3) the Government of Rajasthan is not taking adequate interest to provide drinking water to the residents of town Bilara and other nearby towns through other water projects than extraction of water by installing tubewells in the bed of Jaswant Sagar Dam. The extraction of water by the State Government has

punctured the entire bed of the Dam causing loss of water retention capacity of the dam bed soil.

3. A Division Bench of this Court on 11.3.2004 directed the State of Rajasthan to constitute Survey Committee for identifying the reasons for lack of sufficient water in Jaswant Sagar Dam to suggest means for removal of difficulties which are coming in the way of filling up the Dam. The report was required to be filed within a period of four months, but being not filed, the Court by order dated 19.7.2004 directed the State Government to close all tubewells unauthorisedly opened, if feasible, in order to augment the water in the Dam. By an another order dated 20.1.2006 a direction was given to the respondent State to close for the time being all the tubewells unauthorisedly constructed in the bed of Jaswant Sagar Dam and around it. It was made clear that if for any reason, any tubewell so constructed is submerged into water and is not currently operated, the same may be closed soon after its cease to be submerged. By subsequent orders it was made clear by the Court that the term "around it" in the order dated 20.1.2006 be treated as the distance of 500 meters from the Jaswant Sagar Dam.

4. A report as desired by the Court under the order dated 11.3.2004 was filed by the State Government and the Court after going through that observed as under:--

"The Annexure-R/1 submitted along with the report is already a part of study made in respect of Jaswant Sagar Dam which is part of record as Annexure of the writ petition. It does reveal at least that since 1983-84 there almost complete decline in the irrigation through this dam barring aside in couple of year, in which too very small portion of land has been irrigated. Notwithstanding that in most of the years Mansoon is average since 1983-84 yet in almost all the years for the purpose of irrigation the water level has been shown to be dead storage level. This needs to be explained.

The report also does not furnish information about the gradual development of tube wells in an around Jaswant Sagar Dam, drawing water from its under ground channels as per order dated 4.5.2007 and the water disbursed for drinking purposes. The same should be produced on record by the next date of hearing.

In a report submitted on Jaswant Sagar Dam about decline in its potency to provide irrigation water during last two decades, it has been pointed out that out of original catchment area of about 1300 Sq. Miles available until 1979-80, now available catchment area is only 491.38 Sq. Miles and further reports that 672 Sq. Miles of the free catchment area which remained in 1979-80 after modernisation the yield for water on average Mansoon would be 14.85 MCFT, which is upto the level of maximum storage has been achieved in the last 30 years, as per the said Annexure-R/1, which is part of said report and correctness of which is now owned by the respondents and the decline in the catchment area from 672 Sq. Miles has resulted in 48% decline in water inflow to the dam.

In the aforesaid circumstances the learned Additional Advocate General is further directed to furnish the facts about catchment area and plan, if any, with the State for making the entire 672 Sq. Mils of available free catchment area in 1979-80 is free from encroachments."

5. The Government of Rajasthan on 27.8.2007 informed the Court that due to non availability of hydrological details the State Government has decided to have a complete study by the Indian Institute of Technology, Roorkee about the issue relating to loss of water retention potentiality by Jaswant Sagar Dam. The Court while noticing this fact directed the State Government to furnish all the details about obstructions in the catchment area effecting free channelised flow of natural water to Jaswant Sagar Dam. A report then was filed, however, the Court did not find that complete.

6. Be that as it may, a complete report was filed by the National Institute of Hydrology (in earlier orders the Court noticed this body as IIT, Roorkee) pertaining to the cause under consideration. An application then was filed by few agriculturists to join the writ proceedings being having pattas for agriculture activities on the bed of Jaswant Sagar Dam. The Court allowed them to join the writ proceedings as intervenor. The matter thereafter came up before the Court on several occasions, the Court also noticed several suggestions to redress grievance of the petitioners, which as a matter of fact pertains to peasantry at large of the area concerned.

7. With the procedural background of this petition for writ, we heard the same and examined the entire matter for further directions to meet the cause agitated.

8. To understand the entire issue threadbare, it shall be appropriate to give brief introduction of the Jaswant Sagar Dam, its catchment area and the obstruction therein, the problem faced by farmers of the area including the farmers who are having agriculture land around the Dam, in the command area of land and the agriculturists who are farming on bed of the dam, the studies made by the experts with their conclusions.

INTRODUCTION OF THE JASWANT SAGAR DAM AND ITS VICINITY (As given in the report given by the National Institute of Hydrology, Roorkee)

9. The Jaswant Sagar Dam (locally known as Pichiyak Dam) is an earthen dam constructed across the ephemeral Luni River in the year 1889 by then Maharaja Jaswant Singh for storage of surface water runoff to meet irrigation water requirement at the downstream commands. The dam is located at latitude 26 13" 03" N and longitude 73 41" 36" E in the Thar Dessert of Western Rajasthan. The catchment area from which the dam is supposed to receive its storage water was 3367 sq. km (1300 sq. mile). During the years 1979-80, the catchment area of the dam had been revisited and reported that about 51.7% of the catchment area of 3367 sq km had been intercepted by the upstream storage interventions (Irrigation Dept. report). After the years 1979-80, it was suspected that further interventions by numerous upstream surface irrigation structures (viz, minor

irrigation dams, check dams, anicuts, etc.) have increased the intercepted area to about 62.2% of the original catchment area of 3367 sq. km. The intercepted area means the area obstructed from free discharge of natural runoffs to the dam site.

10. The storage water to be created by the dam from the monsoon runoffs was designed to divert through two canals, namely; Parasla Nahar (24 km) and Bhavi canal (7.60 km) to meet irrigation water requirements in the respective canal commands downstream. The gross command areas under these canals are 7245 hectares (17903 acres), out of which culturable command area is 5463 hectares (13500 acres). Crops generally grown in those command areas are : wheat, maize, mustard, chilli, capus, gram, pea, cucumber, ladyfinger, toraitindi etc.

11. The designed overflow level of the dam was RL 894.5 ft. above MSL till the year 1979. In the year 1979, the overflow level was raised to RL 896.5 ft. by installing gates of height 2 ft. over the original weir. The designed storage capacity at the overflow level of RL 894.5 ft. that corresponds to 26.5 ft. height over the sill level of 868 ft. was 43.1 million cubic meter (mcm) i.e., 1520 mcft (million cubic ft). Raise of the overflow level by 2 ft. was supposed to increase the live storage capacity by about 11.83 mcm (418 mcft), i.e., from 43.1 mcm to 54.93 mcm, if no siltation had taken place over the submergence area. The water-spread area (i.e., submergence area) at the overflow level (26.5 ft) that corresponds to 43.1 mcm storage capacity was measured to be 18 sq. km (6.95 sq. mile).

12. At the time of construction of Jaswant Sagar Dam, cultivatory rights were said to be awarded to the persons having agriculture holdings in the submerged land and such rights were also said to be awarded by the State of Marwar even after completion of the Dam. As per the Government of Rajasthan, during dry season, a good number of peasants used to cultivate in the submerged area. For a long period after construction of the Dam such cultivators were irrigating their land by open wells then existing only. The persons cultivating in the submerged area installed borewells and that too are said to be a reason for losing retention capacity by soil of the Dam. Such borewells are said to be installed in last few years only. It is also brought into notice of the Court that some of the cultivators as well as Public Health Engineering Department has made horizontal digging also in open wells to procure water from different streams.

GEOGRAPHICAL FORMATIONS AND THE HYDROLOGICAL CONDITIONS IN THE VICINITY OF JASWANT SAGAR

13. The geological formations in the vicinity of the Jaswant Sagar dam and in the nearby area, which constitute the main aquifer, are mainly represented by the Precambrian basement rocks comprised of granites and gneisses of Aravali system, overlain by limestone and dolomites of Bilara group on the eastern side and sandstone and chest on the western side. These overlain formations are further overburdened by the quaternary alluvium consisted of coarse to very

coarse-grained sand, with beds of sub-angular to sub-rounded pebbles and gravels, thickness of which varies between 5 m. to 12. Prior to late eighties, groundwater was normally available at about 15-30 m. below the land surface under the unconfined condition to leaky confined condition of the aquifer that primarily laid over the limestone and sandstone formations. During monsoon period or when reservoir contained water, the groundwater was available in the phreatic zone. However, over the years, because of excessive interventions into the hydrogeological conditions the groundwater table had been reported to be declined considerably. The groundwater, which was earlier available at about 15-30 m. below the land surface, has presently been available even at 100 m. below the land surface."

THE CATCHMENT AREA OF JASWANT SAGAR DAM

14. The Jaswant Sagar Dam is situated at the lowest point of water collecting area that is mainly coming from Aravali Hills of Ajmer District. The main source to feed the Dam is river Luni which originates in the western slopes of Aravali range at an elevation of 550 meters in Nag Pahar near Ajmer. The river flows about 495 kms. In south western direction in the State of Rajasthan and disappears in the marshy land of Runn of Kutch. The river is having a huge catchment area in the Districts of Ajmer, Pali, Jodhpur, Barmer, Nagaur, Jalore and Sirohi. The rivers Lilri, Sukri, Mithri, Bandi, Khari, Jawai, Guhiya and Sagi are main tributaries of river Luni. It shall be appropriate to notice that the rivers Sukri, Mithri, Bandi and Jawai merges with river Luni subsequent to collection of water in Jaswant Sagar and these tributaries rivers are mainly originating from the Aravali Hills situated in Districts Pali, Sirohi, Udaipur and Rajsamand.

15. The drainage area of Jaswant Sagar is the upper most region of Luni catchment right from its origin and has a length of about 125 kms. to the dam site. The maximum length and width of the drainage is about 125 kms. and 55 kms. respectively.

THE GEOGRAPHICAL STRUCTURE OF THE CATCHMENT AREA

16. As per Geophysical survey conducted by the Groundwater Department of Government of Rajasthan the principal hydrogeological formation and the catchment area was of limestone with high cavitised dolomitic and cherry in nature. Around the dam it is mainly limestone and yellow clay. A state formation exists in south west of the dam and the limestone beds are highly folded and fractured towards the overflow area. The suspected fractures and cavities had been, and are being, charged and mobilised by the recharging of wells constructed and operated inside the reservoir. The size, shape and development of fractures and cavities in the limestone formations vary with time and also with movement of water and that is also a reason for loss of water.

THE OBSTRUCTIONS IN CATCHMENT AREA DUE TO CONSTRUCTIONS

17. An important aspect of the matter is that upto 1980 the dam was retaining

water and was keeping the entire area green. It is only subsequent to 1980 a huge number of tubewell and tubewells in open wells came into existence. As per the details given by the Department of Irrigation in the bed of Jaswant Sagar 31 open well, 26 tubewell and 98 tubewells in open wells are existing. Beside the above, the catchment and drainage area of Jaswant Sagar is having obstruction due to construction of several anicuts and check dams. The details of such dams which were constructed subsequent to 1980 is as under:--

18. Several other dams were constructed prior to 1982-83 but those certainly collects excessive water as the problem now faced by Jaswant Sagar was not existing prior to 1980.

STUDY OF THE ISSUE BY EXPERT BODIES

(i) In order to find reasons as to why the Jaswant Sagar Reservoir is not capable to hold water, and to identify factors causing problem to sustain conditions of the Reservoir, Water Resources Department, Government of Rajasthan referred the task to the National Institute of Hydrology, Roorkee, in the form of consultancy.

With the background noticed above, a detailed study was conducted by the National Institute of Hydrology on following issues:--? Whether upstream interventions on the catchment by numerous storage structure have impacts on the cause of inadequate natural runoffs at the dam site or it is due to the inadequate rainfall?

? Whether the reservoir has its adequate storage capacity as it has been projected, or it has reduced because of human interventions on the hydrological and hydro-geological regimes?

? Whether the reasons of not withstanding stored water in the reservoir are because of excessive seepage below the reservoir bed or because of losses through wells constructed in the vicinity of the reservoir or due to the excessive water surface evaporation, usually observed high in arid and semi-arid region?

? Whether wells constructed in the vicinity are the causes of excessive storage losses or it is because of the degradation of geological formations below the reservoir bed?

? What are the impacts of wells constructed in the vicinity of the reservoir on the storage of water in the reservoir?

? Whether water being lost from the surface storage can be brought into use?

? Are geological formations underneath the reservoir favorable and stable for sustaining the reservoir storage?

? What are the remedies or alternatives to bring forth into use of monsoon runoffs, in case it is a question of sustainability of the storage capacity of the reservoir?

? Can damages in the hydro-geology, if any, be rectified or restored?

After complete study, the conclusions arrived by the expert body are as under:--

CONCLUSIONS

1. The Jaswant Sagar Dam was commissioned 109 years ago from the year 2008 with its catchment area of 3367 sq. km and designed storage capacity of 43.1 MCM over the water spread area of 18 sq. km, across the ephemeral Luni River. During the passage of time, lots of hydrological, hydrogeological and human interventions on its catchment area and in the vicinity of the reservoir had taken place. Those resulted into reduction of its : (i) storage capacity, (ii) frequency of filling, and (iii) withstanding capacity of the storage reservoir.

2. The existing storage capacity has been estimated to be 36.73 mcm (1298 mcft) as against the designed storage capacity of 43.1 mcm (1520 mcft), and the storage capacity of 40.8 mcm (1442 mcft) estimated in the year 1958. Storage capacity was mainly reduced because of siltation in the reservoir. Nearly, 14.78% of its capacity in respect of the designed storage capacity, 9.9% in respect of the storage capacity estimated in the year 1958, and 11.6% in respect of extended storage capacity of 54.93 mcm, had been found reduced. The existing capacities corresponding to designed gauge height of 26.5 ft. and the extended gauge height of 28.5 ft. have been estimated to be 1298 mcft (36.73 mcm) and 1716 mcft, respectively, as against 1442 mcft, and 1860 mcft in the year 1958. According to the age of the dam, the reduction in the storage capacity of the reservoir has been found to be very less. That means, the dam still maintains a reasonably good storage capacity.

3. Frequency of filling of the reservoir had primarily been reduced because of : (i) encroachment in the upstream catchment area of the dam by creation of a number of small storage structures; and (ii) inadequate rainfall over different years. Nearly, 62.2% of the original catchment area of the dam was reported to be intercepted at the upstream. As against the original free catchment area of 3367 sq. km, about 1272 sq. km. had been reported to be left as free catchment area to generate unobstructed inflow to the dam. Nearly, thirty storage structures of different capacities, with a total capacity of about 17.48 mcm, had been reported already in place at the upstream catchment. Date of last 25 years (1978-2002) showed that only in 8 years the magnitude of rainfalls had crossed the average annual rainfall of 511 mm.

4. With regard to the reduction in withstanding of storage water in the reservoir; the existing conditions of the sub-surface formations and construction of large number of open wells explained that it is acting more as a groundwater recharge basin and scheme of recharge structures than a storage reservoir. Out of the 18 sq. km. of water spread area of the reservoir, more than 2/3rd area represents limestone formation just below the top soil of thickness varies locally between 5 m. and 12 m. Presence of fractures and cavities in the limestone formations underneath the reservoir and occurrence of sinkholes and potholes on the surface are the reasons to act more as groundwater recharge basin, while

existence of large number of open wells, and tube wells in open wells in the bed of the reservoir explained a scheme more like created groundwater recharge structures. Although the occurrence of fractures, cavities, potholes and sinkholes are natural processes for limestone formation under saturated condition, but the installation and operation of the wells inside the reservoir had accelerated these natural processes to take place at faster rate. These wells created a clear passage for surface water to join directly to the underneath subsurface formations during the course of filling of the reservoir, and thereafter till the stored water submerged the wells. The causes of excessive water losses from reservoir storage are, thus, established as sub-surface vulnerability exaggerated by the presence of wells inside the reservoir.

5. Although the construction of wells inside the reservoir was essentially against the storage reservoir of a dam, but the factual vulnerability is laid down with the existence of underneath limestone formation and presence of fractures and cavities in it. Closure of the wells along with adequate sealing may partially reduce the loss of water from the reservoir, but the fractures, cavities and upcoming of sinkholes can't easily be restored, and effectively controlled. Any treatment as damage control measures to the underlain limestone formation may prove to be very complicated and expensive than the expected benefits to come.

6. The sub-surface formation representing limestone formation below the reservoir bed is, thus deemed to be unfit and unfavorable to retain stored water in the reservoir. Only about 1/3rd of the water spread area long the right side of the reservoir, underneath of which sandstone formation is laid down and on which dead storage zone and the Luni River is passed by, is deemed fit and favorable to retain stored water for a longer time. However, detailed geophysical survey to delineate the faults and joints between two formations would be necessary to carry out before an action plan is set to implement.

The National Institute of Hydrology, Roorkee also made certain recommendations which are as under:--

a) Although 1/3rd of the water spread area long the right side of the dam is deemed fit to act as storage reservoir, however, its left side levels are flattened to the crumbled zone, i.e., the area vulnerable to fractures, cavities, potholes, and sinkholes. Feasibility of shifting the left bank embankment on the stable, sub-surface formation with closure of wells located in that area can be explored. However, prior to such action, the detailed geophysical survey of the zone, and the cost-benefit analysis of such schemes are recommended to carry out.

b) The upstream catchment of the Luni River basin is characterized mostly by 3rd order stream networks at its upper region; thus instead of putting emphasis on this medium size water storage structure; it would be more result oriented, preferable and effective if probable site specific small storage structures are planned and implemented.

c) Feasibility of cascading type of structures on different stream network can also

be explored.

d) Water conservation by water harvesting structures on a micro/small watershed basis can prove to be an effective alternative.

(ii) An important study of the entire issue has also been made by one Shri J.C. Dubey, Hydrogeologist and Water Resources Management Consultant at Udaipur. Shri J.C. Dubey has been introduced by the petitioners as a person who is hydrogeological consultant to Aravali Water & Environment Services Institute, Chittorgarh; Gaumukh Water Plus Society, Indore; Alliance Infrastructure Limited, Indore and Spatial Networks Florida, USA. He has also rendered service to this Court by preparing report with respect to catchment areas of different lakes of Udaipur City as desired in two important public interest litigations. Shri J.C. Dubey in his report provided necessary details about heavy discharge of groundwater from tubewells in the bed of Jaswant Sagar Dam, Tubewells, Taping Limestone Aquifers in the bed of Jaswant Sagar Dam, the effect on command area due to non-rejoinder of water, the reasons for developing tendency by the soil for not retaining water, the obstructions which are adversely effecting flow of water in catchment area and further need to reconsider the status of catchment.

Shri J.C. Dubey also noticed that even after having more than average rain fall the dam could not receive enough water for storage and the deficiency in storage of water remain even in the years when the rain fall was more than 50% to 60% of the average. By referring several facts in tabular form, he pointed out that non availability of fresh quality of surface water or groundwater in the villages of command area has caused additional strain on the limestone aquiferse and groundwater has already been over exploited to the extent of 396%. As per Shri J.C. Dubey the impact of discontinuing canal irrigation due to non availability of storage in Jaswant Sagar Dam is also visible in different spheres of the environment and more environmental degradation has deteriorated in quality of soil and water was apprehended.

Shri J.C. Dubey also advised immediate actions to be taken and those are:--

- (1) pumping of groundwater for irrigating crops grown in bed and water spread area of the Dam should be strictly prohibited;
- (2) all the civil constructions like pump houses, cottages, permanent cemented water canals etc. in the water bed and spread area of the Dam be demolished;
- (3) the electric supply to the tubewells and boring must be discontinued;
- (4) the tubewells and boring should be grouted with cement concretes.; and
- (5) pumping of groundwater from adjoining over-drafted groundwater potential zone comprising cavernous limestone aquifer must be restricted.

(iii) The Government of Rajasthan also had a report of geophysical survey conducted in Jaswant Sagar Dam by using low frequency instrument (WADI) developed by ABEM, Swidon. The survey conducted concluded as under:--

"On the basis of the survey conducted with the V.I.F., it may be concluded that submergence area of the dam, lying along the right flank is highly fractured to weathered. The area lying near the overflow is compact and does show good amount of fracturing and weathering. The area adjoining the village contains highly impervious layer on the surface which does not allow percolation of water into the ground near the left flank of the dam. The area falling away from the village along the left flank is highly fractured to weathered and continues below 60 m. The area under survey has over 100 tube wells, functioning which has caused a heavy depletion in the level of the ground water. The hydrogeological formation in the area is limestone which has a large and big cavities. Due to presence of cavities and depleted ground water, a big space is available to accommodate rain water coming into storage area of the dam. Leakage to the area adjoining the dam is not significant. The area within the submergence and the surrounding area should be hydrologically monitored on a regular basis to assess the flow direction of the ground water."

OBJECTIONS TO THE REPORT SUBMITTED BY THE NATIONAL INSTITUTE OF HYDROLOGY, ROORKEE

19. The farmers having cultivatory rights in the bed of Jaswant Sagar Dam, being not in agreement with the findings arrived by the National Institute of Hydrology, Roorkee, have submitted their objections. It is stated that the observation about human intervention in the hydrogeology of the reservoir in the form of converting upon wells into borewells is not correct as the main cause of declining the retention capacity of water even as per the author of the report is limestone formations allowing seepage of the water. According to the objectors, the expert committee has not made any independent study but relied upon the data provided by the irrigation department. The findings given are also not supported by the scientific reasons. It is emphasised that the manifestation of limestone dissolution and subsequent formation of sinkholes has created large cavities and that is the basic reason for loss of the retention capacity of the reservoir. By relying upon contents of the report itself, it is submitted that the flow of water towards dam is from east to south west i.e. A down stream of the catchment where in village Bhawi large number of tubewells are existing and huge extraction of water by these tubewells has caused seepage towards down stream resulting in depletion of water from the reservoir.

THE ALTERNATIVE SCHEME TO PROVIDE DRINKING WATER TO THE RESIDENTS OF TOWN BILARA AND NEARBY VILLAGES

20. Presently drinking water to the town of Bilara and nearby villages is supplied through the open wells and tubewells existing in the bed of Jaswant Sagar Dam. It is admitted that the main extraction of underground water is by the Public Health Engineering Department of the Government of Rajasthan and that is to meet the need of drinking water to the residents of town Bilara and its nearby villages. It is also accepted that horizontal boring has also been made in open wells by Public Health Engineering Department. Learned Additional Advocate

General Shri K.L. Thakur stated that an important project of the State Government known as "Dantiwara Water Resource Project" is in progress and that will cater the need of drinking water of Bilara town and 17 other nearby villages. On completion of the project aforesaid water supply shall be made from "Jawai Bandh" which is having catchment area in districts of Udaipur, Pali and Sirohi. This project shall be completed in the year 2017.

21. Having considered minute details of the facts made available, the resultant position emerges out is -

(1) The Jaswant Sagar Reservoir was constructed to cater irrigational need of about 5500 hectares of land. Its catchment area covers 3367 square kilometers in the districts of Ajmer, Rajsamand and Pali. The main feeding course is a river Luni originating from Aravali Hills near Pushkar in District Ajmer;

(2) Several farmers are cultivating in the bed of reservoir in dry season and initially they were getting irrigation facility through the open wells already existing;

(3) The overflow level of the reservoir were raised by two feet in the year 1979. The reservoir was usually retaining water in it upto its optimum capacity till the year 1980;

(4) A huge number of open wells, tubewells in open wells and tubewells were dug subsequent to the year 1980 due to less rain fall in the catchment area. At present 31 open wells, 98 tubewells in open wells and 26 tubewells are existing in the bed of Jaswant Sagar Reservoir;

(5) In the catchment area, several anicuts and check dams have been constructed subsequent to 1980. As per the details given, 18 dams and anicuts were constructed in a decade from 1982 to 1992. Out of these dams "Babra Dam" is having capacity of 3.767 mcm storage volume. The other check dams of anicuts have not even the storage volume upto 1.00 mcm. The expert committees found these dams as obstructions to channelise water for Jaswant Sagar Dam;

(6) The experts also arrived at the conclusion that geophysical nature of the soil is also responsible for less retention of water, beside the loss caused due to excessive digging of sources to extract; and

(7) The underground water at present is mainly extracted by Public Health Engineering Department of the Government of Rajasthan to provide drinking water to the towns of Bilara and nearby villages.

22. The conclusions arrived indicate that the respondent State utterly failed to maintain Jaswant Sagar Dam for the purpose that was constructed. Hon''ble Supreme Court in M.C. Mehta Vs. Kamal Nath and Others, , declared that the Public Trust doctrine as discussed in that judgment is a part of the law of the land and according to that the State is having an affirmative duty for planning,

maintenance and allocation of water resources and to protect that from any loss. The purpose for which the Dam was constructed and public at large trusted on that must have been carefully maintained. The State should have taken all necessary care for efficient use of water without causing any harm to the public trust deposited. It is not only the State but the citizens too have not taken adequate care to protect the natural stream and flow of the river Luni on which Jaswant Sagar Dam is constructed.

23. True it is, the Dam is not a natural body but it was constructed in the year 1889 to meet irrigation water requirement at the down stream commands without causing any harm to nature. It was a friendly use of nature but by flux of time we have changed that friendly use into an unbearable exploitation resulting into loss of a human creation by using natural resource.

24. Till 1980 the soil of the Jaswant Sagar Dam was having retention capacity and the Dam was retaining adequate water. The facts stated demand for restoration of the position which was existing at least prior to 1980. We are of considered opinion that the State should have visualise the need of the water for its population and, therefore, should have made appropriate planning to meet the same. The State instead of having any such planning adopted ad hoc devices which ultimately resulted into loss of the reservoir. The objective conditions as discussed demand directions to the State Government as under:--

(1) The Government of Rajasthan shall completely seal and grout all the tubewells with concrete and cement except the five tubewells which are being used for the purpose of supply of drinking water by the Public Health Engineering Department.

(2) The Government of Rajasthan shall also seal and grout all vertical and horizontal boring of tubewells made in open wells with concrete and cement. Such boring, if made by the Public Health Engineering Department for supply of drinking water shall not be sealed till completion of "Dantiwara Water Resource Project".

(3) The Government of Rajasthan shall ensure completion of "Dantiwara Water Resource Project" on or before 31.12.2016.

(4) The Government of Rajasthan shall also ensure supply of drinking water to the residents of the town Bilara and to the residents of 17 other nearby villages as per the Water Supply Scheme under the "Dantiwara Water Resource Project" on or before 26.01.2017.

(5) All the tubewells and the horizontal or vertical boring in open wells which are in operation through the Public Health Engineering Department for supplying drinking water must be closed and sealed on or before 05.02.2017. On closure of tubewells, the Government shall also ensure demolition of pump houses, cottages, permanent cemented water canals etc. existing in the water bed and the spread area of the Dam.

(6) The farmers cultivating in the bed of the reservoir shall continue to have all rights which they are possessing but shall not be permitted to use water for the irrigation purposes from any underground water source except the open wells which were existing prior to 1980. No further digging or boring in any manner in the existing open wells shall be permitted.

(7) The Government of Rajasthan shall also check extraction of water from the tubewells which are in operation within the periphery of one kilometer from the boundary of Jaswant Sagar Dam. The State Government after having expert opinion, if arrives at the conclusion that the tubewells within the periphery of one kilometer from the boundary of the Dam are causing harm to the retention capacity of the Dam, then it shall be open for the Government to take appropriate action to close such tubewells also. Necessary opinion shall be formed and acted upon by the State within a period of six months from today.

(8) The Government of Rajasthan shall ensure removal of all obstacles existing in the catchment area of the Jaswant Sagar Dam. The Government shall also destruct and remove all anicuts constructed after 31.12.1979 within the catchment area of Jaswant Sagar Dam.

(9) The State Government shall also examine viability to demolish Dhaneria and Balara Dam which are having storage volume of 0.362 and 0.374 MCM only.

(10) The Government of Rajasthan shall also restrict and regulate electric supply to the water extracting motors, if any exists, on the open wells available in the bed of the Jaswant Sagar Dam. Such restriction and regulation shall also be made for the tubewells existing within the periphery of one kilometer from the boundary of the Jaswant Sagar Dam.

25. Necessary compliance report shall be submitted by the respondent State on or before 10.02.2017.

26. Put up on 10.2.2017.