ublic Works (1896) Department:

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G.O., No. 3839

DATED 28/4/96

[Despatch Abstract.]

Floods — Note by the Chief Engr for Irrigation on report from the Supdg Engr II Circle on the — which occurred in Tinnevelly Dt — in December last, recorded.

...CK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

Appendix to G.O. No. 383 I., dated 28th April 1896.

From G. B. LAMBERT, Esq., Executive Engineer, Tinnevelly Division, to the Superintending Engineer, VI Circle, dated Palamcottah, 28th February 1896, No. 802.

I have the honour to submit herewith the following report on the damage done to irrigation works by the flood of the 30th and 31st December 1895:—

I.—UPPER TAMBRAPARNI CHANNEL.

1. *General.*—The flood levels at the anicut across the Támbraparni river in Ambásamudram taluk, viz., Nathiyunni, Kannadian and Kodagan, are lower than the flood level of 1877, the highest recorded. At Kannadian head sluice. the water rose to 0·8 foot below flood level of 1877 and on the Muntapum near the river at Sérmádévi, to 0·68 foot below flood level of 1877. In Tinnevelly taluk the water at Palaiam channel head sluice was 17·50 feet above the sill, or 0·16 foot below the flood level of 1877, at Tinnevelly channel head sluice the reading was 17·30 feet, or 0·79 foot above the flood level of 1877.

The flood rose to 26·75* at the Tinnevelly bridge, overtopped the road near Tinnevelly railway station and did much damage to buildings.

2. The rainfall on the hills at Mundandorai in Ambásamudram taluk for the week ending 31st December 1895 was 36·5 † inches.

The rainfall on the 29th, 30th and 31st December 1895 was as follows:—

	INCHES.
Ambásamudram	8·00
Sérmádévi	10 06
Palamcottah	10·86

whilst on the 30th December alone the following was registered:—

	INCHES.
Ambásamudram	3·75
Sérmádévi	7·80
Palamcottah	7·17

3. Orders were issued to mark with tar the flood level of December 1895 on all important masonry works, and the valves are being connected with the M.S.L.

4. Immediate arrangements were made to put ring bunds in front of breaches, and water was passed down as soon as possible to channels and tanks to save the standing crops.

5. With the exception of the cultivation near the breaches which has been damaged, all the rest appears to be in good condition.

6. As far as is known, all head sluices were closed as soon as rains set in and surplus weirs and scouring sluices opened as far as possible, but the flood rose so suddenly and the cross drainage was so heavy that no measures could have been taken to lessen the damage done. Only one tank ‡ breach was reported under Támbraparni channels in Tinnevelly taluk; cost of closing breach about Rs. 30.

North and South Kodamelalagian Channels.

7. The temporary palmyra and brushwood anicut for the supply of this channel was, as usual, washed away and breaches have occurred at sites of sluices temporary and masonry and opposite hill streams. The latter sluices do not fit the bank properly and consequently the bank over them is weak and easily gets breached.

8. The tanks under the channels are safe.

9. The cost of repairing the damage is about Rs. 300 and the damage to standing crops is estimated at Rs. 100.

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* There was 6 inches water on the floor of the verandah of the Judge's bungalow. In 1877 the water rose to 27·07 feet.

† Obtained from Forest Department.

‡ Pottaikulam.

NATHIYUNNI ANICUT AND CHANNEL.

10. The rear apron of the anicut has been damaged in two places. The flood bank on left of head sluice has been eroded to a length of 50 feet and should be revetted.

11. The channel has breached in ten places at the sites of temporary sluices.

12. The cost of repairing the damage is about Rs. 500.

KANNADIAN ANICUT AND CHANNEL.

13. The coping stones of the anicut have been removed in five places to a length of 25 feet and the rough stone apron at the west end has been damaged, as well as the floor and walls of the water cushion at the eastern portion.

14. The head sluice was closed, but owing to hill streams crossing the channel, the water overflowed and breached the left bank in several places in the 1st and 2nd miles. As usual, the channel opposite to Koraiyar weir and below has been silted up to a length of 700 feet and depth of 3 feet wings of surplus escapes have been slightly damaged.

15. The cost of repairing the damage will be about Rs. 2,500 and the damage to standing crops is estimated at Rs. 200.

KODAGAN CHANNEL AND ARIYANAYAGIPURAM ANICUT.

16. Short lengths of cut stone have been removed from the crest of the anicut. There are two breaches in flood bank of a total length of 600 feet and with a depth from 3 to 10 feet.

17. There were 34 breaches in the channel with depths varying from 2 to 10 feet, and three of the masonry sluices (Nos. 4, 10 and 19) have been destroyed.

18. The approximate cost of repairing the damage is estimated at Rs. 2,150. The channel was opened on the 11th January.

PALAIAM CHANNEL—PALAVOOR ANICUT.

19. The apron of the anicut has been damaged slightly, otherwise the anicut is in good order.

20. The right flood bank above the head sluice was breached by cross drainage for a length of 208 feet and to a depth of 7 feet. Between the head sluice and Tharuvai, the right flood bank of the river or left bank of the channel was breached in five places as follows :—

Above Suttamalli anicut in two places for a total length of 202 feet and average depth of 9½ feet; opposite Suttamalli anicut, for a length of 190 feet and depth of 8 feet.

Between Suttamalli anicut and Tharuvai in two places for a total length of 507 feet and average depth of 11½ feet.

The bank is much eroded and half washed way on the river side for 200 feet above Suttamalli anicut.

21. The channel is much silted at mouth of inlet from Omanallur tank. Below this a large bank of silt has been deposited in the channel (220 ft. × 70 ft. × 3½ ft.). This has been carried into the channel from some waste land, which certain ryots, unauthorized, have converted by lowering into nanjah, and by bunding the Omanallur surplus channel have diverted the water to it. This water, unable to find a free vent, covered the land, until the channel bank was breached and an enormous quantity of silt was carried into the channel, completely blocking it. The matter has been brought to the notice of the Collector.

22. At Tharuvai where the Pachiyar crosses the channel, much damage has been done. One hundred feet in length of the 12-feet retaining wall in extension of left wing of the Anjumathagu surplus weirs with bund in rear, and the lascar's shed have been washed away. The bund 340 feet in length and 7 feet in height between the two surplus weirs has been carried away. Two thousand and one hundred and eighty-five feet of channel has been silted up to an average depth of 5 feet.

23. Below the weirs the channel on river side was much eroded for a length of 1,000 feet. Below, Puthumathagu bank is breached for 180 feet in length and 10 feet depth and at Vadamalaiyappa Pillai surplus weir for 200 feet in length and depth of 10 feet, 80 feet in length of the 12-feet wall being washed away. At Araikolam and Panjamgam Iyer Odais, the channel is silted up for a length of 510 feet and average breadth and depth of 37 feet and 2 feet, respectively. Besides the breaches in the flood bank above Tharuvai, the channel has breached in 22 places.

24. The Melapoliam surplus weir has been carried away, only the wing walls remain. It was an old work and appears to have been built on soft rock, which gave way during the heavy flood.

25. The silt near Tharavai was cleared very expeditiously and work was carried out by torch light on the night of the 10th. Water was let down on the evening of the 11th January. The question of constructing a head sluice a little below the Anjumathagu surplus weirs to be closed in time of flood should, it is thought, be considered.

26. The cost of repairing the damage is estimated at Rs. 5,000 and the damage to standing crops will be about Rs. 3,000.

TINNEVELLY CHANNEL AND SUTTAMALLI ANICUT.

27. 8·80 feet of water passed over the anicut.

The cut stone on the crest has been washed away for a length of 120 feet, and the rear aprons of the left portions have been much displaced.

28. There were three breaches in the flood bank to a total length of 600 feet with depths varying from 4 feet to 13½ feet. The largest one 205 feet in length and 13½ in depth occurred near the left wing of the anicut and between it and the head sluice.

29. The old crack in the wing wall of the head sluice has opened about 2 inches at top.

There were 23 breaches in the channel.

30. The approximate cost of repairing the damage is estimated at Rs. 2,500. The channel was opened and water let down on the 11th January.

II.—MARUDUR ANICUT SYSTEM.

MARUDUR ANICUT.

The maximum depths of water gauged on 30th December 1895 were as follows :—

Melakal head sluice.—Front 14·80 feet, rear 16·10 feet.

Kilakal head sluice.—Front 16·50 feet, rear 13·20 feet.

2. The length of the anicut wall is 4,100 feet of varied levels or heights. The wall* on the Melakal side is 11·40 feet above the floor of the Melakal head sluice, and on the Kilakal side 8·55 feet above the floor of the Kilakal head sluice. 3·40 feet and 7·95 feet, therefore, passed over the anicut on the Melakal and Kilakal sides, respectively. The M.F.L. of 1877 were as recorded in this office 15·73 and 17·30 in front of Melakal and Kilakal head sluices, respectively.

The rear wing of the anicut on the Melakal side was topped.

3. Seven upright stones of Muttappa escape were washed away, and others were twisted on their base; the south-east wing of the escape being undermined, has cracked. The front cut-stone beams of Nos. 1, 5 and 6 sand-vents were displaced.

4. Many of the boulders in rear of the anicut wall are washed away, and almost all the nanul and korai grass in the river bed below the anicut has been either carried away or is covered over with silt.

5. The head sluices were closed during the flood, and the two sand-vents near the Melakal head sluice, having screw-gearing shutters, were fully opened.

6. There appears to be much silt in front of the anicut wall, which is being slowly drawn through the scouring sluices.

7. In addition to the river flood the rainfall was abnormally heavy, being 7·65 inches on the 30th December 1895.

8. Water was passed for irrigation in the Melakal on the 6th January, and in the Kilakal on the 12th idem.

9. Opposite all breaches the fields for a length of 200 feet or 300 feet were silted up to a depth of 1 foot to 1½ feet, and some fields were scoured out.

9-A. The cost of repairing the damage is estimated as follows :—

		RS.
Melakal including channels and tanks	... ...	2,500
Kilakal do. do.	... ...	14,000
	Total ...	16,500

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* Mean level of anicut crest, 77·42.
Sill of Melakal head sluice, 67·92.
,, of Kilakal head sluice, 68·50.

MELAKAL CHANNEL.

10. The Támbraparni river water-mark is visible up to the left bank of the channel, and in some places, especially in the 2nd mile, the mark is almost to the top of the bank. Almost all the fields bordering the river from the head to Adichanullur hill, a distance of 10 miles, were under water and silted to some extent. The river water-mark is visible in rear of Pottakulam of Karunkulam, and the depth of water on the road between Thuthukudi tank and Adichanullur hill varies from 3 to 8 feet.

11. The rear parapet of sluice No. 1 has fallen down and the water rose to 2 feet on the crest of Musani escape.

12. The left bank is breached from the 23rd sluice in 8th mile downwards where the bank was overtopped by the flood. The ryots and lascars put earth and branches of trees in several places and prevented the bank from breaching, thus saving Kollivoikulam and Nattarkulam tanks.

13. The Thuthukudi escape passed, in addition to the water through its sand vents, a depth of 3·68 feet over its body wall, which is 2 feet in excess of that passed over in 1877. Sluice No. 23 is entirely destroyed.

14. *Mukkavar channel.*—Small cuts were made in the banks to save the tanks under the channel. There are seven breaches in the left bank between 7th and 12th mile stones, caused by water overtopping the bund.

15. *Seidunganullurkulam.*—The tank received the flood through the breaches in the left bank of the Melakal channel opposite to the tank and breached in five places, owing to the escape being inadequate to pass this unforeseen discharge.

16. *Thuthukudi tank.*—This tank breached in six places owing to the left bank of the Melakal channel breaching opposite to the tank.

17. *Karunkulam Krishnenkulam.*—One breach cut near the hill to save the tank.

18. *Karunkulam Periyakulam.*—The tank received the flood discharge through the breach in the left bank of the Melakal channel near the supply sluice. The ryots cut one breach to save the tank.

19. *Karunkulam Pottaikulam.*—This tank also received flood discharge through the breach in 12th mile of Melakal channel and the ryots cut two breaches near the hill to save the tank.

20. *Kolvoi Branch Channel.*—Owing to the extraordinary drainage entering the channel in addition to the extra quantity passing into it from the Melakal channel, the left bank was breached in four places. The channel has no head sluice.

21. *Ninarkulam.*—Supplied by the Kolvoi branch channel. This tank is breached in two places, and several scour holes formed where water overtopped the bund.

22. *Vellur Tank.*—One breach was cut by the ryots under the orders of the Superintendent to save the tank as it was in danger. [*] 3·80 [†] feet of water passed over the 300 feet escape near Adichanullur hill, 1·40 foot over the second escape of 37 feet, and 1·40 foot over the 200 feet at the south-east end. The sluices to Tenkarai tank were fully opened at 5·30 A.M. on the 30th December 1895.

23. *Tenkarai Tank.*—One breach was cut by the ryots under orders of the Superintendent to save the tank. 1·90 [‡] foot passed over the 90 feet escape with 10 sand vents opened. The escape to Nachikulam was opened.

24. *Nachikulam.*—One breach caused by the water overtopping the bund, other breaches prevented by ryots placing earth and branches over bund here and there. 1·40 foot passed over 30 feet escape.

25. *Kilaputhukulam.*—Breached in five places. The soil being inferior, the ryots were not able to save the tank.

26. *Moodalaimoolikulam.*—Four small breaches. The ryots opened the ends of the bund and passed away much of the flood.

27. *Thamangolam.*—One long breach where the water overtopped the bund. The ryots prevented other breaches by putting earth and brushwood on the bund here and there.

28. A statement of breaches is enclosed.

KILAKAL CHANNEL.

29. *Kilakal Channel*—The flood of the river passed over its left bank or margin above the Marudur anicut and entered the Kilakal channel breaching it in several places, in addition to which, owing to the abnormally heavy rainfall, two rainfed Imperial tanks (Kaliavur Periakulam and Rajankulam) above the Kilakal channel breached and their flood water entered the channel. The channel banks were breached and eroded in 25 places and the rear wing of sluice No. 7 has fallen down.

30. *Srivaikuntam-Periyakulam tank.*—Owing to a large breach in the left flood bank above Srívaikuntam anicut, which forms a portion of the bund of the tank and which carries a local fund road, this tank has breached in four places and sluice No. 7, with the exception of its front head, has been washed away. Five [*] feet depth of water passed over the surplus escapes or 2½ feet in excess of the M.F.L.

31. *Perur tank.*—This tank breached in ten places owing to the extraordinary surplus passing from the Srivaikuntam surplus escape and to the abnormal rainfall. Three and-a-half feet depth of water passed over surplus escape or 1·84 feet in excess of the M.F.L. The rear wings of sluice No. 3 are badly cracked and sluice No. 5 has been washed away except its fronthead.

32. *Sevalai tank.*—This tank breached at the local fund road ramp near the escape owing to the extraordinary surplus from Perur tank and to the abnormal rainfall.

33. *Flood bank and local fund road along the surplus channel from Sevalai tank to Perungolam tank.*—The ramp, road and flood bank were breached in places for a total length of 700 feet and average depth of 5 feet owing to the water of the Sevalai tank overtopping the bund at the local fund road ramp and owing to the extraordinary discharge from the Sevalai escape.

34. The flood passed over the fields and local fund road through the Sevalai village into the fields below Perunkulam tank, and thus saved the latter tank.

35. *Perungolam tank.*—The ryots made a cut in the north end, 25 feet long and 7 feet deep to pass the abnormal rainfall and save the tank.

36. *Perungolam escape channel.*—This channel breached in four places.

37. *Issangankulam tank.*—This tank receives the drainage from the Vallanad hills, but owing to the abnormal rainfall the tank was in danger and the ryots under the orders of the Superintendent made a cut 60 feet in length and 3 feet in depth at the north end, thus saving the tank.

38. *Kylasaperi tank.*—This tank receives the surplus of Issangankulam tank, and breached in four places.

39. A statement of breaches is herein enclosed.

40. The following two rain-fed tanks are referred to as having breached and damaged the Kilakal channel.

41. *Katiavur-Periakulam.*—This tank breached in several places, water overtopping the bund.

42. *Rajankulam tank.*—This tank bund was also overtopped by the water and breached in six places for a total length of 630 feet and to an average depth of 3½ feet. The cross bund, 460 feet long and 3 feet deep, was washed away.

III.—SRIVAIKUNTAM ANICUT SYSTEM.

Srivaikuntam Anicut.

1. The maximum depths of water gauged were as follows :—

	Front. FEET.	Rear. FEET.
North Main channel— Head sluice	20·00	14·50
South Main channel— Head sluice	20·00	11·50

The gauge readings in front of the anicut were as follows :—

—	6 A.M.	12 NOON.	4 P.M.	6 P.M.	8 P.M.
29th December 1895	0·70	0·70	..	0·75	..
30th Do.	13·40	17·20	18·30	19·75	20·00
31st Do.	16·00	17·20	..	17·80	..
1st January 1896	15·35	14·00	..	12·30	..
2nd Do.	10·70	10·50	..	..	..

1. (*a*) The readings in rear of the anicut were as follows :—

—	6 A.M.	12 NOON.	4 P.M.	6 P.M.	8 P.M.
30th December 1895	10·30	15·30	17·00	18·30	18·50
31st Do.	14·00	15·30	..	16·00	..

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[*] Erroneously measured. The flood level as shown by marks on the bund was a foot higher than this. The flood level on the river side of the road bridge was 4 feet above the tank weir.

(Signed) W. HUGHES,
Superintending Engineer.

[†] Or 0·05 foot in excess of M.F.L.

[‡] Or 0·10 foot less than the M.F.L.

[*] Water to the depth of 0·50 feet passed over the bund.

1. (b) The following shows the flood levels of 1895 compared with those of 1877 and 1880 :—

—	1877 M.S.L.	1880 M.S.L.	1895 M.S.L.	Remarks.
Tinnevelly bridge over Tambraparni ..	121·20	113·13	121·13	
Bridge near Gangaikondán over Chittar.	131·31	128·81	124·68	
Srívaikuntam anicut above	49·15	47·82	51·40	
Do. do. below	48·94	47·57	49·90	Crest 39·40 M.S.L.
Do. * do. afflux	0·21	0·25	1·50	

1. (c) The bottom of the bridge girders is 23·55 feet above floor of South Main channel head sluice or was 3·55 feet above flood level.

2. The water began to pass over the anicut at 2 A.M. on the 30th and at about 8 P.M. or so the flood bank above the anicut was breached. Water rose to the string course of the bridge over the South Main channel head sluice and to 2·25 feet over the highest recorded flood level of 1877,* or to 12 feet over the present raised crest of the anicut.

3. The rainfall at Puthukudy on the 29th, 30th and 31st December 1895 amounted to 11·38 inches, 7·65 inches being registered on the 30th.

4. The head sluices were fully closed at 4 P.M. on the 30th December 1895. The South main channel was opened again on the 24th January and the North Main channel on the 9th February.

5. The rear apron of the anicut and a portion of the retaining wall are much damaged. The concrete wall on the anicut has stood well, except some of the Surki plastering and a little of the concrete has been washed away; the portion plastered with Portland cement has sustained no damage. The damage to the anicut is estimated at Rs. 15,300.

5. (a) The cost of repairing the damage is estimated as follows :—

	RS.
North main channel and tanks	18,000
South do. do.	7,500
Right flood bank below Srívaikuntam anicut	13,000
Left flood banks above and below Srívaikuntam anicut	25,000

6. There appears to be no damage done to the head sluices, except to some of the bearing beams, which appear twisted, being old and rotten at the ends. An estimate is under preparation for providing new beams where necessary.

7. Tar marks have been ordered to be put on all important masonry works to show the flood level.

8. The damage to crops is chiefly opposite breaches, where in some places the crops were rooted out and carried away, and in others were silted over with sand to a depth of about one foot.

9. There was no postal or telegraphic communication whilst the floods lasted.

10. The Sub-division officer brings to notice the good work done by the Melakal and Kilakal channel Superintendents who minimised the danger as much as possible. The South Main channel Superintendent seems also to have done well, but the same cannot be said of the North Main channel Superintendent who was very slow in reporting the damage done; if he had shown a little more energy and promptitude, it is probable the channel would have been opened at an earlier date. The Pongal festival in the middle of January helped to retard the progress of the work.

Flood banks.

11. The flood banks above the anicut were raised to 4¾ feet above M.F.L. of 1877, except for half a mile above the anicut where they were raised to 5½ feet. Below the anicut the flood banks were raised to 5 feet above the M.F.L. of 1880.

11. (a) *Right flood bank above Srívaikuntam anicut.*—No particular damage was done, except slight erosion here and there, especially where a tree or masonry wall obstructed the free flow of water.

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* This was before the piers of the bridge were raised to their present height or the crest raised 2 feet.

12. *Left flood bank above Srívaikuntam anicut.*—The water rose to about 2½ feet from the top of the bank. Owing to this extraordinary flood and abnormal rainfall, and the inferior nature of the soil the bank melted and breached in the following places :—

	Length. FEET.	Average depth. FEET.
Rear of Munsif's court-house	310	15
Higher up half of the bank for a length of 40 feet washed away.		
Higher up another breach as far as the Srívaikuntam temple.	1,280	15
Higher up more than half a mile above the anicut at the site of the old head sluice to Srívaikuntam-Periyakulam tank.	550	15

The bank at this last breach carries a local fund road, and forms the southern portion of bund of Srívaikuntam-Periyakulam tank; it is scoured out to 8 feet below ground level.

13. The old river wall at the temple and below it is very much damaged and but for its existence it is probable that a large portion of the town of Srívaikuntam would have been washed away. The river sets on this side, and groynes might be constructed higher up to turn the current into its proper course over the anicut. In any case the river wall will have to be rebuilt or an expensive revetment provided.

14. The compound walls of the Munsif's court and Tahsildar's cutcherry have fallen down; about 4 feet of water was on the floor of the former and a few feet on that of the latter. About 2 feet water was in the hospital and much of the property of the Apothecary was washed away; some of his boxes, and those belonging to the cutcherry were found at Erell and Mangalacurichi. A large number of the mud houses in the vicinity of the Munsif's court and cutcherry have fallen down.

15. *Right flood bank below Srívaikuntam Anicut.*—The bank has breached in four places as follows :—

(i) Just above Alwartirunagari for a length of 400 feet owing to the contraction of the river.

(ii) At Karungany temple for a length of 250 feet owing to the heading up and twisting of the water at the temple walls. The temple walls and the temple itself have fallen down.

(iii) and (iv). Near Sethukuvaithan village for lengths of 840 feet and 810 feet. The village is on the river margin, and between the river and the bank.* The breaches may have been caused by the villagers to save their lives. The bank below the village has slipped for 400 feet, and a further slip of 900 feet has taken place at Authur.

16. The flood does not appear to have risen very high below Kurangany breach owing probably to the several breaches above, the water finding its way elsewhere and not back to the river.

17. *New left flood bank below Srívaikuntam Anicut.*—This bank, as far as Mangalacurichi forms also the right bank of the North Main channel, was breached in five places owing to the inferior nature of the soil—

	Length. FEET.	Average depth. FEET.
1st mile, Paracheri Valai	280	16
3rd „ Kalangudi limits	510	16
4th „ Valen Pacheri	800	15
9th „ Erel limits	550	12
13th „ Mukkani limits	550	16

18. At Appencoil and Sivaramangalam the villagers had protected the bank with spikes and brushwood to save their villages. Here the bank is turned round the village to protect it, and the waterway of the river is much contracted.

19. *Old left flood bank below Srívaikuntam Anicut.*—The revetment of the bank was sanctioned in G.O. No. 399 I., dated 20th May 1882, and Government in Order No. 1108 I., dated 8th December 1884, directed that "as a special case the old flood bank shall be maintained to its former section," that is to about the flood level of 1880.

20. The flood of December overtopped the bank, and washed it away to a very large extent from its head to its end, a distance of 7½ miles.† The villages between the old and new banks were under water and all the mud houses have fallen down. Some ten lives were reported lost and much property was carried to the sea; with great difficulty the remainder saved their lives. It will be very costly to make this bank up again, and special orders are necessary.

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* This is a mistake. It was intended to take the bund south of the village and a portion of it was actually made, but the apposition of the villagers prevailed and the bank was made up between the village and the river.

(Signed) W. HUGHES,
Superintending Engineer.

† or Just above Eral.

20-A. The following shows the flood level of 1880 compared with levels of top of old left flood bank below the anicut :—

	Flood level of 1880. FEET.	Top of bank. FEET.
At anicut—		
1st mile	46·16	47·94
2nd ,,	43·82	43·53
3rd ,,	41·52	42·14
4th ,,	40·55	39·51
5th ,,	37·87	36·79
6th ,,	35·63	33·36
7th ,,	32·59	31·04
8th ,,	30·44	29·62

20-B. *Cause of breaches in flood banks.*—The causes for the breaches in the flood banks are as follows :—

Right flood bank below the anicut.—Breach above Alwartirunagari was caused by the contracted waterway of the river and the diversion of the current by the obstruction of a temple in the Padugai. This temple is now in ruins.

Left flood bank below the anicut.—Breaches Nos. 1 and 2 have occurred at the sites of former breaches in 1877. Breach No. 3 was caused by the soil below the bank settling (owing to water standing on both sides of the bank) the bank cracking and slipping away. This appears to have been the case as the spoil simply deposited itself in the North Main channel not far below the breach.

Breach No. 4 at Eral was caused by the diversion of the current by the obstruction of the old Eral and Korkai head sluice (still standing); the current was turned to where the flood bank crosses the old Eral and Korkai supply channel and breached it.

Breach No. 5 near Mukkani was caused owing to the inferior nature of the soil of the bank.

21. Pegs have been placed on flood banks at every half mile to show the high flood level and a statement of comparative high flood levels will be prepared as early as possible.

North Main channel.

22. *General.*—Owing to the breaches in the left flood bank above the Srívaikuntam anicut the flood entered the channel some 400 feet below the head sluice, and for 2,000 feet silted it up to a depth of 3 feet, whilst in two portions of this for lengths of 230 feet and 110 feet the silt is up to the top of revetment, and in a third portion for 120 feet the silt is 5 feet deep. In the fourth mile the channel for a length of 270 feet has silted up above the original ground owing to a breach in the left flood bank.

23. Levels have been taken up to 5½ miles. The former low bed of the channel has now silted up, but not above normal bed level, and with the exception of clearing a few shoals and at the fourth mile, where the channel has silted up, no work appears to be necessary.

24. The largest breaches are at Eral near Korkai head sluice. Here the water rose to 2½ feet over the rough stone bywash and overtopped the banks of the channel. For a length of 230 feet the channel has been scoured to 12 feet below normal bed level and some bogs here had to be used to close the breach.

25. The Eral syphon was entirely submerged on both sides, and there was 2·5 feet over front and 0·10 foot over rear parapet walls.

Arumugamangalam head sluice, tank and escape.

26. The head sluice and tank escape were fully opened. 2·60 feet of water passed over the escape. The tank bund which carries a road breached at south-west end near the head sluice for a length of 900 feet, and 500 feet below this for a length of about 420 feet and to a depth of 16 feet below the top of the road.

27. The bund should be re-aligned and straightened, as it is full of angles, which prevent the water freely entering the tank and causes breaches.

28. As soon as the floods subsided, the ryots very sensibly threw a bund across the tank just below the second breach and stored a month's supply of water in their tank.

29. Sluice No. 1 is undermined and damaged very much and will have to be reconstructed.

30. *Eral outlet.*—The outlet was fully opened, and no damage occurred to Peikulam, Pottaikulam and Korampallam tanks.

31. *Perungolam tank escape channel.*—The channel which enters the North Main channel at Eral was not in flood, but owing to the flood water from breaches in Srívaikuntam, Sevalai and the Perur tanks, the flood bank below the bridge and about a furlong above the bywash was breached.

32. *Iyenarcovil sluice in 9th mile of North Main Channel.*—Front head damaged and fallen down.

KORKAI CHANNEL.

33. Owing to the water overtopping the banks, the channel was breached in several places.

34. *Korkai Tank.*—The channel enters the tank through a culvert under the Local Fund road. The road acted as a flood bank and saved the tank, the water being passed round both ends of the tank-bund.

CHITTAR FLOOD BANK.

35. This is a bank taken off from the Arumugamangalam tank-bund at 400 feet below sluice No. 1. It runs east for a length of about a mile and a half up to Valavallam, then for about half a mile there is no bank, and then it is continued up to Maramangalam.

36. This bank appears to have been formed on the left bank of an old stream called the Chittar to prevent the flood submerging the fields of Arumugamangalam, Kottarakurichi and Valavallan; it does not appear in the component list of works, nor in the sketch-map. It is doubtful whether this bank is to be maintained by this department, as the bed of the Chittar has been converted to nanjah. Owing to the breaches in the North Main channel and Arumugamangalam tank, this bank has breached in 17 places. There are a few culverts or sluices in the bank to pass field drainage. The bank is principally formed of sand, and in some places has a top width of 12 feet.

37. 2·6 feet of water over the escape in this bank, the maximum depth being 1½ feet.

ARUMUGAMANGALAM SURPLUS CHANNEL FLOOD BANK.

38. This bank was breached in 27 places. It is evident that the old Valavetty calingula is insufficient, and that the surplus channel needs investigation for necessary improvements. About 700 feet below the Arumugamangalam escape for a length of about a furlong it is only about 40 feet wide, but above and below the width is from 200 to 300 feet.

39. *Palayacoil Tank.*—This tank receives a part of the Arumugamangalam tank surplus, but the banks being low were overtopped and breached in 17 places.

40. *Peikulam Tank.*—Water overtopped the bank in several places, but was prevented from breaching by the ryots putting earth and brushwood over the low places and opening in time the double dam in the North Main channel. As soon as the flood subsided, the ryots erected a dam in the North Main channel at Palayacoil bridge, thus storing a good supply in their tank.

41. A statement of breaches is herewith enclosed.

SOUTH MAIN CHANNEL.

42. *General*—At Alwartirunagari, the right flood bank below Srívaikuntam anicut breached and the flood entered the channel from the north and from the south part of surplus discharge from the Vellur and Tenkarai tanks met the flood of the river and passed down the channel, heading up as far as the head-sluice.

43. The channel was silted almost to the top of the berm for a length of 6,000 feet which will cost about Rs. 2,500 to remove. The channel was also silted at the head end. There are in addition nine small breaches in the left bank and three in the right.

44. Authur channel head-sluice was raised to pass 3 feet water, and the shutters of Kadambah head-sluice were opened to pass some of the surplus. The greatest depth of water on Kadambah head-sluice floor was 8 feet on the 30th December 1895.

Authur Channel.

45. Has been silted for about a mile which will cost about Rs. 1,000 to remove. There are several* breaches in both banks of the channel below the regulator caused by the river water entering it by a breach in the south flood bank at Korangani; when this breach occurred, the head-sluice was closed. A sluice in the left bank below Seithukuvoitan surplus weir is washed away owing to the Seithukuvoitan tank breaching.

Seithukuvoitan Channel and Tank.

46. On account of the breach in the right flood bank at Korangani, the channel is so silted up that it is difficult to trace where it was. The flood passing down the channel and over the country, entered the tank, breached it in several places and passed into the Authur channel. This is davastanam tank and is not to be repaired by Government.

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* A few only are low-level (12 feet deep).

Kadambah Tank.

47. 2·8 feet passed over the escape and a portion down the old drain at the south-east end. The tank appearing to be in danger, the ryots and lascars opened one cut near the surplus weir and another at the west end, thus saving the tank. The surplus overtopped the flood banks of the drainage channel and entered the Sugathalai tank breaching it in four places.

Poriyur Head-Sluice.

48. This sluice in the Kadambah tank supplies eleven tanks. It was so well regulated that, with the exception of two small breaches, which will cost about Rs. 50 to close, there was no damage to the channel and tanks below. There was 7·3 feet in front of head-sluice or 1·80 feet above M.F.L.

IV.—IMPERIAL IRRIGATION WORKS—ACCOUNTS NOT KEPT.

1. *General.*—The amount of rainfall registered on the 29th, 30th and 31st December was as follows :—

—	29th.	30th.	31st.	Total.
	INCHES.	INCHES.	INCHES.	INCHES.
Palamcottah ..	0·37	7·17	3·32	10·86
Sankaranayinárkóyil	0·71	3·02	1·80	5·53
Tenkási	0·61	4·59	2·74	7·94
Ambásamudram	1·00	3·75	3·25	8·00
Nánguneri	0·85	7·44	4·70	12·99
Srívilliputtár		on 30th and 31st		3·45
Shermádevi	0·96	7·80	1·30	10·06

The rainfall on the hills at Sengatheri * in Nánguneri taluk for the week ending 31st December 1895 was 32·42 † inches, and at Mundandorai in Ambásamudram taluk for the same period was 36·5 † inches.

2. The flood-levels of the Chittar and its tributaries are much lower than those of 1877, whilst the flood-levels of the Jambunadi, Ramanadi, Varananadi and Gadavanadi tributaries of the Tambrapárni are from 6 to 9 inches higher than those of 1877.

3. Immediate arrangements were made to put ring bunds in front of breaches, and water has been passed in channels and tanks filled sufficiently to bring to maturity the crops under them.

4. With the exception of the cultivation in close proximity to the breaches, all the rest is very healthy and promises to yield a good crop.

5. Orders have been issued to mark with tar the flood-level on all the important masonry works, and it is reported they are being connected with the M.S.L.

6. A statement showing damage to Imperial irrigation works is herewith enclosed.

SANKARANAYINARKOYIL TALUK.

Kottamalayar River.

7. *Vasudevanallúr-Periyakulam Tank.*—Behind the surplus sluice on the right side an erosion to a length of 50 feet has taken place. Dry rough stone should be provided.

TENKASI TALUK.

Karuppanathi River.

8. *Papancal Channel.*—The flood overtopped the head-sluice and slight breaches have occurred which were closed by lascars.

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* In Asamboo hills.

† These registers were obtained from Forest Department.

Chittar River.

9. *Puliyur Channel.*—A breach has occurred at the left side of No. 1 weir, and revetment in front has been washed away.

10. *Tiruchittambalam Anicut.*—The masonry sloped apron at the centre of the anicut has been washed away to a length of 18 feet and the dry stone apron at left end damaged for a length of 50 feet.

11. *Pavur Anicut.*—Apron at left end damaged.

Jambunadi River.

12. *Kuthalaperi Channel.*—This channel receives the drainage from a large area, it has no surplus escapes ; a surplus channel has been formed through the wet lands opposite to Sembankulam tank. Necessary surplus work should be provided.

AMBASAMUDRAM TALUK.

Jambunadi River.

13. *Vadapathukulam Anicut.*—The flood has overtopped the wings of the anicut and flood above the anicut.

Ramanadi River.

14. *Ramanadi Vadakal Channel.*—The channel which skirts a hill is much eroded in several places for a distance of half a mile.

15. *Vagaikulam Branch Channel.*—The masonry sluice No. 10 has been washed away.

Varnanadi River.

16. *Papancal Channel.*—The rear apron and the side revetment at left end of anicut are damaged.

17. *Kalkurichikulam Tank.*—The low-level sluice has been washed away.

Gadnanadi River.

18. *Arasapathu Channel.*—The channel skirts a hill for a distance of three miles and was breached in 18 places by hill streams crossing it. Most of the irrigation offtakes are open cuts or have only temporary sluices and the breaches have taken place at the sites of temporary sluices. Tanks under channel in good order, as cuts were made at ends of surplus escapes.

19. *Ambur-Perunkal Channel.*—The left channel bank from the anicut to No. 1 weir is cut to pieces for a length of 750 feet. A surplus escape should be provided.

20. *Manjampally Anicut.*—The rear left wing of the anicut and the masonry pillar at right end to show F.L. of 1877 was washed away.

21. *Kakanallur Anicut Channel and Tanks.*—The rear apron of the anicut is much damaged. The channel and the two tanks supplied by it were breached.

22. *Kangayan Anicut Channel aud Tanks.*—The rear apron of the anicut is disturbed in three places. The channel, which is ten miles long, breached opposite to hill streams and at the sides of surplus escapes. All the tanks under this channel except one have breached. Surplus escapes should be provided to tanks and channels.

SRIVILLIPUTTUR AND SATTUR TALUKS.

23. No serious breaches reported, and no damage to standing crops. The cost of repairing slight damage is estimated at Rs. 600. The front slopes of some of the Tank Restoration Scheme works, which are approaching completion, were damaged slightly by heavy rain.

NANGUNERI TALUK.

Pachiyar River.

24. *Pathai Channel.*—The flood overtopped the wings of the anicut and scoured the bank in rear. The channel bank between the anicut and head-sluice was overtopped and partly washed way.

25. *Devanallur Channel and Tank.*—The channel bank was badly eroded and partly washed away in four places, and was breached on right side of surplus weir at entrance to tank. The tank-bund was cut open for 20 feet at the south-east end by the ryots to save the tank.

26. *Nambiratti Channel.*—The channel receives a large amount of drainage and was breached in ten places.

Karumbandi Ammenkal River.

27. *Tamaraikulam Channel.*—The channel was badly eroded in three places and the front retaining wall of sluice No. 6 was damaged.

28. *Nánguneri Channel.*—There were two large breaches, in one case the bank was protected by a masonry wall and in the other with revetment. Revetment has slipped in two other places. The bund of Nánguneri-Periyakulam tank was cut to a length of 30 feet near surplus weir by Tahsildar to save the tank.

29. *Sevalaperi Channel.*—Improvements to the channel are in progress. The old portion of weir No. 1 slightly damaged at the right end, and the new earth in rear of wings washed away. The body of weir No. 2 lately constructed and provided with dam stones was damaged for a length of 33 feet, carrying away the dam stones, fixed 3 feet apart and the shutters. Some portion of the rear aprons have been washed away.

30. The training wall below weir No. 3 has been washed away for a length of 24 feet at the right end, and below this the bank has breached for 46 feet. The breach happened owing to the contractor having removed the earth behind the training wall, which, by an extraordinary mistake in the estimate, was proposed to be lowered to F.S.L. and to be converted into a weir. One breach in Sevalapuri tank was reported.

Nambiyar River.

31. *Sengalakurichi Channel.*—The flood overtopped the channel banks.

32. *Tirukarungudi Supply Channel.*—The two breaches in the channel which occurred in November were enlarged by this flood. The anicut wings, which were 4 feet above crest, were overtopped by 1 foot and the right wing was carried away forming a breach. The bank in rear of the left wing is scoured.

33. *Vadukachimathelkulam Supply-Channel.*—Owing to breaches in Sengalakurichi channel and tank, which are above this, this channel was breached in two places at the entrance to the tank and the bank badly eroded in several places.

34. *Sengalakurichi and Solankulam Tanks.*—The flood overtopped the Sengalakurichi tank-bund at the south-west end which was rather low and breached it for a length of 150 feet. The water discharged through this breach entered the Solankulam tank which is immediately below and breached it in three places.

35. *Vadamalayan Channel.*—The flood rose to 3 inches above the flood of 1877, overtopped the channel in several places and breached it in two places.

36. *Vizianarayanum Tank and Channel.*—The north supply-channel takes off from no particular river, but receives the surplus of a number of tanks above it, and has a large drainage area; it breached in six places at the sites of former breaches. Surplus escape should be provided. The south supply-channel takes off from an anicut on the Nambiyar and has a head-sluice; it was breached in two places.

37. The revetment in the tank has slipped in fifteen places, which has been protected with brushwood. The revetment for a length of one mile is built almost perpendicular.

Tamarayar River.

38. *Padalayarkulam.*—The flood rose 1 foot above the flood of 1877. Thirty feet of the anicut apron is damaged and 24 feet of revetment in rear wing is washed away. The channel was breached in two places, owing to the Valliyur channel which runs above and paralled to it having breached.

39. *Valliyur Channel.*—A number of hill streams flow into the channel in the first mile and have silted it to a depth of 3 feet to 4 feet above its normal bed-level. This accumulation obstructed the flood, which overtopped the bank and breached it in two places at sites of former breaches.

(Signed) G. B. LAMBERT,
Executive Engineer.

STATEMENT of Breaches in the Melakal channel.

Names of works.	Number of breaches in each work.	Length.	Average depth.
		FEET.	FEET.
Melakal channel	1	132	9
	2	188	10
	3	102	3
	4	64	6
	5	115	6
	6	47	7
	7	53	7
Seedunganallur kulam	1	272	3½
	2	60	10
	3	59	13
	4	38	11
	5	47	8
Thuthukudi tank	1	85	4
	2	62	4½
	3	40	5½
	4	47	5
	5	62	6
	6	107	7
Karunkulam Krishnenkulam	1	40	4½
Do. Periyakulam	1	50	5
Do. Pattaikulam	1	44	8
Kalvai branch channel	2	35	2½
	1	24	5
	2	76	3
Nainar tank under Kalvai branch channel ..	3 and 4 each.	176	2½
	1	44	11
Vellur tank ..	2	65	10
Tenkarai tank	1	202	8
Nochikulam	1	132	5½
Kelaputhukulam	1	75	3
	1	127	5
	2	92	10
	3	20	4
	4	50	5½
Mudalaniolikulam	5	170	8
	1	15	3
	2	38	6
	3	20	2½
Themangulam	4	20	3
	1	115	4½

STATEMENT of Breaches in the Kilakal channel.

Names of works.	Locality.	Number of breaches in each work.	Length.	Average depth.	Remarks.
			FEET.	FEET.	
Kilakal channel ..	1st mile	1	190	4	
		2	80	4	
		3	60	4	
	2nd ,, ...	4	280	..	Half bank washed away 4 feet deep.
		5	190	..	Half bank washed away 6 feet deep.
		6	70	..	Half bank washed away 5 feet deep.
	3rd ,, ...	7	225	15	
		8	150	15	
		9	150	15	
		10	170	5	
		11	160	9	
	4th ,, ...	12	60	4	
		13	50	4	
		14	165	5	
		15	250	5	
	Both sides of 5th mile	16	40	3	
		17	30	3	
		18	50	4	
		19	8	3	

Statement of Breaches in the Kilakal channel—*cont.*

Names of works.	Locality.	Number of breaches in each work.	Length.	Average depth.	Remarks.
			FEET.	FEET.	
Kilakal channel—*cont.*	Between Athi and Pothál Madais	20	15	10	
		21	100	20	
		22	5	4	
		23	8	5	
	Between Avarani Madai and Alwarkarkulam village.	24	50	10	
	Local Fund road near Alarkarkulam	25	50	3	
Srivaikuntam-Periyakulam tank.	Both sides of sluice No. 7	1	204	20	
	Between sluice Nos 9 and 10	2	77	10	
		3	110	20	
		4	240	20	
Perur tank	Between Audi Pillai Madai and Kavarli Madai	1	120	15	
		2	155	14	
	Above Local Fund road	3	200	15	
	Below Local Fund road above sluice No. 5.	4	100	18	
		5	60	10	Rear slope of bund.
		6	80	9	
		7	100	10	
		8	60	10	
		9	60	6	
	Both sides of sluice No. 5	10	100	15	
Sevalai tank	Near escape	1	245	15	
Perungulam Escape channel.	At Natathy dam old flood bank	1	100	10	
		2	94	9	
		3	66	10	
	Below Yeral bridge in rear flood bank.	4	640	7	
Kylasaperi tank	Near escape in Srivaikuntam-Periyakulam bund.	1	48	5	
	Below	2	35	6	
		3	30	9	
		4	100	8	

STATEMENT of Breaches in the North Main channel.

Names of works.	Locality.	Number of breaches in each work.	Length.	Average depth.	Remarks.
			FEET.	FEET.	
North Main Channel.	2nd mile near the 4th inlet	1	360	12	
		2	250	5	
		3	220	4	
		4	30	5	
		5	40	8	
		6	100	5	
	3rd mile	7	40	4	
		8	70	5	
		9	25	3	
	Near the 5th inlet	10	120	6	
	Nalangudi	11	100	6	
		12	80	4	
		13	27	8	
		14	130	5	
		15	30	2	
		16	20	4	
	Kadurutti	17	90	8	
		18	110	2	
	Keelpadagai sluice	19	40	3	
		20	180	2	
		21	20	4	
		22	110	5	
		23	110	3	
		24	100	6	
		25	110	6	
		26	60	7	
		27	40	3	
	4th mile, Iyampattu sluice	28	50	8	
	Packery Ammenkoil	29	10	3	
		30	120	4	
		31	990	8	
		32	110	10	
		33	220	5	
		34	70	4	
		35	300	12	
	4th mile stone	36	110	8	
	5th mile opposite Pallivasal	37	50	5	

Statement of Breaches in the North Main channel—*cont.*

Names of works.	Locality.	Number of breaches in each work.	Length.	Average depth.	Remarks.
			FEET.	FEET.	
North Main Channel—*cont.*	Near Rettai Therupatty	38	80	3	
	Mela Mangalakurichi	39	40	4	
		40	60	7	
	6th mile	41	50	7	
		42	10	5	
		43	25	6	
		44	25	3	
	7th mile, Edakatto sluice	45	60	3	
	Left bank, west of Alamarathadi sluice	46	70	6	
	Right bank below do.	47	160	6	
	Left bank	48	60	4	
	Right bank	49	130	5	
	Left bank	50	100	4	
	Do. to sluice	51	240	3	
	Do. Thattakadu village	52	70	4	
	Do. 9th mile	53	70	3	
		54	40	7	
		55	130	3	
		56	50	4	
		57	270	6	
		58	230	10	
	Left bank, opposite Pallivasal	59	250	6	
		60	130	10	
	Right bank, Pallivasal	61	70	15	
		62	40	10	
		63	70	7	
		64	240	10	
	Do. Sunnambu Parabudi	65	60	4	
	Left bank	66	20	5	
	Right bank	67	130	4	
		68	140	7	
		69	80	7	
	Left bank	70	130	7	
		71	50	16	
	Right bank, Sasthankoil sluice	72	300	16	
	Left bank	73	200	16	
		74	200	13	
	Right bank	75	200	13	
		76	80	10	
	Bight bank, west of Korki sluice	77	240	20	
	Left bank	78	350	16	
	West of revetted bank	79	50	6	
	10th mile	80	150	6	
	Right bank	81	100	8	
	11th mile, left bank	82	20	3	
	Right bank	83	60	6	
Korki Channel.	Both banks of this channel from head sluice to Natathi Ammankoil being washed away to a very great depth of about 10 × 6 feet, no measurement was taken.				
	Lenth of breach will be about 1,000 feet.				
	Right bank below Eral road	1	50	5	
	Left bank	2	160	5	
	Do. below Lumbogi	3	350	3	
	Right bank	4	200	2	
		5	150	5	
		6	400	2	
	Left bank	7	450	4	
		8	600	3	
	Right bank	9	600	4	
		10	200	3	
	Left bank	11	30	7	
		12	200	4	
	Right bank	13	50	5	
	Left bank	14	20	8	
	Do. below Pacheri Madai	15	700	4	
	Right bank	16	100	5	
	Left bank	17	500	3	
	Right bank	18	150	4	
	Valavallam bridge	19	60	5	
	Left bank do.	20	150	7	
		21	30	5	
		22	50	3	
		23	75	7	
	Right bank	24	100	3	
	Left bank	25	180	4	
	Right bank	26	200	8	
		27	300	4	
	Left bank	28	30	8	
		29	240	3	
		30	90	7	
		31	60	3	
		32	70	4	

Statement of Breaches in the North Main channel—*cont.*

Names of works.	Locality.	Number of breaches in each work.	Length.	Average depth.	Remarks.
			FEET.	FEET.	
Korki Channel—*cont.*	Right bank	33	300	3	
	Left bank	34	150	4	
		35	100	3	
		36	80	4	
		37	380	3	
		38	180	10	
		39	80	4	
		40	150	3	
	Right bank	41	100	4	
		42	25	3	
		43	60	8	
	Left bank, Narayananadan Madai	44	130	8	
Arumuga-mangalam bank.	Near sluice No. 1	1	50	5	
		2	200	14	
		3	170	12	
		4	50	5	
	Near head sluice	5	900	3	
Chittar flood bank.		1	650	6	
		2	60	12	
		3	300	8	
		4	60	6	
		5	900	7½	
		6	110	8	
		7	120	8	Bank overtopped.
		8	20	5	Do.
		9	40	5	Do.
		10	120	4	Do.
		11	60	6	Do.
		12	420	1½	Do.
		13	30	6	Bank at sluice.
		14	230	3	Do.
		15	80	6	Do.
		16	330	1½	Bank overtopped.
		17	360	1	Do.
Arumugamangalam surplus channel flood bank.		1	18	2	
		2	60	6	
		3	150	3	
		4	40	3	
		5	170	6	
		6	50	3	
		7	30	3	
		8	600	5	
		9	125	3	
		10	480	3	
		11	150	3	
		12	130	2	
		13	20	12	Valvetty calingula, West.
		14	25	9	Do. East.
		15	40	2	
		16	460	3	
		17	200	2	
		18	70	2	
		19	20	7	
		20	40	2	
		21	400	2	
		22	150	2	
		23	600	2	
		24	110	3	
		25	130	2	
		26	30	2	
		27	550	2	
Palayacoyal tank from road culvert.		1	140	2	
		2	460	3	
		3	130	1	
		4	200	2	
		5	60	1	
		6	30	5	
		7	70	2	
		8	20	7	
		9	40	2	
		10	400	2	
		11	150	2	
		12	600	2	
		13	110	3	
		14	130	2	
		15	100	1	
		16	30	2	
		17	550	2	

STATEMENT showing damage to Imperial Irrigation Works by the flood of December 1895.

River.	Name of work.	Number in list.	Number of breaches.	Approximate cost of repairs.	Damage to crops.	Remarks.
1	2	3	4	5	6	7
	Sankaranayinárkóyil Taluk.			RS.		
Kottamalayar ..	Vasudevanallur-Periyakulam supply channel	36	1 (30 feet)	100	*Nil.*	
	Pattakulam tank	37 (*a*)	1	40	30	
Nitchabanady ..	Karivalamvanthanallur-Periyakulam supply channel ..	39	8	90	*Nil.*	
	Tenkási Taluk.					
Karuppanady ..	Papankal channel	48	16	100	*Nil.*	
	Sivalavankal channel	51	1 (40 feet)	..	*Nil.*	Closed by villagers.
	Ekkinarayanan Theruthukulam Kelakulam	52	1 cut to some town (120 feet)	20	*Nil.*	Receives supply from No. 51. Has no head sluice.
Hanumanady ..	Mettukal channel	53	..	10	..	Slight erosions.
Sittar	Uranipathukulam tank	86	1	10	50	
	Puliyur anicut and channel	95	1 (30 feet)	60	*Nil.*	
	Puliyur-Periyakulam tank	96	1	20	*Nil.*	
	Tiruchittambalam anicut and channel	98 A	1 (30 feet)	45	*Nil.*	Has no head sluice.
	Pavur anicut and channel	99	1	60	*Nil.*	
	Tinnevelly Taluk.					
	Manur channel	103	1 (70 feet)	70 feet.	..	The tank which contains one year's supply is three-quarter full.
	Selianallur anicut	110	..	200	..	Six hundred and forty-eight cubic feet masonry washed away to an average depth of 1 foot.
	Sirukulam channel	112	1	150	..	In flood bank.
	Tenkási Taluk.					
Jambunady ..	Kuthalaperi channel	117	12	260	1,500	
	Do. tank	118	1	..	..	Closed by villagers.
	Ambásamudram Taluk.					
	Vadapathukulam anicut supply channel	120	1	140	..	Breach at left end of anicut wing.
	Iyempillaikulam do.	121	2	400	100	
Ramanady ..	Ramanady Vadukal channel	119	1	500	*Nil.*	
	Vachaikulam branch channel	122	1	350	20	
Varnanady ..	Papankal anicut and channel	124	5	140	..	
	Kalkurichikulam tank	126	1	600	200	
Gadananady ..	Tenkal anicut and channel	129	10	200	50	Open head.
	Arasapathu channel	130	18	400	100	Do.
	Ambur Perungal anicut and channel	131	10	1,000	200	

Statement showing damage to Imperial Irrigation Works by the flood of December 1895—*cont.*

River.	Name of work.	Number in list.	Number of breaches.	Approximate cost of repairs.	Damage to crops.	Remarks.
1	2	3	4	5	6	7
	Ambásamudram Taluk—cont.			RS.		
Gadananady—*cont.* ..	Munjampalli anicut and channel	132	..	700	..	
	Kakanallur anicut, channel and tanks	133 to 135	..	1,000	300	
Rainfed ..	Kankayan anicut, channel and tanks	138 to 144	..	2,500	500	
	Melakallur tank	144 A	1	750 during the year.	..	Breached the second time this year at west end. Being rainfed cannot be refilled.
Manimuthur ..	Perungal channel	310	Slight breaches.	..	..	Closed by Singampatti zemin ryots as channel runs through zemin lands.
	Kothukal channel	310 A	Do.	100	..	
	Nánguneri Taluk.					
Pachiyar ..	Pathai anicut and channel	311	Several.	250	20	Head sluice several breaches in Marunkulam and Mudukulam supply channels and one breach in Mudukulam tank.
	Padmaneri anicut and channel	312	5	200	*Nil.*	Open head.
	Devanallur anicut, channel and tank	313	1 (80 feet in length).	300	*Nil.*	Do.
	Nambiratti anicut and channel	314	10 in channel 3 in (1) tank and 12 in (2) tank.	500	Including but 500	Do.
	(1) Pulankurichikulam	315		850		
	(2) Apparkulam tank	316		700		
	Tinnevelly Taluk.					
	Ponnakudiyan channel	319	3	300	..	
	Nánguneri Taluk.					
Karambanady ..	Tamaraikulam channel	322	3	375	*Nil.*	Branch of Nánguneri channel.
	Vadamalaisamudram channel	323	12	600	200	Do. of Tamaraikulam channel.
Ammenkal ..	Nánguneri channel	326	2	1,000	*Nil.*	
	Sevalaperi channel	327	1	500	..	
Numbiyar ..	Singalakurichi anicut and channel	329	Several.	300	*Nil.*	Dry rubble anicut open head.
	Tirukarankudy anicut and channel	330	2	750	..	Open head.
	Vadakachimathilkulam channel	331	2	700	*Nil.*	Branch of Singalakurichi channel.
	Senkalkurichi and Solamkulam tanks	332	4	1,240	300	
	Vadamalayan channel	335	2	260	*Nil.*	Branch of Singalakurichi channel.
	Vizianarayanam tank and channels	338	8	3,000	..	South channel anicut head sluice.
Tamaraiyar ..	Padalayarkulam anicut and channel	333	2	480	..	Head sluice.
	Valliyur channel	339	2	2,800	..	Open head.

28th February 1896.

(Signed) G. B. LAMBERT,
Executive Engineer.

No. 383 I., 28th April 1896.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

Read—the following papers:—

From W. HUGHES, Esq., Superintending Engineer, VI Circle, to the Chief Engineer for Irrigation, dated Trichinopoly, 13th March 1896, No. 274 T.N.

I have the honour to enclose copy of report by the Executive Engineer on the floods which occurred in the southern part of Tinnevelly district at the end of December last. There has been some delay in submitting the report as it was desired to make it as complete as possible.

2. The total rainfall from the 29th to 31st in the Támbraparni basin in the plains, was from 8 to 11 inches: to the north of this it was lighter and to the south heavier, 13 inches having fallen at Nánguneri. The daily rainfall on the hills has not been reported, but for the week ending the 31st it is given as 36·5 inches at Mundundorai in the Ambásamudram taluk, and 32·4 inches at Sengathiri on the Assambo hills in Nánguneri taluk.

3. A comparison of this with previous floods can be most easily made along the course of the Támbraparni. The highest flood previously reached was in 1877. The late flood was generally somewhat lower than this above the Suthumalli anicut: at Suthumalli it was ¾ foot higher, possibly due to the raising of part of the anicut a few years ago; at Palamcottah the two were the same; at Marudur anicut, below the confluence of the Chittar, the late flood was the lower by a foot, owing to the Chittar being only in moderate flood; below Marudur the drainage into the river was much more in 1895 than in 1877 and, in my opinion—which however I cannot support by direct proofs—the quantity in the river where the embankments begin—2 to 2½ miles above Srívaikuntam anicut—was about the same in both years. At Srívaikuntam anicut the level in rear was 1 foot and in front 2¼ feet above the 1877 level, the greater afflux being due to the building up of the bridge piers in 1888, and the raising of the anicut in 1894. From local enquiry it is ascertained that the breaches in the river banks above and at Srívaikuntam occurred about 9 P.M. on the 30th when the river had almost, if not quite ceased to rise. We have now for the first time the means of measuring the discharge in such a flood as on previous occasions; the banks were lower and must have given way above the anicut long before the floods reached their maximum levels.

4. It will be seen from the Executive Engineer's report that the first of the anicut systems which it will cost much to repair, is the Kannadien where the damage is estimated at Rs. 2,500. The repair of the Kodagan anicut system will cost Rupees 2,150, the Palayam system Rs. 5,000, the Tinnevelly system Rs. 2,500, the Marudur system Rs. 16,500. These figures are, of course, only rough approximations. There has not been time as yet to devise means of preventing the recurrence of breaches in similar floods in future. In some places as where the Koraiyar crosses the Kannadien, and the Pachiyar the Palayam channel, any works which would be adequate to prevent the channels silting would be extremely expensive.

5. Many of the tanks under the Marudur Melakal were saved by cutting the bunds in places where it will not cost much to repair them. It was especially fortunate that the two large terminal tanks were saved in this way. The Velur tank has been kept generally in fair order, but there were low places in the bund, and as the water rose a foot above the calculated maximum, breaches very nearly occurred. The Thenkarai tank is in bad order and had to be cut before water reached the estimated maximum. The tanks supplied by the Kilakal are believed to have been in good order and the heavy breaches in them are due to the breach in the river bund which also forms for some distance the bund of the Srívaikuntam tank. This bund carries a road from Srívaikuntam to the Kilakal channel and was nearly topped all along. The breach was due to the water going over the bund. The Chief Engineer for Irrigation ordered in his inspection notes of February 1881 that the bank should be made 4¾ feet above the F.L. of 1877, but his orders were evidently not carried out.

6. The Srívaikuntam anicut system has suffered severely, not so much on the south of the river where there was little harm done beyond silting some channels, as on the north where the water from the breached tanks and that from the river breaches both above and below Srívaikuntam flowed into and across the north Main channel. The breaches down to the 9th mile are not considerable. It is at Zeral that most of the damage was done. The Sub-division officer reports that it will cost Rs. 8,000 to close the breaches here. The right bank was much lower than it ought to have been, but in any case would have breached. Still, if Colonel Mullin's orders as to the level of the bund had been attended to, the breaches would have been further away from the low ground and less expensive to close.

7. The anicut has suffered very severely. It has three aprons,—the first of masonry 24 feet wide, the second of dry stone 33 feet wide with a retaining wall 3 feet wide, and the third of dry stone 12 or 15 feet wide. The second apron has been almost entirely thrown out for over half its length and about half of the remaining length is gone; the retaining wall is much damaged and in part destroyed altogether: and the third apron is also much disturbed. The second apron ought to have been built in mortar or at least grouted when the anicut was raised. It will be no use to rebuild it in dry stone now and the only course open is to build it in mortar. The cost of this and other repairs will come to about Rs. 20,000.

8. Works not belonging to the systems referred to above have also been much damaged, especially in the southern taluks. The following is a summary of the works:—

	Number of works.	Cost of closing breaches. RS.
Sankaranayinárkóyil taluk	3	230
Tenkási taluk	11	585
Ambásamudram taluk	23	8,780
Tinnevelly	4	720
Nánguneri	18	14,805
Total ...	59	25,120

9. The breach in the left branch of the river at Srívaikuntam taluk has been referred to above. The breach near the temple is also a formidable one and will cost a large sum to close. It is conjectured that it was caused by the eddy set up by a broken part of the old river wall. Every flood since 1869 has destroyed a part of this wall and scarcely any of it now remains above the level of the river berm. Earth for closing the breach would have to be carted for about half a mile and it is considered that it will probably prove cheaper to build a wall backed by a bank of sand or a river wall without a bank. Comparative estimates are being made. The breach further down near the anicut was apparently due to the eddy caused by a temple close to the bank. Below the anicut the breaches in the first four miles can only be accounted for by bad soil in the bund. At Zeral (9th mile) the breach was probably caused by erosion; that at Mukani (12th mile) is attributed to a leak. At Savaramangalam where the bund was made on the river side of the village, the current very nearly destroyed it and it was saved only by the exertions of the villagers. On the right bank the first breach is at Alwar Tinnevelly and was probably due to the combined scour and lowness of the bank where the people were in the habit of crossing it. The breach at Korangani was caused by the temple enclosure wall against which the bund abutted, having been undermined and thrown down. The upper of the two breaches at Sedukuvoithan was caused by the set of the river. This is the cross bank referred to in paragraph 13 of the Irrigation Chief Engineer's note printed with G.O. No. 119 I., dated 5th March 1889. The bank was much exposed to the current, and probably the palmyra trees which had never been cleared from the site must have helped to make the breach. The water from this passed partly into the village and partly ran along the rear of the bund eroding it, and no doubt weakening it, so that there was the less chance of the bund standing when the next breach took place. It is quite useless to make up the bund again in this place with only inferior soil available and right on the margin of the river. The bund must be retired if only 100 or 200 feet. The villagers should not make any strong objection to this, as there are only a few houses and these in ruins. The necessary survey will

be made at once. The bund at Attur has slipped badly and must have given way if the large breaches higher up the river had not prevented the water rising above a level 2 feet below that of 1880. It was hoped that the retirement of the bund at Mukani would save the bund here, but the hope is vain. The bank must be retired as far as possible. It cannot be protected as there is deep water at the foot of it.

10. The old left flood bank in the first 7½ miles below the anicut has been nearly all destroyed. There were between this and the new flood bank five villages with a population of 3,150 occupying 994 thatched and 34 brick houses. The thatched houses which the Tahsildar values at Rs. 59,920 were all destroyed and the others valued at Rs. 23,200 injured. There are also six temples and one mosque. The claim of these people to compensation has been dealt with in the note printed with G.O. No. 119 I., dated 5th March 1889. They are apparently not legally entitled to any for the property lost, but have some moral claim to assistance. I would suggest that new village sites be given them north of the channel.

11. A special report on the river embankments will be submitted as soon as the levels have been taken.

To the Superintending Engineer, VI Circle, dated 25th March 1896, No. 17 T.N.

From W. HUGHES, Esq., Superintending Engineer, VI Circle, to the Chief Engineer for Irrigation, dated Trichinopoly, 30th March 1896, No. 358 T.N.

With reference to your No. VI/17 T.N., dated 25th instant, I have the honour to state that, as all the subordinates are at present busy repairing damages, &c., I do not expect to be able to make a full report on the sufficiency of the river banks for some time. Meantime, kindly give any instructions you consider necessary regarding the apron of the Srívaikuntam anicut. The estimate has been returned to the Executive Engineer for some revision and there is probably some delay due to difficulty in ascertaining the quantity of old stone available. I have however given orders to arrange for the construction of the apron in mortar.

No. 82 I.

Submitted to Government for information. The question of the alignment of the Támbraparni flood banks cannot be satisfactorily disposed of until the receipt from the Superintending Engineer of the further report and survey. Instructions have been given to the Superintending Engineer, VI Circle, for the repair of the anicut apron on the lines indicated by him in this report which approve themselves to the undersigned.

(Signed) R. R. E. DRAKE-BROCKMAN, Col., R.E.,
9th April 1896. Chief Engineer for Irrigation.

ORDER—No. 383 I., dated 28th April 1896.

Recorded.

2. The further report and survey promised by the Superintending Engineer are awaited.

(True Extract.)

Under Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, VI Circle.
„ Chief Engineer for Irrigation.
„ Examiner, Public Works Accounts.
„ Revenue Department.

Exd. T. K. Narayana Aiyangar.
Spare Copies

IRRIGATION.

Govt. of {1896} Madras.

PUBLIC WORKS.

Dated April, 28th.

Recd. *Encl.*

G.O. No. 383 I., 28th April 1896.

APRIL.

Floods

Note by the Chief Engineer for Irrigation on report from the Superintending Engineer, VI Circle, on the — which occurred in Tinnevelly division in December last, recorded with remark.

No. 383 I, d/ 28-April 1896.

PUBLIC WORKS DEPARTMENT,
IRRIGATION BRANCH.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the

READ the following

Print From the Supg:Engr:Sixth circle-----(H.E.NO:274.T.N.~~dated~~ 13-3-1896)

Quote 7p To---------DO---------------------------(H.E.NO: 17.T.N.dated 25-3-1896)

Print From------DO---------------------------(H.E.NO:358.T.N.dated 30-3-1896)

No 82 I d/ 9 April 1896

Submitted to Government for information. The question of the alignment of the Tambrapurni flood banks cannot be satisfactorily disposed of until the receipt from the Supg:Engineer of the further report and survey. Instructions have been given to the Supg:Engineer, Sixth circle for the repair of the anicut apron on the lines indicated by him in this report which approve themselves to the undersigned.

Order thereon:-

Recorded.

2. The further report and survey promised by the Superintending Engineer are awaited.

9/4

copies for sanction issued 23/5/96

A.G.H
22.4.96

To

The Supg:Engineer, Sixth circle.
: Chief Engr:for Irrigation.
: Examiner of P.W.Accounts.
: Revenue Department.

DESPATCHED
7 MAY 96

2329. 12. 3. 94
7139. 17. 8. 93
1109. 5. 3. 89
1473 16. 3. 87

P. W. CURRENT No. 3556

~~H. E. the Govr~~

Encls 8

Ans: 10.4.96

Flood damages in the Tinnevelly District during December 1895

Issue.
27/4

O.S.1d.

F. I. Form No 1—1,000—27-11-95.

Appendix to G O No 3839I 28-4-69

No. 802

Tinnevelly Division Office
Palamcottah 28th February 1896

From,
G. B. Lambert Esqre.
Executive Engineer

To.
The Superintending Engineer
Sixth Circle.

Enclosures.
4. Statements

Sir.

I have the honor to submit herewith the following report on the damage done to irrigation works by the flood of the 30th & 31st December 1895.

[illegible] I. Upper Tambraparni Channel

General. 1. The flood levels at the anicut across the Tambraparni River in Ambasamudram Talug, viz, Nathiyunni, Kannadian and Kodagan, are lower than the Flood level of 1877 the highest recorded. At Kannadian Head Sluice the water rose to 0.8 ft. below Flood level of 1877 and on the muntapum near the river at Shermadevi to 0.68 ft. below

Flood level of 1877. In Tinnevelly Taluq the water at Palaiam Channel Head Sluice was 17.50 ft. above the sill or 0.16 ft. below the Flood level of 1877; at Tinnevelly Channel Head Sluice the reading was
232
713 17.30 ft. or 0.79 ft. above the
119 Flood level of 1877.
147

The flood rose to ~~[illegible]~~ 26.45 ft.* at the Tinnevelly bridge, overtopped the road near Tinnevelly railway station and did much damage to buildings.

2. The rainfall on the Hills at Mundandorai in Ambasamudram Taluq for the week ending 31st. December 1895 was 36.5* inches.

The rainfall on the 29th., 30th. & 31st. December 1895 was as follows:—

Ambasamudram 8.00 inches
Shermadevi — 10.06 inches
Palamcottah — 10.86 inches

whilst on the 30th. December alone the following was registered

Ambasamudram 3.75 inches
Shermadevi — 7.80 inches
Palamcottah — 7.17 inches

3. Orders were issued to mark with tar the Flood level of December 1895 on all important Masonry works, and the values are being connected with the M. S. L.

4. Immediate arrangements were made to put ring bunds in front of breaches and water was passed down as soon as possible to Channels and tanks to save the standing crops.

5. With the Exception of the cultivation near the breaches, which has been damaged, all the rest appears to be in good condition.

6. As far as is known all head Sluices were closed as soon as rains set in, and surplus weirs and scouring Sluices opened as far as possible, but the flood rose

---

* There was 6 inches water on the floor of the Verandah of the Judges' Bungalow.
In 1877 the water rose to 27.07 ft.

* Obtained from Forest Department.

so suddenly, and the cross drainage was so heavy that no measures could have been taken to lessen the damage done. Only one tank breach * was reported under Tambraparni Channels in Tinnevelly Taluq; Cost of
23 closing breach about Rs. 30.
71
114
14

* Pottaikulam.

S.C. Crp Centr

North and South Kodamelalagian Channels.

7. The temporary palmyra and brushwood anicut for the supply of this Channel was as usual washed away, and breaches have occurred at sites of Sluices temporary and masonry and opposite hill streams. The latter Sluices do not fit the bank properly, and consequently the bank over them is weak and easily gets breached.

8. The tanks under the Channels are safe.

9. The Cost of repairing the damage is about Rs. 300 and the damage to Standing Crops is estimated at Rs. 100.

S. Crp Centr

Nathyunni anicut and Channel.

10. The rear apron of the anicut has been damaged in two places. The flood bank on left of head Sluice has been eroded to a length of 50 ft and should be revetted.

11. The channel has breached in 10 places at the sites of temporary Sluices.

12. The cost of repairing the damage is about Rs. 500.

Sr Crp Centr

Kannadian Anicut and Channel.

13. The coping stones of the anicut have been removed in five places to a length of 25 ft., and the rough stone apron at the west end has been damaged, as well as the floor and walls of the water cushion at the eastern portion.

14. The head Sluice was closed, but, owing to hill streams crossing the channel, the water overflowed and breached the left bank in several places in the 1st. and 2d. Miles.

As usual the Channel opposite to Koraiyar weir and below has been silted up to a length of 700 ft. and depth of 3 ft.

wings of Surplus escapes have been slightly damaged.

15. The cost of repairing the damage will be about Rs 2500 and the damage to standing crops is estimated at Rs 200.

Kodagan Channel and Ariyanayagipuram anicut

16. [Short lengths of cut stone have been removed from the crest of the anicut. There are two breaches in flood bank of a total length of 600 ft. and with a depth from 3 to 10 ft.

17. There were 34 breaches in the Channel with depths varying from 2 to 10 ft. and three of the masonry sluices (Nos. 4, 10 and 19) have been destroyed.

18. The approximate cost of repairing the damage is estimated at Rs 2150. The Channel was opened on the 11th January.

Palaiam Channel
Palavoor anicut

19. [The apron of the anicut has been damaged slightly, otherwise the anicut is in good order.

20. The right flood bank above the Head Sluice was breached by cross drainage for a length of 208 ft. and to a depth of 7 ft. Between the Head Sluice and Tharuvai the right flood bank of the river or left bank of the channel was breached in five places as follows:—

Above Suttamalli anicut in two places for a total length of 202 ft. and average depth of 9½ ft.; opposite Suttamalli anicut for a length of 190 ft. and depth of 8 ft.

Between Suttamalli anicut and Tharuvai in two places for a total length of 507 ft. and average depth of 11½ ft.

The bank is much eroded and half washed way on the river side for 200 ft. above Suttamalli anicut.

21. The Channel is much silted at mouth of inlet from Omanallur tank. Below this a large bank of silt has been deposited in the

Channel (220 ft. × 70 ft. × 3½') This has been carried into the channel from some waste land, which certain ryots, unauthorized have converted by lowering into Nanjah, and by bunding the Omanallur Surplus Channel have diverted the water to it. This water, unable to find a free vent, covered the land, until the channel bank was breached and an enormous quantity of silt was carried into the channel, completely blocking it. The matter has been brought to the notice of the Collector.

22. At Tharuvai where the Pachyar crosses the channel much damage has been done. 100 ft. in length of the 12 ft. retaining wall in extension of left wing of the Anjumathagu surplus weirs with bund in rear, and the lascar's shed have been washed away. The bund 340 ft. in length and 7 ft. in height between the two surplus weirs has been carried away. 2185 ft. of channel has been silted up to an average depth of 5 ft.

23. Below the weirs the channel on river side was much eroded for a length of 1000 ft.

Below Puthumathagoo bank is breached for 180 ft. in length and 10 ft. depth and at Vadamalaiyappa Pillai Surplus weir for 200 ft. in length and depth of 10 ft., 80 ft. in length of the 12 ft. wall being washed away. At Araikolam and Paujamgam Iyer Odais the channel is silted up for a length of 510 ft. and average breadth and depth of 37 ft. and 2 ft. respectively. Besides the breaches in the flood bank above Tharuvai, the channel has breached in 22 places.

24. The Melapoliam Surplus weir has been carried away, only the wing walls remain. It was an old work and appears to have been built on soft rock, which gave way during the heavy flood.

25. The silt near Thaduvai was cleared very expeditiously and work was carried out by torch light on the night of the 10th. Water was let down on the evening of the 11th January.

The question of constructing a head sluice a little below the Anjumathagu surplus weir to be closed in time of flood should it is thought, be considered.

26. The cost of repairing the damage is estimated at Rs. 5000, and the damage to standing crops will be about Rs 3000.

Tinnevelly Channel and Suttamalli anicut

27. 8.80 ft. of water passed over the anicut.

The Cutstone on the crest has been washed away for a length of 120 ft., and the rear aprons of the left portions have been much displaced.

28. There were three breaches in the flood bank to a total length of 600 ft. with depths varying from 4 ft. to 13½ ft. The largest one 205 ft. in length and 13½ in depth occurred near the left wing of the anicut and between it and the head sluice.

29. The old crack in the wing wall of the Head Sluice has opened about 2 inches at top.

There were 23 breaches in the Channel.

30. The approximate cost of repairing the damage is estimated at Rs. 2500.

The Channel was opened and water let down on the 11th January.

II. Marndur Anicut System) S. Capt

S. Capt

Marndur Anicut

1. The maximum depths of water gauged on 30th December 1895 were as follows:-

Melakal Head Sluice
Front - 14.80 ft. Rear - 10.10 ft

Kilakal Head Sluice
Front - 16.50 ft. - Rear - 13.20 ft

2. The length of the anicut wall is 4100 ft. of varied levels or heights. The wall* on the Melakal side is 11.40 ft. above the floor of the Melakal Head Sluice, and on the Kilakal side 8.55 ft above the floor of the Kilakal Head Sluice. 3.40 ft and 7.95 ft. therefore passed over the anicut on the Melakal and Kilakal sides respectively. The M.F.Ls. of 1877 were as recorded in this office 15.73 & 17.30 in front of Melakal and Kilakal Head Sluices respectively.

The rear wing of the anicut on the Melakal side was topped.

* Mean level of anicut crest 77.42.
Sill of Melakal Head Sluice 67.92.
Do. Kilakal Do. 68.60.

3. Seven upright stones of Muttappa Escape were washed away, and others were twisted on their base; the South East wing of the Escape, being undermined, has cracked. The front cut stone beams of No. 1, 5 and 6 Sand Vents were displaced.

4. Many of the boulders in rear of the anicut wall are washed away and almost all the vanal and Korai grass in the river bed below the anicut has been either carried away or is covered over with silt.

5. The Head Sluices were closed during the flood, and the two Sand Vents near the Melakal Head Sluice, having screw gearing shutters, were fully opened.

6. There appears to be much silt in front of the anicut wall, which is being slowly drawn through the scouring sluices.

7. In addition to the river flood the rain fall was abnormally heavy being 7.65 inches on the 30th December 1895.

8. Water was passed for irrigation in the Melakal on the 6th January and in the Kilakal on the 12th idem.

9. Opposite all breaches, the fields for a length of 200 ft. or 300 ft. were silted up to a depth of 1 ft. to 1½ ft., and some fields were scoured out.

9a. The cost of repairing the damage is estimated as follows:-

Melakal including channels and tanks	Rs —	2500
Kilakal Do. —	Do Rs —	14000
Total	Rs —	16500

Melakal Channel) S. Cup Centre

10. The Tambraparni river water mark is visible up to the left bank of the Channel and in some places, especially in the 2nd mile, the mark is almost to the top of the bank. Almost all the fields

bordering

bordering the river from the head to Adichanullur hill, a distance of 10 miles, were under water and silted to some extent. The river water mark is visible in rear of Pottakulam of Karunkulam, and the depth of water on the road between Thuthukudi tank and Adichanullur hill varies from 3 to 8 feet.

11. The rear parapet of Sluice No. 1 has fallen down and the water rose to 2 ft. on the crest of Musani escape.

12. The left bank is breached from the 23rd Sluice in 8th mile downwards where the bank was overtopped by the flood. The ryots and lascars put earth and branches of trees in several places and prevented the bank from breaching thus saving Kollivoikulam and Nattarkulam tanks.

13. The Thuthukudi escape passed, in addition to the water

through

	through its sand vents, a depth of 3.68 ft. over its body wall, which is 2 ft. in excess of that passed over in 1877. Sluice No. 23 is entirely destroyed.
Mulkkavar Channel.	14. Small cuts were made in the banks to save the tanks under the Channel. There are seven breaches in the left bank between 7th & 12th mile stones, caused by water over-topping the bund.
Seidunganullurkulam.	15. The tank received the flood through the breaches in the left bank of the Melakal Channel opposite to the tank and breached in five places, owing to the escape being inadequate to pass this unforeseen discharge.
Thuthukudi tank	16. This tank breached in six places owing to the left bank of the Melakal Channel breaching opposite to the tank.
Karunkulam Krishnenkulam.	17. One breach cut near the hill to save the tank.
Karunkulam Periyakulam.	18. The tank received the flood discharge through the breach in the left bank of the Melakal Channel near the Supply Sluice. The ryots cut one breach to save the tank.
Karunkulam Pottaikulam.	19. This tank also received flood discharge through the breach in 12th mile of Melakal channel, and the ryots cut two breaches near the hill to save the tank
Kolvoi Branch Channel.	20. Owing to the extraordinary drainage entering the channel in addition to the extra quantity passing into it from the Melakal Channel, the left bank was breached in 4 places. The Channel has no head sluice.
Niarkulam	21. Supplied by the Kolvoi branch channel. This tank is breached in two places, and several scour holes formed where water overtopped the bund.

Vellur tank

22. One breach was cut by the ryots under the orders of the Superintendent to save the tank as it was in danger. [*][×] 3.80 ft. of water passed over the 300 ft. Escape near Adichanullur hill, 1.40 ft. over the 2nd Escape of 37 ft., and 1.40 ft. over the 200 ft. at the South East End. The Sluices to Zenkarai tank were fully opened at 5.30 A.M. on the 30th December 1895.

[×] Or 0.05 ft. in excess of M.F.L.

[*] Erroneously measured. The flood level as shown by marks on the bund was a foot higher than this. The flood level on the river side of the road bridge was 4 ft. above the tank weir.

Sd. W. Hughes
Supy Engineer.

Zenkarai tank

23. One breach was cut by the ryots under orders of the Superintendent to save the tank. [*] 1.90 ft. passed over the 90 ft. Escape with 10 sand vents opened. The Escape to Nachikulam was opened.

[*] Or 0.10 ft. less than the M.F.L.

Nachikulam

24. One breach caused by the water overtopping the bund other breaches prevented by ryots placing earth and branches over bund here and there. 1.40 ft. passed over 30 feet Escape.

Kilaputhukulam

25. Breached in five places. The soil being inferior the ryots were not able to save the tank.

Modalaimoolikulam

26. Four small breaches. The ryots opened the ends of the bund and passed away much of the flood.

Thamangolam.

27. One long breach where the water overtopped the bund. The ryots prevented other breaches by putting earth and brushwood on the bund here & there.

28. A Statement of breaches is enclosed.

Kilakal Channel [illegible]

Kilakal Channel.

29. The flood of the river passed over its left bank or margin above the Marudur anicut and entered the Kilakal Channel breaching it in several places, in addition to which owing to the abnormally heavy rain fall two rain fed Imperial tanks (Kaliavur Periakulam and Rajankulam) above the Kilakal Channel breached and their flood water entered the channel. The Channel banks were breached and eroded in

25 places and the rear wing of Sluice No. 7 has fallen down.

Srivaikuntham Periykulam tank.

30.) Owing to a large breach in the left flood bank above Srivaikuntham Anicut, which forms a portion of the bund of the tank and which carries a Local Fund Road, this tank has breached in four places and Sluice No. 7 with the exception of its front head, has been washed away. *5 ft. depth of water passed over the Surplus Escapes or $2\frac{1}{2}$ ft in Excess of the M. F. L.

* water to the depth of 0.50 ft. passed over the bund.

Perur tank

31. This tank breached in ten places owing to the Extraordinary Surplus passing from the Srivaikuntham surplus Escape and to the abnormal rainfall. $3\frac{1}{2}$ ft. depth of water passed over Surplus Escape or 1.84 ft. in Excess of the M. F. L. The rear wings of Sluice No. 3 are badly cracked and Sluice No. 5 has been washed away Except its front head.

Sevalai tank

32.) This tank breached at the Local Fund Road ramp near the Escape owing to the Extraordinary surplus from Perur tank and to the abnormal rainfall.

Flood bank & Local Fund road along the Surplus Channel from Sevalai tank to Perungolam tank.

33.) The ramp, road and flood bank were breached in places for a total length of 700 ft and average depth of 5 ft. owing to the water of the Sevalai tank overtopping the bund at the Local Fund road ramp and owing to the Extraordinary discharge from the Sevalai Escape.

34. The flood passed over the fields and Local Fund road through the Sevalai village into the fields below Perunkulam tank and thus saved the latter tank.

Perungolam tank.

35.) The ryots made a cut in the north end 25 ft. long and 7 ft. deep to pass the abnormal rainfall and save the tank.

Perungolam Escape channel.

36. This channel breached in 4 places

Issangankulam tank.

37. This tank receives the drainage from the Vallanad hills but owing to the abnormal rainfall the tank was in danger and the ryots under the orders of the Superintendent made a cut 60 ft. in length and 3 ft. in depth at the north end, thus saving the tank.

Kylasaperi tank.

38. This tank receives the surplus of Issangankulam tank, and breached in four places.

39. A Statement of breaches is herein enclosed.

40. The following two rain fed tanks are referred to as having breached and damaged the Kilakal Channel.

Kaleavur Periakulam.

41. This tank breached in several places, water over-topping the bund.

Rajankulam tank.

42. This tank bund was also overtopped by the water and breached in six places for a total length of 630 ft. and to an average depth of

3½ ft.

3½ ft. The cross bund 460 ft. long and 3 ft. deep was washed away.

III. Srivaikuntham Anicut System.

Srivaikuntham Anicut.

1. The maximum depths of water gauged were as follows:—

	Front Feet		Rear Feet
North Main Channel Head Sluice	20.00	–	14.50
South Main Channel Head Sluice	20.00	–	11.50

The gauge readings in front of the anicut were as follows

	6 A.M.	12 Noon.	4 P.M.	6 P.M.	8 P.M.
29th December 1895 –	0.70	0.70	"	0.75	"
30th — Do. —	13.40	17.20	18.30	19.75	20.00
31st — Do. —	16.00	17.20	"	17.80	"
1st January 1896 —	15.35	14.00	"	12.30	"
2d — Do. —	10.70	10.50			

1(a) The readings in rear of the anicut were as follows:—

	6 A.M.	12 Noon.	4 P.M.	6 P.M.	8 P.M.
30th December 1895 –	10.30	15.30	17.00	18.30	18.50
31st — Do. —	14.00	15.30	–	16.00	

1.(b) The following shows the flood levels of 1895 compared with those of 1877 and 1880

Tinnevelly

	1877 M.S.L	1880 M.S.L	1895 M.S.L	Remarks
Tinnevelly bridge over Tambraparni	121.20	113.13	121.13	
Bridge near Gengaikondan over Chettar	131.31	128.81	124.68	
Srivaikuntham Anicut above	49.15	47.82	51.40	crest 39.40 M.S.L.
below	48.94	47.57	49.90	
Afflux	0.21	0.25	1.50	

1.(C) The bottom of the bridge girders is 23.55 feet above floor of South Main Channel Head Sluice or was 3.55 ft above flood level.

2. The water began to pass over the anicut at 2 A.M. on the 30th, and at about 8 P.M. or so the flood bank above the anicut was breached. Water rose to the string course of the bridge over the South Main Channel Head Sluice and to 2.25 ft. over the highest recorded flood level of 1877,× or to 12 feet over the present raised crest of the anicut.

3. The rainfall at Puthukudy on the 29th, 30th and 31st December 1895 amounted to 11.38 inches, 7.65 inches being registered on the 30th.

4. The Head Sluices were fully closed at 4 P.M. on the 30th December 1895. The South Main Channel was opened again on the 24th January, and the North Main Channel on the 9th February.

5. The rear apron of the anicut and a portion of the retaining wall are much damaged. The Concrete wall on the Anicut has stood well except some of the Surkhi plastering and a little of the Concrete has been washed away; the portion plastered with Portland Cement has sustained no damage. The damage to the anicut is estimated at Rs 15,300.

5(a) The cost of repairing the damage is estimated as follows:—

North Main Channel & tanks	Rs. – 18000
South – Do. Do. — " –	7500
Right flood bank below Srivaikuntham anicut –	13000

Left–

× This was before the piers of the bridge were raised to their present height or the crest raised 2 ft.

Left flood banks above and below Sriwaikuntham Anicut ——— Rs. 25000

6. There appears to be no damage done to the Head Sluices, except to some of the bearing beams, which appear twisted, being old and rotten at the ends. An Estimate is under preparation for providing new beams where necessary.

7. Tar Marks have been ordered to be put on all important masonry works to show the flood level.

8. The damage to crops is chiefly opposite breaches, where in some places the crops were rooted out and carried away, and in others were silted over with sand to a depth of about one foot.

9. There was no postal or telegraphic communication whilst the floods lasted.

10. The Sub Division Officer brings to notice the good work done by the Melakal and Kilakal Channel Superintendents who minimised the danger as much as possible. The South Main Channel Superintendent seems also to have done well, but the same cannot be said of the North Main Channel Superintendent who was very slow in reporting the damage done; if he had shown a little more energy and promptitude, it is probable the channel would have been opened at an earlier date. The Pongal festival in the middle of January helped to retard the progress of the work.

~~S. Chr.~~ Flood Banks [illegible]

11. The flood banks above the anicut were raised to 4¾ ft. above M. F. L. of 1877 except for half a mile above the anicut where they were raised to 5½ ft. Below the anicut the flood banks were raised to 5 ft. above the M. F. L. of 1880.

Right flood bank above Sriwaikuntham Anicut.

11 a. No particular damage was done, except slight erosion here and there especially where a

tree or masonry wall obstructed the free flow of water.

Left flood bank above Srivaikuntham anicut

12. The water rose to about $2\frac{1}{2}$ ft. from the top of the bank. Owing to this extraordinary flood and abnormal rainfall, and the inferior nature of the soil, the bank melted and breached in the following places.

	Length ft.	Average depth ft.
Rear of Munsiff's Court House —	310	15
Higher up half of the bank for a length of 40 ft. washed away.		
Higher up another breach as far as the Srivaikuntham temple —	1280	15
Higher up more than $\frac{1}{2}$ a mile above the anicut at the site of the old Head Sluice to Srivaikuntham Periakulam tank —	550	15

The bank at this last breach carries a Local Fund road, and forms the southern portion of bund of Srivaikuntham Periakulam tank; it is scoured out to 8 ft. below ground level.

13. The old river wall at the temple and below it is very much damaged and but for its existence it is probable that a large portion of the town of Srivaikuntham would have been washed away. The river sets on this side, and groynes might be constructed higher up to turn the current into its proper course over the anicut. In any case the river wall will have to be rebuilt or an expensive revetment provided.

14. The compound walls of the Munsiff's Court and Tahsildars' Kutchery have fallen down; about 4 ft. of water was on the floor of the former, and $1\frac{1}{2}$ ft. on that of the latter. About 2 ft. water was in the hospital and much of the property of the Apothecary was washed away, some of his boxes, and those belonging to the Kutchery were found at Erell and Mangalacurichi. A large number of the mud houses in the vicinity of the Munsiff's Court & Kutchery have fallen down.

Right flood bank below Srivaikuntham anicut

15. The bank has breached in four places as follows:—

(1)

(I) Just above Alwartirunagari for a length of 400 ft. owing to the contraction of the river.

(II) At Karungany temple for a length of 250 ft. owing to the heading up and twisting of the water at the temple walls.

The temple walls and the temple itself have fallen down.

(III) & (IV). Near Sethukuvaitham village for lengths of 840 ft. and 810 ft. The village is on the river margin, and between the river and the bank*. The breaches may have been caused by the villagers to save their lives.

The bank below the village has slipped for 400 ft, and a further slip of 900 ft. has taken place at Authur.

16. The flood does not appear to have risen very high below Kurangany breach owing probably to the several breaches above, the water finding its way elsewhere and not back to the river.

New left flood bank below Srivaikuntham Anicut.

17. This bank, as far as Mangalacurichi forms also the right bank of the North Main Channel, was breached in five places owing to the inferior nature of the soil.

	Length ft.	Average depth ft.
1st Mile Paracheri Valai	280.	16
3rd Mile Kalangudi limits	510.	16
4th Mile Valen Pacheri	800.	15
9th Mile Eral limits	550	12
13th Mile Mukkani limits	550	16

18. At Appencoil and Sivaramangalam the villagers had protected the bank with spikes and brushwood to save their villages. Here the bank is turned round the village to protect it, and the waterway of the river is much contracted.

Old left flood bank below Srivaikuntham anicut.

19. The revetment of the bank was sanctioned in G. O. No. 399 I dated 20th May 1882 and Government in Order No. 1108 I dated 8th December 1884 directed that "as a special case the old flood bank shall be maintained to its former section" that is to about the flood level of 1880.

20. The flood of December overtopped the bank, and washed it away to a very large extent from its head to its end a distance of 7½ miles*. The villagers between the

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* This is a mistake. It was intended to take the bund South of the village and a portion of it was actually made but the opposition of the villagers prevailed and the bank was made up between the village and the river.

(Sd) W. Hughes
Supg. Engineer

* or just above Eral

(i) Just above Alwartirunagari for a length of 400 ft. owing to the contraction of the river.

(ii) At Kurungany temple for a length of 250 ft. owing to the heading up and twisting of the water at the temple walls.
The temple walls and the temple itself have fallen down.

(iii) & (iv). Near Sethukuvaitham village for lengths of 840 ft. and 810 ft. The village is on the river margin, and between the river and the bank*. The breaches may have been caused by the villagers to save their lives.
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4th Mile Valen Pacheri	800.	15
9th Mile Eral limits	550	12
13th Mile Mukkani limits	550	16

18. At Appencoil and Siwaramangalam the villagers had protected the bank with spikes and brushwood to save their villages. Here the bank is turned round the village to protect it, and the waterway of the river is much contracted.

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* This is a mistake. It was intended to take the bund South of the village and a portion of it was actually made but the opposition of the villagers prevailed and the bank was made up between the village and the river.

(Sd) W. Hughes
Supg. Engineer

* or just above Eral

the old and new banks were under water and all the mud houses have fallen down. Some 10 lives were reported lost and much property was carried to the sea; with great difficulty the remainder saved their lives. It will be very costly to make this bank up again and special orders are necessary.

20-a. The following shows the flood level of 1880 compared with levels of top of old left flood bank below the anicut.

	Flood Level of 1880	Top of bank
At anicut		
1st Mile	46·16	47·94
2d Do	43·82	43·53
3d Do	41·52	42·14
4th Do	40·55	39·51
5th Do	37·87	36·79
6th Do	35·63	33·36
7th Do	32·59	31·04
8th Do	30·44	29·62

Cause of breaches in flood banks

20-b. The causes for the breaches in the flood banks are as follows:

Right flood bank below the anicut.

Breach above Alwarthirunagari was caused by the contracted

contracted waterway of the river and the diversion of the current by the obstruction of a temple in the Padugai. This temple is now in ruins.

Left flood bank below the anicut.

Breaches Nos 1 & 2 have occurred at the sites of former breaches in 1877. Breach No 3 was caused by the soil below the bank settling (owing to water standing on both sides of the bank) the bank cracking and slipping away. This appears to have been the case as the spoil simply deposited itself in the North Main Channel not far below the breach.

Breach No 4 at Eral was caused by the diversion of the current by the obstruction of the old Eral and Korkai Head Sluice (still standing) the current was turned to where the flood bank crosses the old Eral and Korkai Supply Channel and breached it.

Breach No 5 near Mukkani

was caused owing to the inferior nature of the soil of the bank

21. Pegs have been placed on flood banks at every half mile to show the high flood level and a statement of comparative high flood levels will be prepared as early as possible.

North Main Channel

S: Cap. Centr

General

22. Owing to the breaches in the left flood bank above the Srivaikuntham anicut the flood entered the channel some 400 ft. below the head sluice, and for 2000 ft. silted it up to a depth of 3 ft. whilst in two portions of this for lengths of 230 ft. and 110 ft. the silt is up to the top of reachment, and in a third portion for 120 ft. the silt is 5 ft. deep. In the 4th Mile the channel for a length of 270 ft. has silted up above the original ground owing to a breach in the left flood bank.

23. Levels have been taken up to 5½ Miles. The former low bed of the channel has now silted up, but not above normal bed level, and with the exception

of

~~19~~ SP 18

of clearing a few shoals and at the 4th Mile, where the channel has silted up, no work appears to be necessary.

24. The largest breaches are at Eral near Korkai Head Sluice. Here the water rose to 2½ ft. over the rough stone bywash and overtopped the banks of the channel. For a length of 230 ft. the channel has been scoured to 12 ft. below normal bed level and some bags here had to be used to close the breach.

25. The Eral syphon was entirely submerged on both sides, and there was 2.5 ft. over front and 0.10 ft. over rear parapet walls.

Arumugamangalam Head Sluice, tank & Escape.

Hd. Cctr

26. The Head Sluice and tank escape were fully opened. 2.60 ft. of water passed over the Escape. The tank bund which carries a road breached at South west end near the head sluice for a length of 900 ft., and 500 ft. below this for a length of about 420 ft. and to a depth

of 16 ft. below the top of the road.

27. The bund should be re-aligned and straightened, as it is it is full of angles, which prevent the water freely entering the tank and causes breaches.

28. As soon as the floods subsided the ryots very sensibly threw a bund across the tank just below the 2nd breach and stored a month's supply of water in their tank.

29. Sluice No. 1 is under-mined and damaged very much and will have to be reconstructed.

Eral outlet

30. The outlet was fully opened, and no damage occurred to Peikulam, Pottaikulam and Korampallam tanks.

Perungolam tank Escape channel

31. The channel which enters the North Main Channel at Eral was not in flood, but owing to the flood water from breaches in Spi-vaikuntham, Sevalai & Perur tanks, the flood bank below the bridge and about a furlong above the bywash was breached.

Iyenarcovil Sluice in 9th Mile of North Main Channel.

32. Spout head damaged and fallen down.

Korkai channel

33. Owing to the water over-topping the banks, the channel was breached in several places.

Korkai tank

34. The channel enters the tank through a culvert under the Local Fund road. The road acted as a flood bank and saved the tank, the water being passed round both ends of the tank bund.

Chittar flood bank.

35. This is a bank taken off from the Arumugamangalam tank bund at 400 ft. below Sluice No. 1. It runs east for a length of about a mile and a half up to Valavallam, then for about half a mile there is no bank, and then it is continued up to Maramangalam.

36. This bank appears to have been formed on the left

bank of an old stream called the Chittar to prevent the flood submerging the fields of Arumugamangalam, Kottasakurchi and Valavallam; it does not appear in the Component list of works, nor in the Sketch Map. It is doubtful whether this bank is to be maintained by this Department, as the bed of the Chittar has been converted to Nanjah. Owing to the breaches in the North Main Channel and Arumugamangalam tank, this bank has breached in 17 places. There are a few culverts or sluices in the bank to pass field drainage. The bank is principally formed of sand, and in some places has a top width of 12 ft.

37. 2.6 ft. of water over the escape in this bank, the maximum depth being 1½ ft.

S. Cap. Centr

Arumugamangalam Surplus Channel flood bank

38. This bank was breached in 27 places. It is evident that

that the old Valavetty Calingulah is insufficient, and that the surplus channel needs investigation for necessary improvements. About 700 ft. below the Arumugamangalam escape for a length of about a furlong it is only about 40 ft. wide, but above and below the width is from 200 to 300 ft.

Palayacoil tank.

39. This tank receives a part of the Arumugamangalam tank surplus, but the banks being low were over topped and breached in 17 places.

Peikulam tank

40. Water over topped the bank in several places, but was prevented from breaching by the ryots putting earth and brushwood over the low places and opening in time the double dam in the North Main Channel. As soon as the flood subsided, the ryots erected a dam in the North Main Channel at Palayacoil bridge thus storing a good supply in their tank.

41. A statement of breaches is herewith enclosed.

South

South Main Channel

General

42. At Alwartirunagare the right flood bank below Sriwaikuntham aneent breached and the flood entered the Channel from the north and from the South part of the surplus discharge from the Vellur and Tenkarai tanks met the flood of the river and passed down the Channel, heading up as far as the head Sluice.

43. The channel was silted almost to the top of the berm for a length of 6000 ft. which will cost about Rs 2500 to remove. The Channel was also silted at the head and end. There are in addition 9 small breaches in the left bank and three in the right.

44. Authur Channel Head Sluice was raised to pass 3 ft. water, and the Shutters of Kadambah Head Sluice were opened to pass some of the surplus. The greatest depth of water on Kadambah Head Sluice floor was 8 ft. on the 30th December 1895.

Authur Channel

45. Has been silted for about a mile, which will cost about Rs 1000 to remove. There are several× breaches in both banks of the Channel below the regulator caused by the river water entering it by a breach in the South Flood bank at Karangany; when this breach occurred the Head Sluice was closed. A Sluice in the left bank below Seithukuvoitan surplus weir is washed away owing to the Seithukuvoitan tank breaching.

× a few only are low level (12 ft. deep)

Seithukuvoitan channel and tank.

46. On account of the breach in the right flood bank at Karangani the channel is so silted up that it is difficult to trace where it was. The flood passing down the Channel and over the country, entered the tank, breached it in several places and passed into the Authur Channel. This is Davastanam tank

and is not to be repaired by Government.

Kadambah tank

47. 2.8 ft passed over the Escape and a portion down the old drain at the South East end. The tank appearing to be in danger the ryots and lascars opened one cut near the surplus weir and another at the west end thus saving the tank. The surplus over-topped the flood banks of the drainage Channel and entered the Sugathalai tank breaching it in four places.

Poriyur Head Sluice

48. This Sluice in the Kadambah tank supplies 11 tanks. It was so well regulated that with the exception of two small breaches, which will cost about Rs. 50 to close, there was no damage to the Channel and tanks below. There was 7.3 ft. in front of Head Sluice or 1.80 ft. above M.F.L.

IV

IV Imperial Irrigation Works accounts not kept.

General

1. The amount of rain fall registered on the 29th, 30th and 31st December was as follows:-

	29th	30th	31st	Total
Palamcottah	0.37	7.17	3.32	10.86 inches
Sankaranainarkoil	0.71	3.02	1.80	5.53 inches
Tenkasi	0.61	4.59	2.74	7.94 inches
Ambasamudram	1.00	3.75	3.25	8.00 inches
Nanguneri	0.85	7.44	4.70	12.99 inches
Srivilliputur	on 30th and	31st		3.45 inches
Shermadevi	0.96	7.80	1.30	10.06 do.

The rain fall on the hills at Sengatheri[×] in Nanguneri Taluq for the week ending 31-12-95 was 32.42[✻] inches, and at Mundandorai in Ambasamudram Taluq for the same period was 36.5[✻] inches.

[×] in Asamboo hills

[✻] these registers were obtained from Forest Department.

2. The flood levels of the Chittar and its tributaries are much lower than those of 1877, whilst the flood levels of the Jambanadi, Ramanadi, Varananadi and Gadananadi tributaries of the Tambraparni are from 6 to 9 inches higher

than those of 1877.

3. Immediate arrangements were made to put ring bunds in front of breaches, and water has been passed in channels and tanks filled sufficiently to bring to maturity the crops under them.

4. With the exception of the cultivation in close proximity to the breaches, all the rest is very healthy and promises to yield a good crop.

5. Orders have been issued to mark with tar the flood level on all the important masonry works, and it is reported they are being connected with the M. S. L.

6. A Statement showing damage to Imperial Irrigation works is herewith enclosed.

Saukaranainarcoil

12

S: Cy

Saukaranainarcoil Taluq

Kottamalayar River

Vasudevanallur Periakulam tank

7. Behind the surplus sluice on the right side an erosion to a length of 50 ft. has taken place. Dry roughstone should be provided.

Tenkasi Taluq S: Cy

Karuppanathi River

Papancal Channel.

8. The flood overtopped the head sluice and slight breaches have occurred which were closed by lascars.

Chittar River

Puliyur Channel.

9. A breach has occurred at the left side of No. 1 weir, and revetment in front has been washed away.

Tiruchittambalam anicut.

10. The masonry sloped apron at the centre of the anicut has been washed away to a length of 18 ft., and the dry stone apron at left end damaged for a length of 50 ft.

Pavur anicut

11. Apron at left end damaged.

Jambunadi River

12. This channel receives the drainage from a large area - it has no surplus escape - a surplus channel has been formed through the wet lands opposite to Sembankulam tank. Necessary surplus work should be provided.	Kuthalaperi channel

Ambasamudram Taluq

Jambunadi River

13. The flood has overtopped the wings of the anicut and flood above the anicut	Vadapathukulam anicut

Ramanadi River

14. The channel which skirts a hill, is much eroded in several places for a distance of ½ a mile	Ramanadi Vadakal channel
15. The masonry sluice No. 10 has been washed away.	Vagaikulam branch channel

Varnanadi River

16 The rear apron and the side revetment at left end of anicut are damaged.	Papankal channel.
17. The low level sluice has been washed away.	Kalkurichikulam tank.

Gadnanadi

Gadnanadi River

Arasapathu channel.	18. The channel skirts a hill for a distance of 3 miles, and was breached in 18 places by hill streams crossing it. Most of the irrigation offtakes are open cuts or have only temporary sluices and the breaches have taken place at the sites of temporary sluices. Tanks under channel in good order as cuts were made at ends of surplus escapes.
Ambur Perunkal channel.	19. The left channel bank from the anicut to No. 1 weir is cut to pieces for a length of 750 ft. A surplus escape should be provided.
Manjampally anicut	20. The rear left wing of the anicut and the masonry pillar at right end to show R. L. of 1877 was washed away.
Kakanallur anicut channel and tanks.	21. The rear apron of the anicut is much damaged. The channel and the two tanks supplied by it were breached.
Kangayan anicut channel & tanks	22. The rear apron of the anicut is

is disturbed in three places. The channel which is 10 miles long breached opposite to hill streams and at the sides of surplus escapes. All the tanks under this channel except one have breached. Surplus escapes should be provided to tanks and channels.

Srivilliputur & Satur Taluqs — S: Cuts

23. No serious breaches reported, and no damage to standing crops. The cost of repairing slight damage is estimated at Rs 600. The front slopes of some of the T.R.S. works which are approaching completion were damaged slightly by heavy rain.

Nanguneri Taluq — S. Cuts

Pachiyar River — G tal

24. The flood overtopped the wings of the anicut and scoured the bank in rear. The channel bank between the anicut and Head Sluice was overtopped and partly washed away.

Pathai Channel

Devanallur Channel and tank.

25. The channel bank was badly eroded & partly washed away in four places, and was breached on right side of surplus weir at entrance to tank. The tank bund was cut open for 20 ft. at the South east end by the ryots to save the tank.

Nambiratti Channel.

26. The channel receives a large amount of drainage and was breached in ten places

G tal — Karumbandi Ammankal River.

Tamaraikulam Channel.

27. The channel was badly eroded in three places and the front retaining wall of sluice No. 6 was damaged

Nanguneri Channel

28. There were two large breaches; in one case the bank was protected by a masonry wall and in the other with revetment. Revetment has slipped in two other places. The bund of Nanguneri Perakulam tank was cut to a length of 30 ft. near surplus weir by Tahsildar to save the

tank.

Sevalaperi Channel

29. Improvements to the channel are in progress. The old portion of weir No. 1 slightly damaged at the right end, and the new earth in rear of wings washed away. The body of weir No. 2 lately constructed and provided with dam stones was damaged for a length of 33 ft., carrying away the dam stones, fixed 3 ft. apart and the shutters. Some portion of the rear aprons have been washed away.

30. The training wall below weir No. 3 has been washed away for a length of 24 ft. at the right end, and below this the bank has breached for 46 ft. The breach happened owing to the Contractor having removed the earth behind the training wall, which by an extraordinary mistake in the Estimate was proposed to be lowered

to

to T.S.L. and to be converted into a weir. One breach in Sevalaperi tank was reported.

Stl. — **Nambiyar River**

Sengalakurichi channel.

31. The flood overtopped the channel banks.

Tirukarungudi Supply Channel

32. The two breaches in the channel which occurred in November were enlarged by this flood. The ancient wings which were 4 ft. above crest were overtopped by 1 foot and the right wing was carried away forming a breach. The bank in rear of the left wing is scoured.

Vadukachimathelkulam Supply channel.

33. Owing to breaches in Sengalakurichi channel and tank, which are above this, this channel was breached in two places at the entrance to the tank and the bank badly eroded in several places.

Sengalakurichi and Solankulam tanks

34. The flood overtopped the Sengalakurichi tank bund at the South west end which was rather and low, and breached

it for a length of 150 ft. The water discharged through the breach entered the Solankulam tank which is immediately below and breached it in three places.

Vadamalayan Channel

35. The flood rose to 3 inches above the flood of 1877, overtopped the channel in several places and breached it in two places.

Vizianarayanum tank and channel

36. The North supply channel takes off from no particular river, but receives the surplus of a number of tanks above it, and has a large drainage area; it breached in six places at the sites of former breaches. Surplus escape should be provided. The South supply channel takes off from an anicut, on the Nambiyar and has a head sluice; it was breached in two places.

37. The revetment in the tank has slipped in 15 places, which has been protected with brushwood. The revetment for a length of one mile is built almost perpendicular.

Ital

Tamarayar River

Padalayarkulam.

38. The flood rose 1 ft. above the flood of 1877. 30 ft. of the anicut apron is damaged and 24 ft. of revetment in rear wing is washed away. The channel was breached in two places, owing to the Valliyur channel which runs above and parallel to it having breached.

Valliyur channel

39. A number of hill streams flow into the channel in the 1st Mile and have silted it to a depth of 3 ft. to 4 ft. above its normal bed level. This accumulation obstructed the flood, which overtopped the banks and breached it in two places at sites of former breaches.

I have &c,

(Sd) G. B. Lambeth
Exe. Engineer

True Copy
A. Srinivasa Pillay
Head Clerk Supg Engrs Office 13-3-96.
6th Circle

From
The Executive Engr
Tinnevelly

CHIEF ENGINEER
FOR IRRIGATION.
16 MAR. 96
1971

No. 802
Dated 28 February 1896
Recd 29/

Encl 4

Floods of December 1895 –
Reporting about the damages done by the —

Ros 5.4
3556/96

Endo No. 1 to S.E. Endt No. 274 W
13-3-96

Statement of Breaches in the Melakal Channel

Name of Works	No: of breaches in each work	Length	average Depth	Remarks
		ft	ft	
Melakal Channel	1	132	9	
	2	188	10	
	3	102	3	
	4	64	6	
	5	115	6	
	6	47	7	
	7	53	7	
Seedunganallur kulam	1	272	3½	
	2	60	10	
	3	59	13	
	4	38	11	
	5	47	8	
Thuthukudi Tank	1	85	4	
	2	62	4½	
	3	40	5½	
	4	47	5	
	5	62	6	
	6	107	7	
Karumkulam Krishnankulam	1	40	4½	
Do Periyakulam	1	50	5	
Do Pattakulam	1	44	8	
	2	35	2½	
Kalvai Branch Channel	1	24	5	
	2	76	3	
	3 & 4 Each	176	2½	

Kaniar tank under Kalvai Branch Chl	1	44	11
	2	65	10
Vellur tank	1	202	8
Tenkarai tank	1	132	5½
Nochikulam	1	75	3
Kilaputhukulam	1	127	5
	2	92	10
	3	20	4
	4	50	5½
	5	170	8
Mudalaniolikulam	1	15	3
	2	38	6
	3	20	2½
	4	20	3
Themangulam.	1	115	4½

Signed/- G. W. Lambert
Executive Engineer
28-2-96.

/True copy/

A. Srinivasa Pillai
13-3-96.
Head Clerk
Supdg Engr's office
II Circle

One C.8
3556/86

17/3

Bndle No. 5 to 8 to 6 No. 2747N
13-3-95

CHIEF ...
FOR ...
16 MAR 9
No 197N

Statement of breaches in the Kilakal Channel

Names of works	Locality	No: of breaches in each work	Length	Average depth	Remarks
Kilakal Channel	1st Mile	1	190	4	
		2	80	4	
		3	60	4	
	2nd Mile	4	280	—	½ bank washed away 4 feet deep
		5	190	—	—Do— 6 ft deep
		6	70	—	—Do— 5 feet deep
	3rd Mile	7	225	15	
		8	150	15	
		9	150	15	
		10	190	5	
		11	160	9	
	4th Mile	12	60	4	
		13	50	4	
		14	165	5	
		15	250	5	
		16	40	3	
	Both sides of 5 Mile	17	30	3	
		18	50	4	
		19	8	3	
	Between Athi	20	15	10	
	& Pottal Madais	21	100	20	
		22	5	4	
		23	8	5	
	Between Avarani Madai & Alwar Karkulam Village	24	50	10	
	L.F. road near Alarkarkulam	25	50	3	
Srivaikuntham Periya-kulam Tank	Both sides of sluice No: 7	1	204	20	
	Between Sluice Nos: 9 & 10	2	77	10	
		3	110	20	
		4	240	20	
Perur Tank	Between Audi-Pillai Madai & Kavarli Madai	1	120	15	
		2	155	14	
	above L.F. road	3	200	15	

Perur Tank (Continued).	Below L.F. road	4	100	18	
	above Sluice No: 5	5	60	10	rear slope of bund
		6	80	9	
		7	100	10	
		8	60	10	
		9	60	6	
	Both sides of Sluice No: 5	10	100	15	
Sevalai Tank	Near Escape	1	245	15	
Perungulam Escape Chl	at Natathy dam old flood bank	1	100	10	
		2	94	9	
		3	66	10	
	Below Zeral bridge in rear flood bank	4	640	7	
Kylasaperi Tank	Near escape in Srivaikuntham Periyakulam bund	1	48	5	
	Below	2	35	6	
		3	30	9	
		4	100	8	

CHIEF ENGINEER FOR IRRIGATION
16 MAR. 96
No. 1904

Sd/- G. W. Lambert
Executive Engineer
28. 2-96.

True copy

A. Srinivasa Pillay
13-3-96.
Head Clerk
Supg Engr's office
VI Circle

Pw. E. 7
3556/86

En. No. 45885 W. 27474
13-3-96

Statement of Breaches in the North Main Channel

SD 30

Names of Works	Locality	No: of breaches in each work	Length	Average depth	Remarks
North Main Channel	2 Mile near the 4th Inlet	1	360	12	
		2	250	5	
		3	220	4	
		4	30	5	
		5	40	8	
		6	100	5	
	3rd Mile	7	40	4	
		8	70	5	
		9	25	3	
	Near the 5th Inlet	10	120	6	
	Nalangudi	11	100	6	
		12	80	4	
		13	27	8	
		14	130	5	
		15	30	2	
		16	20	4	
	Kadunukki	17	90	3	
		18	110	2	
	Keelpadagai Sluice	19	40	3	
		20	180	2	
		21	20	4	
		22	110	5	
		23	110	3	
		24	100	6	
		25	110	6	
		26	50	7	
		27	40	3	
	4th Mile. Iyampattu sluice	28	50	8	

~~33~~30
31

North Main Channel	Packery Ammankoil	29	10	3
		30	120	4
		31	990	8
		32	110	10
		33	220	5
		34	70	4
		35	300	12
	4th Mile Stone	36	110	8
	5th Mile opposite Pallivasal	37	50	5
	Near Pettai Therupathy	38	80	3
	Mela Mangalakurichi	39	40	4
		40	60	7
	6th Mile ———	41	50	7
		42	10	5
		43	25	6
		44	25	3
	7 Mile Edakatto Sluice	45	60	3
	Left Bank west of Alamarathadi Sluice	46	70	6
	Right bank below — do	47	160	6
	L. B. ———	48	60	4
	R. B. ———	49	130	5
	L. B ———	50	100	4
	Do — to sluice	51	240	3
	Do Thattakadu village	52	70	4
	L. B. 9th Mile	53	70	3
	— Do ———	54	40	7
	— Do ———	55	130	3
	— Do ———	56	50	4
	— Do ———	57	270	6
	— Do ———	58	230	10
	— do — opposite Pallivasal	59	250	6
		60	130	10
	R. B. Pallivasal	61	70	15
		62	40	10
		63	70	7
		64	240	10
	— do — Sunnambu Parakudi	65	60	4

North Main Channel	L. B. ———	66	20	5
	R. B. ———	67	130	4
	— do — ———	68	140	7
	— do — ———	69	80	7
	L. B — ———	70	130	7
	— do — ———	71	50	16
	R. B. Sasthankoil Sluice	72	300	16
	L. B. ———	73	200	16
	— do — ———	74	200	13
	R. B. ———	75	200	13
	— do — ———	76	80	10
	— do — West of Kotti Sluice	77	240	20
	L. B. ———	78	350	16
	West of revetted bank	79	50	6
	10th Mile ———	80	150	6
	Right bank ———	81	100	8
	11th Mile L. B. ———	82	20	3
	R. B ———	83	60	6

Korkai Channel	Both banks of this channel from head sluice to Natatha Ammankoil being washed away to a very great depth of about 10 x 6 feet no measurement was taken. Length of breach will be about 1,000 feet.			
	R. Bank below Eral Road	1	50	5
	L. B. ———	2	160	5
	Do. below Thumbogi ———	3	350	3
	R. B. ———	4	200	2
		5	150	5
		6	400	2
	L. B. ———	7	450	4

-it for a length of

Korkai Channel

	8	600	3
R.B.	9	600	4
	10	200	3
L.B.	11	30	7
	12	200	4
R.B.	13	50	5
L.B.	14	20	8
Do. Below Pacheri Madai	15	700	4.
R.B.	16	100	5
L.B.	17	500	3
R.B.	18	150	4
Valavallam Bridge	19	60	5
L.B. — Do.	20	150	7
	21	30	5
	22	50	3
	23	75	7
R.B.	24	100	3
L.B.	25	180	4
R.B.	26	200	8
—Do—	27	300	4
L.B.	28	30	8
	29	240	3
	30	90	7
	31	60	3
	32	70	4.
R.B.	33	300	3
L.B.	34	150	4
	35	100	3
	36	80	4
	37	380	3
	38	180	10
	39	80	4
	40	150	3
R.B.	41	100	4
	42	25	3
	43	60	8
L.B. Narayanandan Madai	44	130	8

12

60

32

Arumugamangalam Tank:

Near Sluice No: 1.	1	50	5
	2	200	14
	3	170	12
	4	50	5
Near Head Sluice	5	900	3

Chittar flood bank

1	650	6	
2	60	12	
3	300	8	
4	60	6	
5	900	7½	
6	160	8	
7	120	8	Bank overtopped
8	20	5	— Do —
9	40	5	— Do —
10	120	4	— Do —
11	60	6	— Do —
12	420	1½	— Do —
13	30	6	— Do at sluice
14	230	3	— Do —
15	80	6	— Do —
16	330	1½	Bank overtopped
17	360	1	— Do —

Arumugamangalam surplus channel flood bank

1	18	2
2	60	6
3	150	3
4	40	3
5	170	6
6	50	3
7	30	3
8	600	5
9	125	3
10	480	3
11	150	3
12	130	2

Arumugamangalam Surplus channel from tank	13	20	12	Valnetty calingulah West
	14	25	7	— do — East
	15	40	2	
	16	460	3	
	17	200	2	
	18	70	2	
	19	20	7	
	20	40	2	
	21	400	2	
	22	150	2	
	23	600	2	
	24	110	3	
	25	130	2	
	26	30	2	
	27	550	2.	
Palayaeyal tank from Road culverts	1	140	2	
	2	460	3	
	3	130	1	
	4	200	2	
	5	60	1	
	6	30	5	
	7	70	2	
	8	20	7	
	9	40	2	

80
33

Palayaeyal tank from road culverts	10	400	2
	11	150	2
	12	600	2
	13	110	3
	14	130	2
	15	100	1
	16	30	2
	17	550	2

Signed/. G. W. Lambert
Executive Engineer
28/2/96.

/True copy/

A. Srinivasa Pillay
13-3-96.
Head Clerk
Supg Engr's office
VI Circle

Dis. E-6
3536/96

Enclo No. 3 to SE6 No. 2747/13.8.96

Do — Sunnamukri Paratudi

336

Ambasamudram Taluq (Continued)

	Munjampatti anicut & chl	132	"	700	"	
	Kakanallur anicut - Channel & tanks	133 to 135	"	1000	300	
	Kankayan Anicut - Chl & tank	138 to 144	"	2500	500	
Rainfed	Melakallur Dam	144 A	1	750 during the year		Breached the 2 time this year at west end - Being rainfed cannot be refilled
Manimuttar	Perungal channel	310	Slight breach	"	"	Closed by Singampatti Zemin ryots as channel runs thro' Zemin lands.
	Kothukal channel	310 A	— Do —	100	"	
Gambiyar	Singalakurichi anicut and channel	329	Several	300	Nil	Dry rubble anicut open head
	Tirukarankudy anicut and channel	330	2	750	"	Open head
	Vadakachimathilkulam Channel	331	2	700	Nil	Branch of Singalakurichi channel
	Sirukalkurichi & Solam-kulam Tanks	332	4	1240	300	
	Vadamalayan Channel	335	2	260	Nil	— Do — do
	Vijianarayanam Tank & channels	338	8	3,000	"	Sixth channel anicut & sluice

	Apparkulam tank	16	4 12 in 2 tank	700	500.	

Tinnevelly Taluq

	Ponnakudiyan chl	319	3	300.		~~37~~ 37

38

Nanguneri Taluq

Karambanad	Tamarakulam channel	322	3	375	Nil	Branch of Nanguneri Chl
	Vadamalaisamudram Chl	323	12	600	200	-do- Tamaraikulam chl
Ammankal	Nangunery channel	326	2	1000	Nil	
	Sevalaperi channel	327	1	500	"	
Pambiyar	Singalakurichi anicut and channel	329	Several	300	Nil	Dry rubble anicut open head
	Tirukarankudy anicut and channel	330	2	750	"	Open head
	Vadakachimathilkulam Channel	331	2	700	Nil	Branch of Singalakurichi channel
	Sinkalkurichi & Kolankulam tanks	332	4	1240	300	
	Vadamalayan Channel	335	2	260	Nil	— do — do
	Vijayanarayanam Tank & channels	338	8	3,000	"	Sixth channel anicut & Sluice

			(120 ft.)			No: 51 . Has no head Sluice
Hanumanadi	Mettukal channel	53	"	10	"	Slight erosions
Littar	Virasipattukulam Tank	86	1	10	50	
	Puliyur anicut & channel	95	1(30 ft.)	60	Nil	
	Puliyur Periyakulam Tank	96	1	20	Nil	
	Tiruchittambalam anicut and Channel	98 A	1(30 ft.)	45	Nil	Has no head Sluice
	Pavur anicut & channel	99	1	60	Nil	
				7	7	26-1-18

10 18 28-2-18

8
Tinnevelly Taluq

Sendo No 2 68E bnv 2747m

36

Ambasamudram Taluq (Continued)

	Manjampatti anicut & chl	132	"	700	"	
	Kakanallur anicut Channel & tanks	133 to 135	"	1000	3.50	
	Kankayan anicut, chl & tanks	138 to 144	"	2500	.500	
Rainfed	Melakallur Mute	144 A	1	750 during the year		Breached the 2 time this year at west end. Being rainfed cannot be refilled.
Manimuttar	Perungal channel	310	Slight breach	"	"	Closed by Singampatti Zemin ryots as channel runs thro' Zemin lands.
	Kothukal channel	310 A	Do	100	"	

Nanguneri Taluq

Pachiyar	Pathai anicut & channel	311	Several	250	20	Head sluice several breaches in Maramkulam & Mudukulam supply channels & one breach in Mudukulam tank.
	Padmaneri anicut & chl	31[illegible]	5	200	nil	Open head
	Devanallur anicut, Channel & tank	31[illegible]	1 80 ft in length	300	nil	Do
	Ramkiratti anicut & chl	314	10 in channel	500	Including hut	
	(1) Palankurichi [illegible]	315	3 in (1) tank	850		Do

	Manur chan	103	1 (70 ft.)	70 ft.	..	The tank which contain one years supply is 3/4 full
	Sekanathur anicut	110	..	200	–	648 c ft. masonry washed away to an average depth of 1 foot
	Sirukulam Channel	112	1	150		In flood bank
	Tenkasi Taluq					
Jambunady	Kuttalaperi channel	117	12	260	1500	~~34~~ 35
	Kuttalaperi Ditch	118	1	"	–	Closed by Villagers
	Ambasamudram Taluq					
	Vadapattukulam anicut					Breach at left end
	& supply channel	120	1	140	.	of anicut wing
	Iyempillaikulam anicut					
	Supply channel	121	2	400	100	
Ramanady	Ramanady Vadakal channel	119	1	500	Nil	
	Vachaikulam branch chl	122	1	350	20	
Varmanady	Papankal anicut & channel	124	5	140	"	
	Kalkurichikulam Tank	126	1	600	200	
Gadananady	Tenkal anicut & channel	129	10	200	50	Open head
	Arasapathu channel	130	18	400	100	— do —
	Ambur Perungal Anicut & channel	131	10	1000	200	

Statement showing damage to Imperial Irrigation Works by the flood of December 1895.

River	Name of work	No in List	No. of breaches	Approximate Cost of repairs	Damage to Crops	Remarks.
1	2	3	4	5	6	7
	Saukaranainarkoil Taluq					
Kottamalayer	Vasudevanallur Periyakulam Supply channel	36	1 (30 ft.)	100	Nil	~~36~~ 80
	Periyakulam Tank	37(a)	1	40	30	34
Antchakanar	Sarivalamvanthanallur Periyakulam Supply Chl	39	8	90	Nil	
	Tenkasi Taluq					
Karuppanady	Papankal channel	48	16	100	Nil	
	Sivalaperikal channel	51	1 (40 ft.)	..	Nil	Closed by villagers
	Ekkinarayanan Thuruthu		1 cut 5	20	Nil	[illegible]

CHIEF ENGINEER
FOR IRRIGATION.
16 MAR. 96
No. 197N/2

R.Dis. 5
3556/96

No: 274 I.N.

Sup. Engineer's Office, VI Circle,
Trichinopoly 13th March 1896.

From,

14/

W. Hughes Esquire,
Superintending Engineer,
VI Circle,

To

The Chief Engineer
for Irrigation,
Madras.

Enclosures: 5.

1. Copy of letter from the Ex. Engr. No: 802 d/28/2/96 with copies of 4. Enclos.

Sir,

I have the honor to enclose copy of report by the Executive Engineer on the floods which occurred in the Southern part of Tinnevelly District at the end of December last. There has been some delay in submitting the report as it was desired to make it as complete as possible.

2. The total rainfall from the 29th to 31st in the Tambraparni Basin in the plains was from 8 to 11 inches: to the north of this it was lighter and to the south heavier, 13 inches having fallen at Nanguneri. The daily rainfall on the hills has not been reported but for the week ending the 31st it is given as 36.5 inches

at Mundundorai in the Ambasamudram Taluq and 32.4 inches at Sengatheri on the Assambo Hills in Nanguneri Taluq.

3. A Comparison of this with previous floods can be most easily made along the course of the Tambraparni. The highest flood previously reached was in 1877. The late flood was generally somewhat lower than this above the Suthumalli anicut: at Suthumalli it was ¾ ft higher possibly due to the raising of part of the anicut a few years ago; at Palamcottah the two were the same; at Marudur anicut, below the confluence of the Chittar the late flood was the lower by a foot, owing to the Chittar being only in moderate flood; below Marudur the damage into the river drainage? was much more in 1895 than in 1877 and in my opinion, which however I cannot support by direct proofs, the quantity in the river where the embankments begin, 2 to 2½ miles above Strivaikuntam anicut, was about the same in both years. At Strivaikuntam anicut the level in rear was 1 foot and in front 2¼ feet

2P

above the 1877 level the greater afflux being due to the building up of the bridge piers in 1888 and the raising of the anicut in 1894. From local enquiry it is ascertained that the breaches in the river banks above and at Strivaigunthum occurred about 9 P.M. on the 30th when the river had almost if not quite ceased to rise. We have now for the first time the means of measuring F.L. the discharge in such a flood as the previous occasions the banks were lower and must have given way above the anicut long before the floods reached their maximum levels.

4. It will be seen from the Executive Engineer's report that the first of the anicut systems which it will cost much to repair is the Kannadien where the damage is estimated at Rs 2,500. The repair of the Kodagan anicut system will cost Rs 2,150, the Palayam system Rs 5,000, the Tinnevelly system Rs 2,500, the Marudur system Rs 16,500. These figures are of Course only rough approximations. There has not been

time as yet to devise means of preventing the recurrence of breaches in similar floods in future. In some places, as where the Koraiyar crosses the Kannadian and the Pachiyar the Palayam Chl any works which would be adequate to prevent the channels silting would be extremely expensive.

5. Many of the tanks under the [illegible] Melakal were saved by [illegible]ing the bunds in places where it [illegible]ld not cost much to repair them. It was especially fortunate that the two large terminal tanks were saved in this way. The Vellur tank has been kept generally in fair order but there were low places in the bund and as the water rose a foot above the calculated maximum, breaches very nearly occurred. The Thenkarai tank is in bad order and had to be cut before water reached the estimated maximum. The tanks supplied by the Kilakal are believed to have been in good order and the heavy breaches in them are due to the breach in the river

bund which also forms for some distance the bund of the Srivaiguntham Tank. This bund carries a road from Srivaikuntham to the Kilakal Channel and was nearly topped all along. The breach was due to the water going over the bund. The Chief Engineer for Irrigation ordered in his Inspection Notes of February 1881 that the bank should be made 4 feet above the F.L. of 1877 but his orders were evidently not carried out.

6. The Srivaikuntham anicut system has suffered severely not so much on the south of the river where there was little harm done beyond silting some channels, as on the north where the water from the breached tanks and that from the river breaches both above and below Srivaikuntham flowed into and across the North Main Channel. The breaches down to the 9th mile are not considerable. It is at Eral that most of the damage was done. The Sub Division Officer reports that it will cost Rs 8,000 to close the

breaches here. The right bank was much lower than it ought to have been but in any case would have breached. Still if Col. Mullins's orders as to the level of the bund had been attended to the breaches would have been further away from the low ground and less expensive to close.

7. The anicut has suffered very severely. It has three aprons, the first of masonry 24 feet wide, the second of dry stone 33 feet wide with a retaining wall 3 feet wide, and the third of dry stone 12 or 15 feet wide. The second apron has been almost entirely thrown out for over half its length and about half of the remaining length is gone, the retaining wall is much damaged and in part destroyed altogether, and the third apron is also much disturbed. The second apron ought to have been built in mortar or at least grouted when the anicut was raised. It will be no use to rebuild it in dry stone now and the only course open is to build it in mortar. The cost of this and other repairs will

come to about Rs 20000.

8. Works not belonging to the system referred to above have also been much damaged especially in the Southern Taluqs. The following is a summary of the works.

	No: of Works		Cost of closing breaches
Sankaranainarkoil Taluq.	3	.	230
Thenkasi Taluq.	11	.	585
Ambasamudram "	23	.	8,780
Tinnevelly	4	-	720
Nanguneri	18	-	14,805
	59	.	25,120

9. The breach in the left bank of the river at Srivaiguntam Town has been referred to above. The breach near the temple is also a formidable one and will cost a large sum to close. It is conjectured that it was caused by the eddy set up by a broken part of the old river wall. Every flood since 1869 has destroyed a part of this wall and scarcely any of it now remains above the level of the river berm. Earth for closing the breach would have

to be carted for about half a mile & it is considered that it will probably prove cheaper to build a wall backed by a bank of sand or a river wall without a bank. Comparative estimates are being made. The breach further down near the anicut was apparently due to the eddy caused by a temple close to the bank. Below the anicut the breaches in the first four miles can only be accounted for by bad soil in the bund. At Zeral (9th Mile) the breach was probably caused by erosion, that at Mukani, 12th Mile, is attributed to a leak. At Savaramangalam where bund was made on the river side of the village the current very nearly destroyed it and it was saved only by the exertions of the villagers. On the right bank the first breach is at Alwar Tinnevelly and was probably due to the combined scour and lowness of the bank where the people were in the habit of crossing it. The breach at Koraugani was caused by the temple enclosure wall against which the

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bund abutted having been undermined and thrown down. The upper of the two breaches at Sedukuvoithan was caused by the set of the river. This is the cross bank referred to in para 13 of the Irrigation Chief Engineer's note printed with G.O. No: 119 I d/5th March 1889. The bank was much exposed to the current and probably the palmyrah trees which had never been cleared from the site must have helped to make the breach. The water from this passed partly into the village and partly ran along the rear of the bund eroding it and no doubt weakening it so that there was the less chance of the bund standing when the next breach took place. It is quite useless to make up the bund again in this place with only inferior soil available and right on the margin of the river. The bund must be retired if only 100 or 200 ft. The villagers should not make any strong objection to this as there are only a few houses and these in ruins. The necessary survey will be made at once. The

The old line of bank was adhered to near this place in deference to objections of villagers although it was known to restrict width of river to less than advisable.
JJB

bund at Attur has slipped badly and must have given way if the large breaches higher up the river had not prevented the water rising above a level 2 feet below that of 1880. It was hoped that the retirement of the bund at Mukani would save the bund here but the hope is vain. The bank must be retired as far as possible. It cannot be protected as there is deep water at the foot of it.

10. The old left flood bank in the first 7½ miles below the anicut has been nearly all destroyed. There were between this & the new flood bank five villages with a population of 3,150 occupying 994 thatched & 34 brick houses. The thatched houses which the Tahsildar values at Rs 59,920 were all destroyed and the others valued at Rs 23,200 injured. There are also 6 temples and one Mosque. The claim of these people to compensation has been dealt with in the note printed with G.O. No: 119 I of 6th March 1889. They are apparently not legally entitled to any for the property lost but have some moral claim to assistance. I would suggest that new village sites be given them north of the Channel.

11 A special report on the river embankments will be submitted as soon as the levels have been taken.

I have the honor to be
Sir,
Your most obedt. Servant,
C Srinivasa Pillai
Head Clerk
Supg Engineer's office
for Superintending Engineer
W Kirch

P. W. D.
— Sixth Circle —

From
The Supdg Engineer
VI Circle

To
The Chief Engineer
for Irrigation

CHIEF ENGINEER
FOR IRRIGATION.
16 MAR 96
1972

No: 274 TN
Dated 13 } March 1896
Despd 14 }
Enclosures: 5

Floods of December 1895
in Tinnevelly Division:—
Reporting on the
damages caused by
the ——

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3556/96

No VI/1772 d/ 25-3-96

Memo.

With reference to letter No. 274 TN of the 13 March 1896 from the Supdg. Engineer, Sixth Circle, the undersigned has the honor to say that the subject therein dealt with, cannot be satisfactorily disposed of until the further information promised has been supplied. — The special report referred to in para 11 of the Supdg Engr's letter, should therefore be submitted as soon as practicable.

25/3

25/3

To
The Supdg. Engineer
Sixth Circle.

25/3. Fair drafting returned on 27.3.96

R 1577/56

R.E.2
3536/56

No. 358 I.W.

OFFICE OF THE SUPERINTENDING ENGINEER,
6TH CIRCLE,

Trichinopoly, 30' March 1896.
31/

FROM

W. Hughes Esquire,
~~THE~~ SUPERINTENDING ENGINEER,
6th CIRCLE.

TO

THE CHIEF ENGINEER,
for Irrigation.

SIR,

ENCLOSURES.

With reference to your No. 11/17 I.W. dated 25' Instant, I have the honor to state that as all the subordinates are at present busy repairing da-mages &c I do not expect to be able to make a full report on the sufficiency of the river banks for some time. Meantime kindly give any instructions you consider ne-cessary regarding the apron of the Srivaikuntham anicut. The estimate has been returned to the Executive Engineer for some revision and there is probably

due to difficulty in

the quantity

one available. I have however given orders to arrange for the construction of the apron in mortar.

I have the honor to be
Sir,
Your most obedt. Servant

W. Hughes
Supdg Engineer, W. Circle

30/3.

Rw.E.2
3556/50