REPORT OF THE JOINT COMMITTEE IN THE MATTER OF OA 143/2021 REGARDING SUO MOTU MOTION TAKEN UP BY HON'BLE TRIBUNAL BASED ON THE NEWS ITEM IN THE EENADU NEWSPAPER, EDITION DATED: 12TH JUNE 2021, "DREDGING ALONG THE EMBANKMENTS OF KRISHNA RIVER TO BE STOPPED"

I Background

Hon'ble National Green Tribunal, Southern Zone, Chennai has taken the SUO MOTU case vide O.A No. 143 of 2021 based on the News published in the Eenadu Newspaper, Edition dated 12.06.2021, stating that the "dredging along the embankments of Krishna river to be stopped". It is alleged in the newspaper report that on account of the unscientific dredging in the Krishna River and dumping of sand in agricultural lands weakens the embankment and during heavy rains the embankments may breach and flood the agricultural lands of the capital region, which can affect the river ecology, unless it is stopped at once. It is mentioned in the newspaper that permission should have been obtained from Capital Region Development Authority (CRDA) before the dredging work is undertaken and the dredging work must also be done in a scientific manner without weakening the strength of the embankment. In order to ascertain the genuineness of the allegations made in the newspaper report Hon'ble tribunal vide order dated 28.02.2022 has appointed a committee.

II Orders of the Hon'ble Tribunal

Hon'ble Tribunal vide order dated 28.02.2022 has directed as follows:

" In order to ascertain the true state of affairs, we feel it appropriate to appoint a Joint Committee consisting of 1)Senior Officer from MoEF&CC, Vijayawada, 2) Senior Officer from SEIAA, State of Andhra Pradesh, and 3) Senior Officer from CPCB, Integrated Regional Office, Chennai to inspect the area in question and submit a report as to 1)whether in the guise of dredging or desilting mining is being done in that area, 2) whether shifting of dredged or desilted material outside the area will amount to mining, 3) whether such material can be used for any other purpose other than strengthening the river embankments, 4) whether the so called dredging or desilting is being done in tune with the direction issued by Principal Bench in O.A. No. 935 of 2018 on the basis of the Joint Committee report filed in that case which was accepted by the Tribunal and if there is any violation found what is the nature of action to be taken, 5) whether the dredging or desilting was done in a scientific manner without affecting the riverine ecology, if there is any mining done in an unscientific

manner and against the direction given by the Principal Bench in above mentioned case, what is the damage caused to the riverine environment and 6) assess the environmental compensation including the cost required for restoration of the same."
SEIAA, Andhra Pradesh will be the nodal agency for coordination and also for providing necessary logistic support for this purpose.

III **Composition of the committee**: In compliance to Hon'ble NGT order, the committee comprising of following members is composed:

1.	Dr. Suresh Babu Pasupuleti, Scientist-D, Ministry of Environment Forest and Climate Change, Integrated Regional Office, Vijayawada	Member
2.	Dr. M. Sunandana Reddy, Member, State Expert Appraisal Committee (SEAC)	Member representing SEIAA, AP
3.	Smt. Mahima T Scientist-D, Central Pollution Control Board, Regional Directorate, Chennai	Member

IV Scope of the Committee

The committee is vested with the scope to inspect the area in question and submit a report as to

1. whether in the guise of dredging or desilting mining is being done in that area,
2. whether shifting of dredged or desilted material outside the area will amount to mining,
3. whether such material can be used for any other purpose other than strengthening the river embankments
4. whether the so called dredging or desilting is being done in tune with the direction issued by Principal Bench in O.A. No. 935 of 2018 on the basis of the Joint Committee report filed in that case which was accepted by the Tribunal and if there is any violation found what is the nature of action to be taken,
5. whether the dredging or desilting was done in a scientific manner without affecting the riverine ecology, if there is any mining done in an unscientific manner and against the direction given by the Principal Bench in above mentioned case, what is the damage caused to the riverine environment and

6. assess the environmental compensation including the cost required for restoration of the same.

V Committee inspection: Observations made by the committee during visits and by using satellite images

The committee carried out the site visit on 11.05.2022 along with Deputy Director Mines, Guntur and officials from Water Resource Department, GoAP & SEIAA AP. Prakasam Barrage was constructed upstream of River Krishna during 1957 and total length of barrage is 1232.92 m.

Salient Features

Barrage		
Constructed Year	:	1957
Length of Barrage	:	1232.92 M (4045.00 Ft)
Latitude	:	$16^0$30’34”
Longitude	:	$80^0$37’57”
Total Catchment area(Sq.Kms)	:	251372
Area capacity Curves (Water spread area)	:	30.00 Sq. Kms
Regulator	:	70 Nos of 12.19 M X 3.66 M (40’ X 12’) each
Scouring sluices		

Left Side	:	6 Nos of 5.18 M X 3.66 M (17' X 12') each
Right Side	:	8 Nos of 5.18 M X 3.66 M (17' X 12') each
Levels		
Floor of Regulator	:	+ 12.21 M (+40.05 Ft)
Floor of Scour Vents	:	+ 11.06 M (+36.30 Ft)
Sill Level of Regulator gates	:	+ 13.73 M (+45.05 Ft)
Top of Regulator gates	:	+ 17.39 M (+57.05 Ft)
Average River Bed Level at Regulator site	:	+ 11.28 M (+37.00 Ft)
Bottom Level of the Floor of Sitanagaram Under sluices	:	+ 8.53 M (+28.00 Ft)
Vijayawada Under Sluices	:	+ 9.69 M (+31.80 Ft)
Bottom of Wells	:	+ 4.88 M (+ 16.00 Ft)
M.F.L. of Barrage (Designed)	:	+ 22.13 M (+72.60 Ft)
Bottom of "T" Beams	:	+ 23.65 M (+ 77.60 Ft)
Top of Road way on Bridge	:	+ 25.02 M (+ 82.10 Ft)
Top of Regulator Hoist Bridge	:	+ 30.36 M (+ 99.06 Ft)
Height of Shutters	:	3.66 M (+ 12-0 Ft)
Three rows of cut off wells of size	:	2.13 M X 3.81 M (7 X 12.5 Ft)

Siltation and Shoal formation is common problems in the barrage and the sediment in the reservoir is to be flushed out by operating the scour sluices located on either side of the barrage in every flood season. The frequency of operating the gates has become very low because the discharge of flood has decreased but the accumulation of silt is gradually increases due to receiving of water from Upstream of the Barrage. The quantity of sediment and silt deposited in Prakasham barrage is assessed at regular intervals by carrying out Bathymetric survey.

"Bathymetry is the study of underwater depth of river. Bathymetric surveys allow us to measure the depth of a river as well as map the underwater features of a river and it also called as Hydro-graphic survey". It is a scientific study done by using Single Beam Echo

Sounder (SBES), Positioning and Navigation systems from Prakasam Barrage to Ibrahimpatnam (About 13.50 km upstream of Barrage) in Krishna River in regular grid intervals of 10m (Both in X & Y Planes).

In compliance with Hon'ble NGT directions in O.A.No 935/2018, Water Resources department has carried out bathymetric survey in upstream of Prakasam Barrage i.e., (From KM 0.00 to KM 13.50) in the foreshore of water submerged area (reservoir) by hiring the services of M/S BSP Hydro Dredging Works, Bhimavaram during 2019-20 and during 2020-21.

Findings of Bathymetric Survey: The capacity of Prakasam Barrage is 3.071 TMC at 12ft (+17.39 Mts) Level i.e., F.R.L (Full Reservoir Level). From the first Bathymetric survey during Dec-2019 & Jan-2020 it is found that the volume of silt deposits above original Bed Level to be removed is 1,24,77,704 Cum and the water storage capacity to be restored is 0.441 TMC. In Dec-2020 & Jan-2021 Water Resources Department has carried out second bathymetric survey on upstream of Prakasam Barrage i.e., (From KM 0.00 to KM 13.50) and found that the volume of the silt deposits above original Bed Level to be removed is 1,30,26,531 Cum to and the water storage capacity to be restored is 0.460 TMC.

Water Resource Department proposed to carry out desiltation activity in the foreshore area of Prakasham barrage by way of dredging operations.

1. Based on the findings of the survey, 12 sand reaches are identified along the 13.5 KM of Prakasham barrage to carry out desiltation from the foreshore area of Prakasham barrage.
2. During dredging operations, the total dredged material which is in the form of slurry is pumped and collected into a pond formed with four sides surrounding bunds with a facility to drain out the clear water. The floating/shore pipeline connects one end to the dredger and other end is placed in ponds created in the margin land on either side of the River nearer to the dredging area. Many ponds are required for stacking dredged material and these ponds are formed on vacant margin land adjacent to the proposed de-silted area. The ponds (for stacking dredged material) are formed by leaving minimum safe margin of 50m from toe of the existing Flood Banks.
3. Out of 12 identified reaches, desiltation works are allotted in four reaches through tendering process. Following is the list of 12 identified reaches:

Statement showing the De-siltation works in fore shore of Prakasam Barrage:

S.No	Name of the Work	Latitude	Longitude	Quantity Alloted	Name of the Agengy
1	Desilting of silt from the foreshore of Prakasam Barrage from KM 0.50 to KM 1.00 in Krishna River.	16°30'49.38"N 16°30'3.02"N 16°31'2.03"N 16°30'7.47"N	80°36'9.19"E 80°35'54.70"E 80°35'59.71"E 80°35'38.51"E	430000	Reach Dredging Ltd. Kalkatta
2	Desilting of silt from the foreshore of Prakasam Barrage from KM 1.40 to KM 2.00 in Krishna River.	16°31'9.27"N 16°30'12.41"N 16°31'19.84"N 16°30'21.10"N	80°35'48.51"E 80°35'26.06"E 80°35'31.58"E 80°35'7.94"E	530000	Reach Dredging Ltd. Kalkatta
3	Desilting of silt from the foreshore of Prakasam Barrage from KM 2.25 to KM 2.50 in Krishna River.	16°31'25.72"N 16°30'23.34"N 16°31'31.15"N 16°30'24.99"N	80°35'25.70"E 80°34'59.80"E 80°35'19.41"E 80°34'51.55"E	510000	IRP Infra Tech Pvt. Ltd.
4	Desilting of silt from the foreshore of Prakasam Barrage from KM 2.90 to KM 3.20 in Krishna River.	16°31'39.88"N 16°30'27.18"N 16°31'47.89"N 16°30'26.40"N	80°35'9.50"E 80°34'38.24"E 80°35'3.68"E 80°34'28.13"E	540000	IRP Infra Tech Pvt. Ltd.
5	Desilting of silt from the foreshore of Prakasam Barrage from KM 3.50 to KM 3.70 in Krishna River.	16°31'54.61"N 16°30'27.00"N 16°31'58.59"N 16°30'27.08"N	80°34'56.34"E 80°34'18.09"E 80°34'50.98"E 80°34'11.38"E	540000	Reach Dredging Ltd. Kalkatta
6	Desilting of silt from the foreshore of Prakasam Barrage from KM 3.90 to KM 4.10 in Krishna River.	16°32'2.05"N 16°30'29.14"N 16°32'5.27"N 16°30'32.43"N	80°34'45.24"E 80°34'4.97"E 80°34'39.33"E 80°33'59.13"E	500000	Reach Dredging Ltd. Kalkatta
7	Desilting of silt from the foreshore of Prakasam Barrage from KM 4.30 to KM 4.50 in Krishna River.	16°32'8.26"N 16°30'37.31"N 16°32'11.39"N 16°30'42.36"N	80°34'33.33"E 80°33'54.68"E 80°34'27.37"E 80°33'50.44"E	490000	Reach Dredging Ltd. Kalkatta
8	Desilting of silt from the foreshore of Prakasam Barrage from KM 4.80 to KM 5.20 in Krishna River.	16°32'17.10"N 16°30'49.79"N 16°32'24.69"N 16°30'59.00"N	80°34'19.19"E 80°33'43.84"E 80°34'8.21"E 80°33'34.29"E	510000	Santhulan Infra Ltd. Hyderabad
9	Desilting of silt from the foreshore of Prakasam Barrage from KM 5.70 to KM 6.50 in Krishna River.	16°32'40.02"N 16°31'30.45"N 16°33'2.20"N 16°31'51.71"N	80°33'37.89"E 80°32'56.01"E 80°33'1.67"E 80°32'39.63"E	540000	Reach Dredging Ltd. Kalkatta
10	Desilting of silt from the foreshore of Prakasam Barrage from KM 7.50 to KM 8.40 in Krishna River.	16°33'2.20"N 16°31'51.71"N 16°33'23.86"N 16°32'16.67"N	80°33'1.67"E 80°32'39.63"E 80°32'41.26"E 80°32'23.85"E	563000	Reach Dredging Ltd. Kalkatta
11	Desilting of silt from the foreshore of Prakasam Barrage from KM 8.80 to KM 9.30 in Krishna River.	16°33'33.74"N 16°32'27.73"N 16°33'44.60"N 16°32'35.47"N	80°32'32.53"E 80°32'16.82"E 80°32'19.99"E 80°32'3.39"E	530000	Nas Babu Constructions Pvt. Ltd.Gudivada
12	Desilting of silt from the foreshore of Prakasam Barrage from KM 11.00 to KM 13.50 in Krishna River.	16°34'21.40"N 16°32'49.43"N 16°35'5.74"N 16°33'43.80"N	80°31'37.27"E 80°31'8.34"E 80°30'27.40"E 80°30'11.21"E	500000	Nas Babu Constructions Pvt. Ltd.Gudivada

Total quantity of sand identified in 12 reaches for sand extraction	**6183000 Cum**

4. Four reaches were allotted for working and operations started during November, 2021 and stopped during Feb-Mar, 2022. During committee inspection dredging operations were not taking place. Details of four working reaches are as follows:

Table: Details of working reaches

Sl. No	Name of reach	Geo-Cordinates	Qty assessed during survey	Total allotted Qty	Total quantity desilted/ excavated	Start date	Stop date	River width at dredging site	Mode of sand extraction
1	**4th reach Undavalli**	16°31'39.88"N 80°35'9.50"E 16°30'27.18"N 80°34'38.24"E 16°31'47.89"N 80°35'3.68"E 16°30'26.4"N 80°34'28.13"E	540000 Cum	540000 Cum	21000 Cum	19-11-21	02-01-22	2.6 KM	Dredging through cutter section
Observations on 4th reach From the satellite image it is observed that the total area allotted for sand extraction is 68.46 hectares. The reach is passing through Bhavani islands. Depth upto which dredging is carried out is not stipulated. WRD has not restricted on the depth of dredging. Stockyard is surrounded									

by agricultural land on one side. Proper arrangements were not made in stockyard for the water to drain back into the river. From satellite image it can be observed that the activities in the stockyard have started from November, 2021 onwards. The river width described in the approval and river width as per satellite image is varying.

Figure: Satellite image of 4th reach

Details of stock yard for 4th reach

Sl. No	Name of stockyard	Area	Geo-cordinates	Start date	Stop date	Qty stacked	Distance b/w dredging site to stockyard	Type of land	remarks
1	4th reach tank 1	1.25 acres	16°30'21.53" N 80°34'31.38" E	19-11-21	02-01-22	21000 Cum	100m to 200m	Private land	Lease period 2 yrs

Fig: satellite image 5/2021

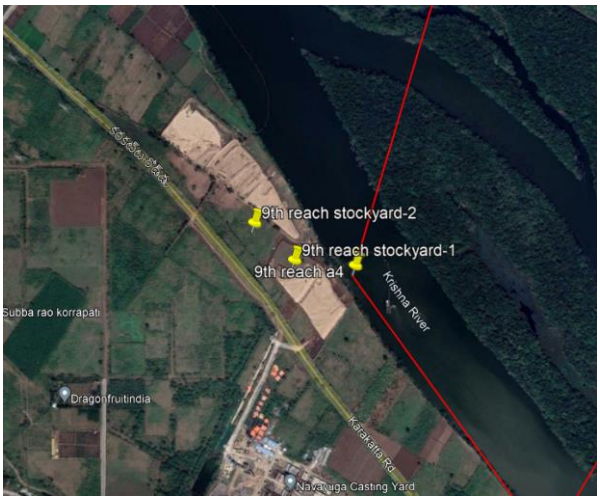
Fig: satellite image 12/2021

Fig: satellite image 12/2021			Fig: satellite image 2/2022						
2	9th reach	16°32'40.02"N 80°33'37.89"E 16°31'30.45"N 80°32'56.01"E 16°33'2.20"N 80°33'1.67"E 16°31'51.71"N 80°32'39.63"E	540000 Cum	540000 Cum	215000 Cum	03-12-21	04-02-22	2.25 KM	Dredging through cutter section
Observations on 9th reach As per satellite image the area taken up for sand extraction is around 232 hectares. The river width described in the approval and river width as per satellite image is varying. As per satellite image width of river is more than the width described in the approval.									

Fig: satellite image of 9th reach adjoining to 10th reach

Details of stockyard of 9th reach

1	9th reach tank 1	3.0 acres	16°31'52.14"N 80°32'34.57"E	03-12-21	05-01-22	110000 Cum	100m to 150m	APCRDA land	Lease period 1 yr
2	9th reach tank 2	3.0 acres	16°31'55.06"N 80°32'31.24"E	06-01-22	04-02-22	105000 Cum	150m to 200m	APCRDA land	Lease period 1 yr



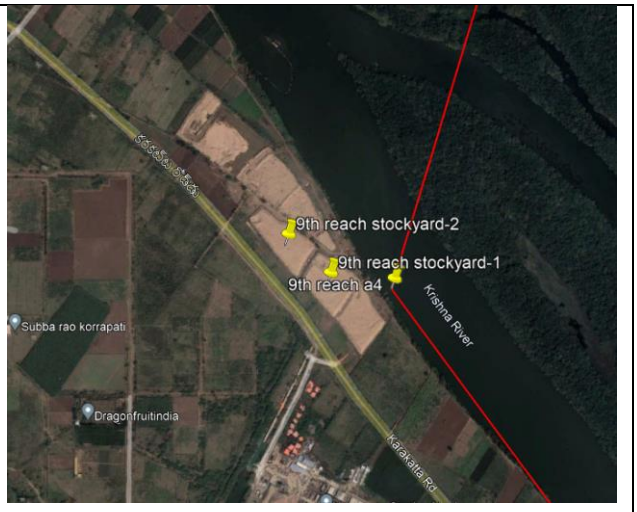
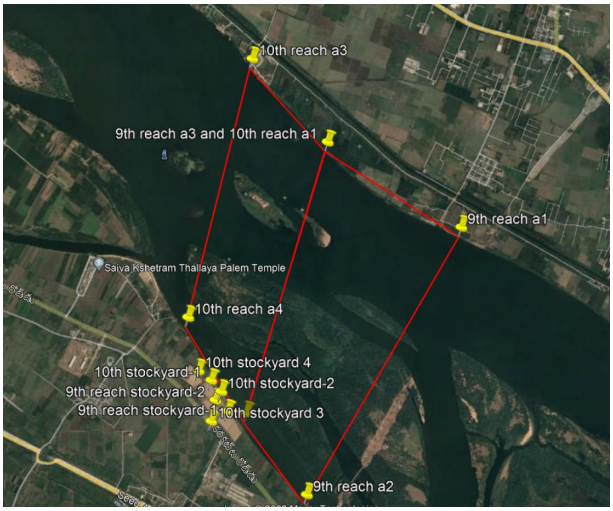


Fig: satellite image of two stockyards during 12/2021 and 2/2022

3	10th reach	16°33'2.20"N 80°33'1.67"E 16°31'51.71"N 80°32'39.63"E 16°33'23.86"N 80°32'41.26"E 16°32'16.6"N 80°32'23.85"E	563000 Cum	563000 Cum	382500 Cum	15-10-21	15-03-22	2.00 KM	Dredging through cutter section

Observations pertaining to 10th reach

The total area of the reach is 156 hectares. 9th reach and 10th reach are sharing common boundary on one side. The geo-coordinates of stockyard-3 and the actual location are different. Due care is not taken while establishing stockyard-3 for 10th reach.



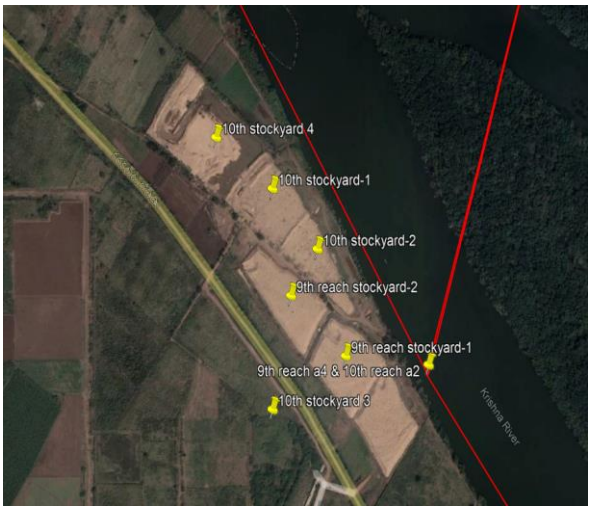


Figure: Satellite image of 10th reach adjoin to 9th reach. Figure: Stockyard of 10th reach

Details of stockyard of 10th reach

1	10th reach tank 1	3.0 acres	16°32'0.23"N 80°32'30.12"E	15-10-21	27-10-21	55263 Cum	100m to 150m	APCRDA land	Lease period 1 yr
2	10th reach tank 2	2.0 acres	16°31'57.31"N 80°32'32.85"E	27-10-21	15-11-21	53268 Cum	100m to 150m	APCRDA land	Lease period 1 yr
3	10th reach tank 3	3.0 acres	16°31'49.56"N 80°32'30.12"E	15-11-21	02-11-21	93968 Cum	100m to 150m	APCRDA land	Lease period 1 yr
4	10th reach tank 4	4.5 acres	16°32'2.71"N 80°32'26.69"E	05-02-22	15-03-22	180000 Cum	150m to 250m	APCRDA	Lease period 1 yr

4	11th reach	16°33'33.74"N 80°32'32.53"E 16°32'27.73"N 80°32'16.82"E 16°33'44.60"N 80°32'19.99"E 16°32'35.47"N 80°32'3.39"E	530000 Cum	530000 Cum	60500 Cum	08-01-22	09-03-22	1.90 KM	Dredging through cutter section

Observations on 11th reach

The total area allotted for sand extraction is 93.86 hectares. Though as per records the stacking of sand started from 08-01-2022 in stockyard but from satellite images it is noticed that sand is stacked from December, 2021 onwards which also implies that production has started prior to allotted date.

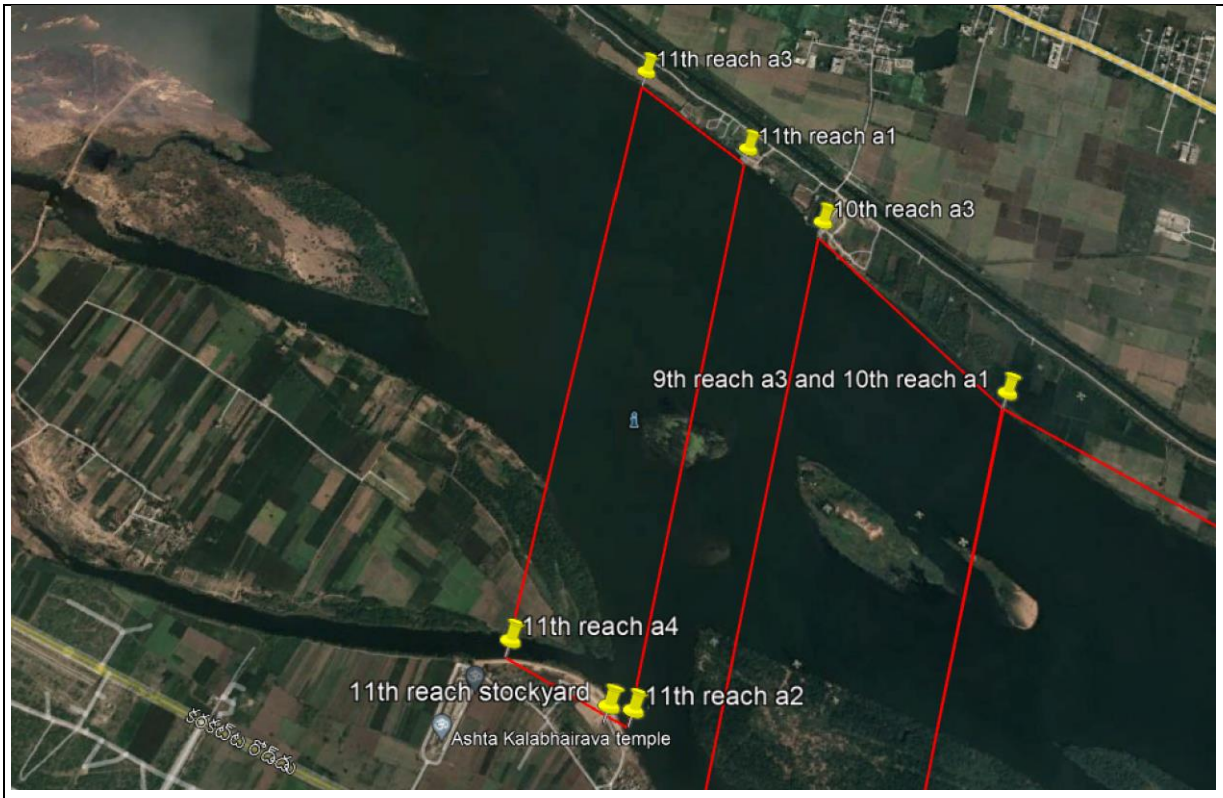


Figure: satellite image of 11th reach

Details of 11th reach stockyard

8	11th reach tank 1	3.0 acres	16°32'28.48"N 80°32'14.27"E	08-01-22	09-03-22	60500 Cum	100m to 250m	Govt land	WRD land

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Total quantity of sand assessed in four sand reaches→ 2173000 Cum

Total quantity of sand allotted in four sand reaches→ 2173000 Cum

Total quantity of sand extracted from four sand reaches→ 679000 Cum

Total quantity of sand stacked in the stockyards 678999 CUM

5. WRD had identified 12 sand reaches for sand extraction with total quantity of sand 6183000 CUM. Out of 12 reaches identified, sand extraction was allotted in 4 sand reaches with total quantity of 2173000 CUM and out of which 679000 CUM of sand is extracted in the foreshore area of Prakasham barrage by carrying out dredging operations.
6. Eight stockyards are established at a distance of 100m to 250m away from sand reaches to deposit dredged material by taking either private land or Government land for lease. The details of stockyards are as follows:

Table: Details of stock yards

Sl. No	Name of stockyard	Area	Geo-cordinates	Start date	Stop date	Qty stacked	Distance b/w dredging site to stockyard	Type of land	remarks
1	4th reach tank 1	1.25 acres	16°30'21.53"N 80°34'31.38"E	19-11-21	02-01-22	21000 Cum	100m to 200m	Private land	Lease period 2 yrs
2	9th reach tank 1	3.0 acres	16°31'52.14"N 80°32'34.57"E	03-12-21	05-01-22	110000 Cum	100m to 150m	APCRDA land	Lease period 1 yr
3	9th reach tank 2	3.0 acres	16°31'55.06"N 80°32'31.24"E	06-01-22	04-02-22	105000 Cum	150m to 200m	APCRDA land	Lease period 1 yr
4	10th reach tank 1	3.0 acres	16°32'0.23"N 80°32'30.12"E	15-10-21	27-10-21	55263 Cum	100m to 150m	APCRDA land	Lease period 1 yr
5	10th reach tank 2	2.0 acres	16°31'57.31"N 80°32'32.85"E	27-10-21	15-11-21	53268 Cum	100m to 150m	APCRDA land	Lease period 1 yr
6	10th reach tank 3	3.0 acres	16°31'49.56"N 80°32'30.12"E	15-11-21	02-11-21	93968 Cum	100m to 150m	APCRDA land	Lease period 1 yr
7	10th reach tank 4	4.5 acres	16°32'2.71"N 80°32'26.69"E	05-02-22	15-03-22	180000 Cum	150m to 250m	APCRDA	Lease period 1 yr
8	11th reach tank 1	3.0 acres	16°32'28.48"N 80°32'14.27"E	08-01-22	09-03-22	60500 Cum	100m to 250m	Govt land	WRD land
Total quantity of sand stacked in the stockyards						678999 CUM			

8	11th	3.0	16°32'28.48"N	08-	09-	60500	100m to	Govt	WRD land

	reach tank 1	acres	80°32'14.27"E	01-22	03-22	Cum	250m	land	

7. It is clear from the above tables that the quantity of sand assessed as per Bathymetry survey is 1,30,26,531 Cum and quantity identified for extraction is **6183000 Cum** out of which 2173000 Cum was allotted for extraction and 679000 Cum of sand is extracted from four reaches and extraction is stopped due to non-availability of land for establishing stockyards. The quantity of sand extracted is less than quantity allotted.
8. Since WRD is extracting sand in the name of desiltation, the Authorities have not obtained Environmental Clearance from SEIAA, AP and Consent to Operate from APPCB.
9. The sand so extracted is handed over to third party vendors and is sold commercially and has to be considered as mining.
10. Bunds or retaining walls are not constructed in the stockyards to prevent runoff during rainy season into adjacent lands.
11. The width of the river is not properly assessed.
12. Sand extraction is carried out in the foreshore area of Prakasham barrage in more than 100 acres in each reach but since it is carried out as desiltation, EC is not obtained.
13. WRD has utilized agricultural lands for one or two years lease and converted into stockyards. Restoration plan for stockyards is not taken into consideration. Once any agricultural land is used for depositing sand, the land needs restoration to again use it for agricultural purposes.
14. Sand was extracted and stacked in stockyards but proper arrangements are not established for transportation of sand from stockyards. Further sand extraction is stopped due to non-availability of land for depositing dredged material.
15. On the day of committee visit dredging works were stopped
16. From the above 4 no of reaches about 679000Cum of de-silted material were dredged and stacked in respective tanks from which only 202500 Cum of dredged material in 10th Reach was taken over by M/s APMDC out of which 192500 Cum dredged material is physically lifted from the stacks and 486500 Cum dredged material is physically left in the stack ponds.

17. The sand so extracted is not exclusively used for strengthening the river embankments. Further 202500 Cum of dredged material in 10th Reach was taken over by M/s APMDC and shifted to other place and sold commercially. Hence it may be considered as mining.
18. Dredging activity is carried in tune with the direction issued by Principal Bench in O.A. No. 935 of 2018 on the basis of the Joint Committee report filed in that case. By physical observation no damage was seen in the riverine environment.

Dr. Suresh Babu Pasupuleti
Scientist-D, Ministry of Environment Forest and Climate Change Regional Office, Vijayawada

Dr. M. Sunandana Reddy
SEIAA, Vijayawada

Mahima T, Scientist-D,
Central Pollution Control Board,
Regional Directorate, Chennai