

ANNEXURES

ANNEXURE I

Progress of India's Irrigation 1951-1985

	Government outlay expenditure (Rs.Crores)			Cumulative irrigation potential created (million hectares)			Investment (Rs.) per hectare of additional potential created in major & medium irrigation projects in each period
	Major & medium Irrigation	Minor Irrigation	Total	Major and medium Irrigation	Minor Irrigation	Total	
Preplan	NA	NA	NA	9.70	12.90	22.60	NA
First Plan 1951-56	380	76	456	12.20	14.06	26.26	1,520
Second Plan 1956-61	380	142	522	14.30	14.79	29.09	1,810
Third Plan 1961-66	581	328	909	16.60	17.01	33.61	2,526
Annual Plan 1966-69	434	326	760	18.10	19.00	37.10	2,893
Fourth Plan 1969-74	1237	513	1750	20.70	23.50	44.20	4,758
Fifth Plan 1974-78	2422	631	3053	24.82	27.30	52.12	5,927
Annual Plan 1978-79	977	237	1214	25.86	28.60	54.46	9,384
Annual Plan 1979-80	1079	260	1339	26.50	30.00	56.50	16,859
Sixth Plan 1981-82	1357	300	1657	28.20	32.77	60.97	15,167
1982-83	1510	328	1838	29.10	34.16	63.26	16,780
1983-84	1702	394	2096	30.04	35.59	65.63	18,105

Source : Centre for Monitoring Indian Economy, 1984 cited in *Irrigation and Agricultural Growth* : A Vaidhyathan : MIDS (1987).

ANNEXURE II

TABLE I
Irrigation Management by Ancient Village Assemblies
Ownership of Water Resources

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| 1. | In the 12th Year of Vikrama Cola, the assembly of Nerkundram diverted the water from a spring in a neighbouring village after paying compensation to it, because of the silting up of its own channel. | 152 of 1934-35 (Annual Report on Epigraphy - ARE) ¹ |
| 2. | In 1259 A.D., the Nagarattar (Governing body of Township) of Sundara Pandyapuram sold a tank to an individual; the sale was also ratified by the king Maravarman Kula Sekhara Pandya. | Pudukottai Inscriptions (hereafter PI) 363 and 375: ² |
| 3. | Sale of Tank System- <i>ayacuts</i> , Tank <i>bund</i> , Tank beds, foreshore of tank, channel and channel head; sale of foreshore catchment area by village bodies. | PI 265,302,304,423,426;PI 361 ³ |
| 4. | The Sirattakkudi <i>Urar</i> sold 1/5th of the share of tank water flowing through its big, small and end sluices to irrigate <i>devadana</i> lands for 12 <i>naligais</i> in every 60- <i>naligai</i> day and also 1/5th of fisheries. | PI 259, <i>ibid</i> ; also PI 345 and PI 613. ⁴ |
| 5. | Right to proportional customary supply of water sold along with parcels of land sold by <i>Urar</i> . | PI 269,283,297,315: ⁵ <i>ibid</i> |
| 6. | Creation of Irrigation Rights - the <i>Urar</i> of Vikramapandyallur sold some lands to Periyadevar; they permitted the vendee to impound the waters of the Alavar, which took off from the Marudur <i>anicut</i> (diversion structure) on the river. The water in excess of the sill level of the sluice was to be let eastwards. They additionally agreed to excavate a surplus drainage channel at the eastern end of Kesneri (another tank ahead) and agreed to let its surplus waters flowing through it to be supplied to this source purchased. | PI 361; <i>ibid</i> . More illustrations in PI 475,402,405 and 589. ⁷ |

TABLE II
Construction, Repair and Maintenance of Tanks

7. The residents of Pottapinadu in 1272-73 met in the *Mandapa* (common platform) and decided to raise one *madai* from every village in the district to construct an embankment on the side of the river Cheyyeru and prevent any possible damage from the floods to the temples. (404 of 1911⁸ (1000-1500 A.D), Vol.I, 207 (University of Madras, 1936.)
8. There were instances in which specific sums were not collected but a village or group of villages was entrusted with the work of building new dams in their parts and bear the profits and losses separately (1263 A.D.) ARE (1910) Part ii, para 29⁹
9. (a) Temples helped *sabhas* to construct tanks by giving grants. Epigraphia Carnatica II Mandya 44¹⁰
- (b) In the 24th Year of Tribhuvana Kulottunga Cola (1201-02 A.D.) there was a famine in the village of Tiruvanamalai and rice was very dear. Two persons built a tank with a sluice at the village out of their private funds, cleared the forest and reclaimed the land. For this, they got some land as *inam* (rent free) from the authorities of the Temple in Tiruvanamalai.
10. State support by granting land : (a) In 1177 A.D. a grant of land was made to Narisimhadeva of Maddur, the proprietor of the big tank of Atakur, for constructing and strengthening it. Ep.Car XII Tumkur 27 & 28,¹¹
- (b) In 1287 S.D. Honna-Mara-Gowda obtained a *kodige* from Kambayya Dandanayakka below the tank he had built in the name of his mother.

Maintenance

Private charity as a source of funds

11. Gift of land for tank maintenance and repair. Epigraphia Carnatica IX Bangalore 80 of 1905; Epigraphia Indica XI, 155.¹²
12. Sum of money paid to village *sabha* for the purpose. 214 of 1911¹³
13. Endowment created by individual in the 9th year of the reign of Pallava King Dantipottarasar. The village assembly accepted the endowment and undertook to arrange for the removal of silt every month from the tank. No.74 of 1898¹⁴
14. (a) Gift of 1000 *kalanju* of gold by a chief to the famous Uttaramallur tank (built during Pallava times) with a stipulation for removing of silt during three months of the year commencing from *Ani* (June-July). No.42 of 1898¹⁵
- (b) Gift of gold and paddy made by a private individual to the same tank, from the interest of both of which had to be met the cost of removing silt for two months commencing from *Vaigasi* (May - June). No.90 of 1898¹⁶
- (c) Gift of 200 *kalanju* of gold the interest from which was 30 *kalanju* of gold which was to be spent annually in removing silt from the tank and depositing it on the bund. The village assembly expressed their gratification by exempting the donor from payment of certain taxes. No.65 and 84 of 1898,¹⁷
- (d) One hundred *kalanju* of gold gifted to provide for the upkeep of second boat to remove silt. No.69 of 1898,⁸

Efforts of Village Bodies to Raise Resources

15. Contributions of grain levied on every '*putti*' annually and the grain so collected was to be entirely and scrupulously spent on repairs and upkeep of the concerned tanks. ARE 1922 Part II para 70¹⁹
16. Sale of 1 *kadi* of paddy for each crop by the residents of Ponpandai for the benefit of the tank. 402 of 1923²⁰

17. The great men of Tribhuvanamidevi - caturvedi mangalam —made an order to the effect that every 6 *ma* of land stipulated within a specified locality and irrigated by the tank Madur- antakappereri must pay 1 *kalam* of paddy as *eriyam* and the tank supervision committee of the year ought to collect the dues and maintain the tank in proper repair. 1044 A.D - 192 of 1919 Pondicherry²¹
18. Sale of land by village assembly of Nangavaram, Trichinopoly District on account of the boat plying in the tank to private person (the inscription gives details about how the income should be spent for silt removal). No. 342 of 1903²² (mid 10th Century A.D.)
19. Private individual purchased right of collecting cess and gave it over to the assembly of the village for strengthening the bund wherever necessary. South Indian Inscriptions (SII) II,6,line 18²³
20. Fine credited to tank fund : An inscription of the eleventh century says that the great men elected for the supervision of the tank shall be entitled to levy a fine of one *kalanju* of gold in favour of the tank fund from those betel leaf sellers in the village who sell betel leaves elsewhere than at the temple of Pidari. SII,III,6 (1002 A.D.)²⁴
21. *Land of defaulters taken over for tank* ; An inscription relating to the Uttara-Mallur tank dated 804 A.D. states that certain ryots had failed to pay the dues on their holdings. The village assembly paid the amount for them and their land was taken over for the benefit of the tank for three years. If at the end of that period the defaulters should return and pay up all their dues they were to get back the land. Otherwise it would be sold for the benefit of the tank. If any man of Uttara-Mallur objected to this course, No.61 of 1898 (ARE 1898)²⁵

his own land was to be similarly sold and the sale proceeds credited to the tank, while the man himself was to be dealt with as a village pest ("grama kantak" or village thorn). If any arbitrator objected, he should be banished from the village.

22. Rents from lease of right of fishing utilised for deepening the tank and removing silt from tank and repair of tank. 145 of 1924, 424 of 1922
118 of 1921, 133 of 1921
149 of 1908, 326 of 1909²⁶

23. *Prevention of damage* : A record of the 24th Year of Kulottunga III (1202 A.D.) was important. It was a covenant of the Urar of Kiranur of Vada - Siruvayalnadu that they should not cause any destruction to the tanks, the trees on the bunds, wells in the fields, and the wells in the hills and the trees thereon during any strife or quarrel or feuds that might arise among them, leading to altercation and deterioration in the relations among them; anyone who caused destruction to a well shall endow a penalty of 1/2 *ma* of this own holding to the temple of Uthamandanisvara, if the trees were cut, similarly 1/2 *kani* of land, and if any destroyed the *piccotah* (lift irrigation) stands, *kani sey*. They also undertook not to destroy any surplus courses of field channels, wells, and big mango trees in any area they entered; any transgressor was to give the specified extent of land as penalty.

PI 156²⁷

TABLE III

Land Transactions Relating to Irrigation

25. In the 15th Year of Rajaraja II the Chola King, the governing body of Tiruvaypadi (Tanjore District) sold away some fallow common land of the village to be able to make a bund and dig a channel for the irrigation of some of the cultivable land of the village. 88 of 1931-32²⁸

26. About 1227 A.D. the village of Sattamangalam had two assemblies one of them made up of the Hindu *devadana* part of the village and the other in the Jaina *pallican-dam*; both assemblies were called *ur* and they cooperated in setting apart some of the village land for tank and flower garden and making the land tax free, by themselves undertaking to pay the taxes and dues thereon. 466 of 1912²⁹
27. A copper plate from the village of Kuram in Chinglepet District refers to a tank built during the second half of the seventh century A.D. The land irrigated by the tank was divided into twenty-five parts, five of which were set apart for public purposes. South Indian Inscriptions Vol.I. p.154³⁰
28. *Sale of Land* : the *urar* of Punnangudi sold in public auction the Muvaneri tank and ayacut which were held as village common as the tank had breached and arable lands were lying waste. Pudukottai Inscriptions³¹ (PI)
29. The *nagarattar* of Kullotunga Chola-pattinam sold to a merchant, land which was full of surface rubble and stone and overgrown with trees and waste. The vendee excavated the tanks, cut the forests, removed the stumps and levelled the land. PI 325³²
30. Tatarkulam, a *devadana* Tank endowed for Kudumiyamalai Temple had breached and the tank bund had been destroyed and the lands were lying waste with no field bunds and with trees overgrown for long. The *Urar* of Tirunalamunram, the temple authorities and the *Nattar* sold them for reclamation of land and reconstruction of tank. The same *Urar* sold for 21 *varahan pon* (gold coins) in public auction Saraivayal another breached tank and its ayacut lying waste for long for reclamation. P.I.383³³

31. There were many instances in which due to inability to pay land dues the *Urar* sold the holdings of defaulters who had fled the village. P.I. 268 and 301³⁴
32. In an inscription from the Imperial Cola period, the ayacut and tank named Nurraveli was breached and overgrown with bushes and trees, and the temple servants of Tiruvirayan Kudi requested the Perunguri Sabha of Vikrama Kesari-Catur-vedimangalam to repair the tank and reclaim the bund. The *Sabhayar* after causing the big drum to be beaten to announce and gather their constituents, met in full strength on the bund of the tank itself and gave detailed instructions, item by item, of the works and caused the restoration of the tank and its ayacut and sold the land tax free. P.I. 123³⁵
33. When tanks and ayacut were sold, the surrounding catchment area of dry lands, the tamarind and mango trees, the water and fisheries and other *svatantrams* (easementary rights) and appurtenant rights were also sold. P.I. 421 & 534³⁶

TABLE IV

Distribution of Water

34. An inscription of the Chola period records that a tank near Tirukkacur was extended and a fresh sluice erected at the cost of a temple. The water in the tank was distributed between the villagers and the temple in the ratio of their holdings. 295 of 1909³⁷
35. An inscription of 1228 A.D. registers a sale of water stipulating the method by which the water had to be carried through a breached tank to another tank for the purpose of irrigation. 90 of 1916³⁸

36. An inscription contains the phrase 'as per rules' for the distribution of water and states that the cultivators to whom the canal is not intended shall not cut open branch channels from it nor bund up the water nor raise it by small piccotahs nor bale it out by baskets; and those who have the right shall make the most economical use of the water without wasting it. Canals flowing across other villages to irrigate this village and vice versa shall be allowed to flow over the boundary line and to cast up silt. Besides, the embankments of tanks shall be allowed to be raised within their limits so that they may hold the maximum quantity of water. SII,III,203³⁹
37. Water was sold by village assemblies in terms of hours of drawal. The *Urar* of Allathur sold in auction 12 ma of land and along with it, 16 *nalgais* (unit of time) out of the 180 *nalgais* for which the Perunkumuli (the big sluice) was, as of old, drawing water from the big tank. PI 666⁴⁰
38. The village assemblies also adopted cycle of turns (*vattam*) and an order in turns (*murai*) for irrigating the lands so that equitable distribution could result. PI 266; 355; 384; 533; 552⁴¹

TABLE V

Levy and Collection of Cess by Village assemblies

39. In Bahur and Trivbhuvani the annual repairs were not provided for by specific endowments, therefore a special cess, the *eri-ayam* earmarked for this purpose was collected from the ryots in the village, the rate being one *padakku* of grain per *ma* of cultivated land. (A Chola inscription). 178 of 1902 and 192 of 1909⁴²

40. About 1010 A.D., the *Sabha* of Nemali (South Arcot Dt., Tamilnadu) which was called *Calukki-kila-kala-caturvedi-mangalam* set apart certain incomes as *eriyam* for the maintenance of a local tank; one of these was a small charge of 1/4 *pon* levied on men and women of the Brahman community at death. 156 of 1942-3⁴³
41. The tank supervision committee was empowered by the general assembly of the village to collect a regular cess. 1044 A.D., 192 part II para 17⁴⁴
42. Besides the cess, other fines collected by the committee were also added to the tank fund. S.I.I.III,6⁴⁵
43. The *nagarattar* of Kumara-mattan-dapuram got a lump sum payment from a person as they wanted cash for digging a tank, and in consideration thereto, assigned to him the right, exercised till then by the assembly of collecting paddy at a certain rate from the cultivators of the village. 222 of 1911⁴⁶

TABLE VI

Dispute Settlement

44. Except in exceptional cases, disputes were settled locally. 424 of 1909, 1126 A.D., 200 of 1923, 1082 A.D.⁴⁷
45. Disputes between village and temple also took place. 357 of 1923, (1406 A.D.); 419 of 1925 (1509 A.D.) *ibid.* Also PI 414 & 977⁴⁸
46. Disputes occurred between two or more villages. PI 512⁴⁹
47. Royal officers sometimes settled disputes between villages. 215 of 1903 (1286 A.D.); 14 of 1909 (1259 A.D.)⁵⁰ Also PI 513⁵¹
48. An interesting record of 1235 A.D. states that two villages were being irrigated from a certain tank; another village intervened for a share and in the quarrel that ensued, one Rajaraja Peraiyan was punished by mistake, and for the wrong punishment meted out to him, his son was given land as *Udirappatti*. 406 of 1925, A.R.E. 1925 part II para 24⁵²

49. Disputes were attempted to be avoided by the assemblies purchasing the rights of irrigation, or getting as a gift. 376 of 1909⁵³

TABLE VII

Involvement of the Central Government

50. The Central Government gave grants of land as reward to individuals who built tanks. Ep.Car.III Mandya⁵⁴ 44
51. Taxes payable to the palace were sometimes remitted to help in repair or maintenance of tanks. 8 of 1922; part ii para 49⁵⁵
52. Recalcitrant villagers would be forced by the Central Government to pay local cesses towards the tank fund. 178 of 1902⁵⁶
53. The Central Government sometimes provided money. Ep Car III Seringapatnam, 154 (1160 A.D.)⁵⁷
54. Land was granted to donees with a condition that the donee should set apart a sum for the upkeep of the pond or tank. Ep CarIII Tirumakudal Narsipur 27⁵⁸
55. Royal officers intervened in settling disputes on the invitation of the local assembly. 215 of 1903 and 14 of 1909⁵⁹

Notes

1. K.A. Neelakanta Sastri, *The Coles*, Madras University, 1937 at 404-05.
2. R. Tirumalai, *Studies in Ancient Townships of Pudukkottai*, Govt. of Madras, 1981, 146-47.
3. *Id* at 154.
4. *Ibid.*
5. *Ibid.*
6. *Ibid.*
7. *Ibid.*
8. A Appadorai, *Economic Conditions in Southern India 1000 -1500 A.D.*, Vol.I. University of Madras, 1936, 207.
9. *Ibid.*
10. *Ibid.*
11. *Ibid.*
12. *Ibid.*
13. *Ibid.*
14. V.Venkayya, "Irrigation in Southern India in Ancient Times", A.S.I. 1903-04, 203.
15. *Ibid.*
16. *Ibid.*

17. *Ibid.*
18. *Ibid.*
19. A. Appadovai, *supra* note 8, at 215 and 628.
20. *Ibid.*
21. *Ibid.*
22. V. Venkayya, *supra* note 14 at 206-07.
23. A. Appadovai, *supra* note 8 at 218.
24. *Ibid.*
25. V. Venkayya *supra* note 14 at 204.
26. A. Appadovai, *supra* note 8 at 221.
27. R. Tirumalai, *supra*, note 2, at 144.
28. K.A. Neelakanta Sastri, *supra* note 1, at 405-06.
29. *Id.* at 280.
30. *Sec. supra* note 14, at 203.
31. *See supra* note 2, at 139.
32. *Ibid.*
33. *Ibid.*
34. *Ibid.*
35. *Id.* at 143.
36. *Id.* at 147.
37. *See supra* note, at 406.
38. A. Appadovai, *supra* note 8 at 226-7.
39. *Ibid.*
40. R. Tirumalai, *supra* note 2 at 157.
41. *Ibid.*
42. *See supra* note 8, at 223.
43. *Id.* at 406-07.
44. *See supra* note 8, at 223.
45. *Id.* at 224.
46. K.A. Neelakanta Sastri, *supra* note 1 at 301-02.
47. A. Appadovai, *supra* note 8 at 227-29.
48. R. Tirumalai, *supra* note 2 at 151-152.
49. *Id.* at 151.
50. *See supra* note 47.
51. *See supra* note 48.
52. *See supra* note 47.
53. *Ibid.*
54. A. Appadovai, *supra* note 8 at 206.
55. *Ibid.*
56. V. Venkayya, *supra* note 14 at 207.
57. *See supra* note 54.
58. *Ibid.*
59. *Id.* at 228-229.

ANNEXURE III

AREA IRRIGATED FROM MINOR SOURCES SINCE 1920-21

(in lakh acres)

Year	Net Total Area Irriga- ted	Net Irrigated area from all river sources		Net Area Irrigated by diff. Minor Sources							
				Wells		Tanks		Private Canals		Other Sources	
				Net Area	Per- cen- tage	Net Area	Per cent	Net Area	Per cent	Net Area	Per cent
1920-21	489.57	288.79	59	142.42	(49)	72.36	(25)	25.65	(9)	49.36	(17)
1930-31	496.97	275.36	55	117.45	(43)	67.65	(25)	37.16	(13)	53.10	(19)
1942-43	557.34	292.53	52	128.40	(44)	61.01	(21)	40.56	(14)	62.56	(21)
1950-51	515.29	338.40	66	147.72	(44)	89.29	(26)	28.09	(8)	73.30	(22)
1951-52	520.13	333.97	64	161.04	(48)	85.11	(26)	29.50	(9)	58.32	(17)
1952-53	521.94	336.33	64	161.13	(48)	81.61	(24)	33.36	(10)	60.23	(18)
1953-54	540.38	353.94	66	165.09	(47)	104.46	(29)	32.48	(9)	51.81	(15)
1954-55	545.82	352.28	64	166.21	(47)	99.46	(28)	30.51	(9)	56.10	(16)
1955-56	562.37	364.05	65	166.51	(46)	109.29	(30)	33.61	(9)	54.64	(15)
1956-57	556.82	361.2	65	162.26	(45)	110.99	(31)	33.54	(9)	54.42	(15)

N.B. : Figures in brackets are percentages to Col.3

" : Figures for those years relate to undivided India and are not compared with those for later years.

Source : Study of the Problems of Minor Irrigation : Programme Evaluation Organisation, Planning Commission, 6 (1961).

