CHAPTER – 4

EXTENSION OF IRRIGATION FACILITIES IN TAMIL NADU UNDER THE BRITISH
Major Irrigation Works undertaken by British:

The River Cauvery rising in Coorg flows through the Mysore plateau, and forms the two towns of Seringapatam and Sivasamudram, about 50 miles apart, which are approached from the north by bridges of local construction, composed of hewn stone pillars founded on the rocky bed of the stream, and connected by stone girders. The one at Seringapatam, about 1,400 feet long, the Wellesley Bridge named after the Governor-General, was built between 1802 and 1804 by the famous Diwan Purnaiya. The other at Sivasamudram, 1,580 feet long and called after a Governor of Madras, the Lushington Bridge, was erected between 1830 and 1832 by a private individual.¹

Together with its tributaries, through the districts of Coimbatore, Salem and Tiruchirappalli, it feeds a number of irrigating channels, and bifurcates at the head of its delta, 9 miles west of the town of Tiruchirappalli, the southern branch retaining the name of the parent stream, while the northern branch is known as the Kollidam. About 17 miles below the point of their bifurcation, the two branches reunite and form between them the town of Srirangam. Thus the river flows 280 Km in Karnataka state and the remaining 512 Km in Tamilnadu. It has a drainage area of 87,900 sq. Km of which Kerala 3.3% Karnataka 41.2% and Tamilnadu 55.5%.²

The first Engineering problem in the Cauvery delta was to so divide the available water between the main river and the Kollidam without flooding the irrigation channels in the delta. This was accomplished by five engineering works, the Upper anaicut, the Grand Anaicut, the 150 yards calingula, the Cauvery – Vennar regulators and the Vadavagudi surplus. Much of the Cauvery water was carried off by the Ullar channel into the Kollidam, which flooded the lower bed. This difficulty was surmounted by the Chola kings by the building of the Grand Anaicut. It formerly consisted of a solid mass of rough stone in clay 1,080 feet in length, 40 to 60 feet in breadth and 15 to 18 feet in depth stretching across the outlet. The total length of the Cauvery branch from the head of the delta to the sea is 95 miles. It was raised by the British Engineers in 1806, provided with sluices in 1830.

The object of the engineering works that have been since constructed is to enable either channel to carry the maximum of water that can be put to good use. The first of these was the 'Upper Anaicut' across the head of the Kollidam at the upper end of Srirangam, constructed by Sir Arthur Cotton between 1836 and 1838. This is 2,250 feet long, broken into three sections, and was designed to increase the supply in the Cauvery. It was followed in 1845 by a regulating dam, 1,950 feet long, across the Cauvery near the Grand Anaicut, to prevent too much water flowing down this latter stream. Close to it, a similar regulator was constructed in 1848 across the Vennar, one of the main branches of the Cauvery. From this point the Cauvery runs north-east and

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the Vennar south-east, both of them throwing off several branches which in their turn split up into innumerable channels and form a vast network which irrigates the delta.\(^5\)

Moreover the Grand Anaicut was remodeled and fitted with shutters at a cost of Rs.1,33,800, to facilitate passing of surplus water into the Kolli dam. Later the 150 yards calingula was remodeled to render it more effective to dispose of all excess water. Further to the east, two controllable weirs called the Vadavagudi, and the Perumalkovil, respectively were designed to aid in the same manner as the Cauvery - Vennar regulators.\(^6\)

Table IV – 1 gives details regarding the villages irrigated by the principal channels of the Cauvery.


### TABLE: IV – 1

**Channels and Villages Irrigated**

<table>
<thead>
<tr>
<th>No</th>
<th>Names of Channels</th>
<th>Villages Irrigated</th>
<th>Ayakat (Irrigable Area)</th>
<th>Government Lands</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Extent</td>
<td>Assessment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Acres</td>
<td>CTS</td>
</tr>
<tr>
<td>1</td>
<td>Marudur Nattu Vaykkal</td>
<td>21</td>
<td>5,526</td>
<td>89</td>
</tr>
<tr>
<td>2</td>
<td>Mahadanapuram Vaykkal</td>
<td>4</td>
<td>945</td>
<td>68</td>
</tr>
<tr>
<td>3</td>
<td>Kristnarayapuram Nattu Vaykkal</td>
<td>6</td>
<td>1,227</td>
<td>30</td>
</tr>
<tr>
<td>4</td>
<td>Kattai Vaykkal</td>
<td>4</td>
<td>1,587</td>
<td>67</td>
</tr>
<tr>
<td>5</td>
<td>Nangapuram Vaykkal</td>
<td>4</td>
<td>2,041</td>
<td>99</td>
</tr>
</tbody>
</table>


There were 307 tanks in the Manapparai taluk. The two largest tanks in the taluk worth mentioning are Maravanur, with an ayakat of 378 acres, paying an assessment of Rs.957 per annum; and Servalur (supplied from the Mamundi river), ayakat 266 acres, with assessment of Rs.666. There are a large number of tanks, some of which are of considerable size in this division; but they are, as a general rule, much silted up and in bad condition. Owing to the deficiency of their water-supply, only a small portion of the ayakat under these tanks was useful and the crops sown a large part withered every year. As the author of Tiruchirappalli gazetteer recorded: ‘The cultivators are a hardy race, but they are miserably poor and have been impoverished by frequent bad seasons. In fact a good season in Manapparai, either for the dry crops or the wet crops under tanks, is a very rare occurrence’.  

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History of the Cauvery Works:

About the year 1800 the Thanjavur district was ceded to the British, and in 1804 it was found that the Kollidam branch, from its more rapid fall and more direct course to the sea, was draining off at its head the main portion of the water supply of the river above the point of its bifurcation; while the Cauvery branch was silting up at its head.  

From the Lower Anaicut across that stream the Kollidam irrigates land in South Arcot as well as in Thanjavur. In the three Districts of Thanjavur, Tiruchirappalli, and South Arcot, the two rivers water 1,107,000 acres, yielding revenue of 41 lakhs. The capital cost of the works of improvement and extension in the delta has been 28 lakhs, and the net revenue from them is 81/2 lakhs, representing a return of nearly 31% on the outlay.

From 1804 -1829 an incessant struggle was maintained against the increasing tendency of the Cauvery branch to silt up at its head and efforts were made to force a larger supply of water into the branch. These efforts were ineffectual. The bed of the Cauvery branch continued to rise and the supply began to diminish. The area under cultivation to fall off. In 1830, under-sluices were built in the Grand Anaicut, together with waste weirs at eligible sites in the left bank of the Cauvery, in order to clear from its bed the accumulations of sand.

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The Udayarpalayam taluk of Tiruchirappalli contained the largest tank in India, about sixteen miles in length, but by the middle of the nineteenth century, it had ceased to work and remained only as a magnificent ruin.\textsuperscript{11} The Upper Anaicut, also known as Mukkombu, was a dam built on the Cauvery River. Mukkombu is about 18 kilometers (11 mile) west of Tiruchirappalli at a point where Kollidam River branches out from the main river Cauvery. Mukkombu is about 685-meter long (2283 feet), and was built in the 19\textsuperscript{th} century by Sir Arthur Cotton.\textsuperscript{12}

Under the British rule the bed of the Kollidam was gradually deepening, while that of the Cauvery was rising. The effect of the change was a constantly-increasing difficulty in securing sufficient water in the Cauvery for the irrigation of Thanjavur. In 1803 Captain Caldwell predicted that in the course of a few years, Cauvery would dry up ruining Thanjavur District.\textsuperscript{13} Various measures were adopted from time to time but in vain. At this juncture Arthur Cotton proposed to construct an anaicut across the head of the Kollidam where it branched off from the Cauvery. This work carried out in 1836 served the purposes for which it was intended. This anaicut known us the upper anaicut, although situated in Tiruchirappalli District, was designed for the benefit of Thanjavur, and remained under the supervision of the Public Works Department officer of that district.\textsuperscript{14}

\begin{itemize}
\item \textsuperscript{11} A. Sarada Raju, \textit{Economic Conditions in the Madras Presidency 1800 – 1850}, p. 115.
\item \textsuperscript{12} http://en.wikipedia.org/wiki/Upper_Anaicut.
\item \textsuperscript{13} Lewis Moore, \textit{Manual of the Tirchinopoly District, Vol-I}, p. 264.
\item \textsuperscript{14} \textit{Board of Revenue Consultation}, Vol.1442, dated: 05.02.1835, p. 1664.
\end{itemize}
The Cauvery Regulating Dam:

The measures to obtain entire command over the bed of the Cauvery were executed in 1843 on the recommendation of Colonel Sim. Accordingly central portion of the Kollidam dam was lowered by 2 feet. This was done at a length of about 700 feet. This added considerably to the volume of the Kollidam. Yet “the enlargement of the head of the Cauvery continued, the banks were cut away, and there was great difficulty in preserving the narrow part of the island that separated the two branches.”\(^{15}\) In order to rectify the defect, the construction of a masonry work regulating the dam across the mouth of the Cauvery was undertaken in 1844. This masonry work stretching 650 yards in length was completed in 1845.\(^ {16}\)

A dam across the Kollidam at the point where it entered South Arcot, became necessary. The intention for its construction was to restore what was destroyed by the construction of upper dam. The new lower anaicut was built across the river at a point about 70 miles below where the Kollidam left the Cauvery. It was provided with twenty – three under - sluices.\(^ {17}\)

The **Lower Anaicut or Anaikkarai** was a dam built on the Kollidam. It was situated about 70 miles below the Upper Anaicut and 20km from Kumbakonam. It was fitted with a shutter and sluice system that distributed the Kollidam water to various waterways. At Lower Anaicut, the Kollidam branched off into Manniar and Uppanai.\(^ {18}\)

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\(^{16}\) Ibid., pp. 265-266.

\(^{17}\) Ibid., pp. 266-267.

\(^{18}\) [http://en.wikipedia.org/wiki/Lower_Anicut](http://en.wikipedia.org/wiki/Lower_Anicut)
The lower anaicut was at first made only six feet in height. In 1837 two feet were added to the height, and, by the floods of that season, a breach was made in the work from the failure of the apron in rear, because of inferior materials used in construction. The breach was immediately repaired. But it affected its purpose in maintaining the irrigation of Chidambaram Taluk in South Arcot and a small portion of Thanjavur in a very satisfactory manner.

The danger of inundation was thus transferred to the Kollidam. The Collector of Thanjavur observed: special attention is now being paid to that river. Many lakhs of rupees are being spent on raising and widening its 200 miles of flood embankment, which involves the reconstruction of many of the large drainage inlets; while elaborate and costly works are being carried out to prevent erosion of the banks. A special charge has just been constituted for the conservancy of this capricious river.  

The Collector of Thanjavur forwarding a letter to the Government sent by the sub-Collector H. Forbes reporting the actual occurrence of a breach in the bank of the Kollidam, The agent of the Porto Novo Iron Company caused the trees planted at an expense of Rs.125 rupees 11 anna and 8 paisa.  

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20 *Board of Revenue Consultation*, Vol.1757, dated: 06.05.1841, p. 6713.
Revenue assessment:

The land revenues of Thanjavur both before and after the construction of these anaicuts are given here by contrasting the two periods of ten years which immediately preceded and followed the construction of the Upper Anaicut.

TABLE: IV – 2

Increase of Revenue after Construction of Upper Anaicut

<table>
<thead>
<tr>
<th></th>
<th>Land Revenue.</th>
<th>Extra Sources.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Collection of 10 years before Anaicut, during 1828 - 1837</td>
<td>3,438,144</td>
<td>958,630</td>
<td>4,396,774</td>
</tr>
<tr>
<td>Average Collection of 10 years After Anaicut, during 1838 – 1845</td>
<td>3,745,241</td>
<td>961,439</td>
<td>4,706,680</td>
</tr>
<tr>
<td>Increase in latter period</td>
<td>307,097</td>
<td>2,809</td>
<td>309,906</td>
</tr>
</tbody>
</table>


The river irrigated area of Thanjavur comprised 97,006 velies and a comparative statement of figures on the increase in the extent of cultivation in given in Table: IV – 3.22

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TABLE: IV – 3
Extent of Land Cultivated After the Building of Anaicuts.

<table>
<thead>
<tr>
<th></th>
<th>Average cultivation</th>
<th>Standard Beriz</th>
<th>Settlement Beriz at Current price</th>
<th>Revenue actually realized, deducting subsequent remissions.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Velies</td>
<td>Rupees.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before Anaicut, from 1832 - 1837 both inclusive.</td>
<td>83,581</td>
<td>28,67,437</td>
<td>28,31,404</td>
<td>28,06,554</td>
</tr>
<tr>
<td>After Anaicut, from 1838 – 1854 both inclusive.</td>
<td>90,277</td>
<td>30,83,466</td>
<td>30,11,448</td>
<td>29,84,506</td>
</tr>
<tr>
<td>Increase</td>
<td>6,696</td>
<td>2,16,029</td>
<td>1,80,044</td>
<td>1,77,952</td>
</tr>
</tbody>
</table>


Table IV – 3 explains that the cultivation of the river lands had increased by 6,696 velies, or 8%. Since the construction of the Anaicuts, and that the annual additional land Revenue to the province worked to Rs.1,77,952.23

According to the Board, the actual increase of revenue directly ascribable to the two anaicuts in Thanjavur Rs.1,77,952 plus Rs.90,000 was Rs. 2,67,952/- Table: IV – 3 highlights the expenditure incurred after construction of Anaicuts.

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### TABLE: IV – 4

**Expenditure on Repairs from 1837 to 1853**

<table>
<thead>
<tr>
<th>Year</th>
<th>Upper Anaicuts</th>
<th>Lower Anaicut</th>
</tr>
</thead>
<tbody>
<tr>
<td>1837</td>
<td>92,906</td>
<td>8,096</td>
</tr>
<tr>
<td>1838</td>
<td>1,06,446</td>
<td>7,603</td>
</tr>
<tr>
<td>1839</td>
<td>1,15,882</td>
<td>16,810</td>
</tr>
<tr>
<td>1840</td>
<td>88,632</td>
<td>26,589</td>
</tr>
<tr>
<td>1841</td>
<td>87,811</td>
<td>53,371</td>
</tr>
<tr>
<td>1842</td>
<td>1,04,446</td>
<td>14,555</td>
</tr>
<tr>
<td>1843</td>
<td>1,01,069</td>
<td>8,446</td>
</tr>
<tr>
<td>1844</td>
<td>1,05,582</td>
<td>13,795</td>
</tr>
<tr>
<td>1845</td>
<td>1,40,958</td>
<td>10,293</td>
</tr>
<tr>
<td>1846</td>
<td>95,309</td>
<td>11,923</td>
</tr>
<tr>
<td>1847</td>
<td>70,103</td>
<td>9,131</td>
</tr>
<tr>
<td>1848</td>
<td>95,710</td>
<td>23,567</td>
</tr>
<tr>
<td>1849</td>
<td>65,317</td>
<td>21,532</td>
</tr>
<tr>
<td>1850</td>
<td>1,42,298</td>
<td>24,658</td>
</tr>
<tr>
<td>1851</td>
<td>1,44,974</td>
<td>23,494</td>
</tr>
<tr>
<td>1852</td>
<td>1,64,275</td>
<td>32,674</td>
</tr>
<tr>
<td>1853</td>
<td>1,17,552</td>
<td>26,633</td>
</tr>
<tr>
<td>Average</td>
<td>1,08,192</td>
<td>19,598</td>
</tr>
<tr>
<td>Deduct average of previous year</td>
<td>1,01,327</td>
<td>16,044</td>
</tr>
<tr>
<td>Difference</td>
<td>6,865</td>
<td>3,554</td>
</tr>
</tbody>
</table>

The whole outcome of the building of two anaicuts

**THANJAVUR.**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual gross increase since the Anaicut</td>
<td>Rs.1,77,952</td>
</tr>
<tr>
<td>Deduct difference in cost of repairs</td>
<td>Rs. 6,865</td>
</tr>
</tbody>
</table>

**Profit**

Rs.1,71,087

**SOUTH ARCOT**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual gross increase since the Anaicut</td>
<td>Rs.90,000</td>
</tr>
<tr>
<td>Deduct difference in cost of repairs</td>
<td>Rs. 3,554</td>
</tr>
</tbody>
</table>

**Profit**

Rs.86,446

**Total net profit per Annum**

Rs.2,57,533

The next important work under taken was in 1845, when a regulating dam was built across the head of the Cauvery branch to counteract the effects of the Upper Kollidam anaicut, as it was throwing into the Cauvery branch a body of water far larger than required. In 1848, the construction of a regulating dam to the first principal offshoot from the Cauvery branch was begun; and subsequently regulating dams were provided for the other principal branches.\(^{24}\)

The Cauvery-Vennar regulators were built in 1851. They were reconstructed in 1886 at a cost of nearly seven lakhs of Rupees. The first few miles of the old Vennar course was then blocked up and a new cut made to that river from the new head. The regulators were fitted with the ordinary screw geared shutters. The Vennar- Vettar regulators were built in 1876 at a cost of Rs.97,000.\(^{25}\)

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In South Arcot, though the number of tanks did not increase much, there was a moderate rise in the number of channels and a considerable increase in that of the wells. The increase of channels mostly took place in the 1830s when repair works in the channels of Mannargudi and Chidambaram were undertaken. The Collector N.W. Kindersley of Thanjavur had recommended to the Board of Revenue for its repair based on a complaining of the damage. Petition from the Mirassidars of the village of Mannargudy done to a sluice by flood in 1830.26

**Anaicuts Across the Tamiraparani River:**

**Kannadian Anaicut System:**

The third anaicut across the Tamiraparani River is the Kannadian anaicut is situated just immediately below the confluence of Manimuthar with Tamiraparani River. It is a piece of substantial work supported on a foundation of solid rock. This anaicut originally constructed by the early rajahs of the south was rebuilt in 1842 by Captain Horsely and has later undergone extensive repairs. Carefully built cut-stone work, nine feet high with a top of six feet and is supported on a foundation of solid, the channel takes off from the right or southern bank of the river. Bishop Caldwell places the date of the anaicut between the fourteenth and sixteenth century and it may safely be inferred that it was the work of a Brahman of Kanara (Kannada), Hydraulic particulars of the anaicut are as under.27

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**TABLE: IV – 5**

Hydraulic particulars of Kannadian Anaicut

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Length of anaicut</td>
<td>1700 feet</td>
</tr>
<tr>
<td>2</td>
<td>Crest level of anaicut</td>
<td>212.90</td>
</tr>
<tr>
<td>3</td>
<td>No.of head sluice</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Sill level of head sluice</td>
<td>205.80</td>
</tr>
<tr>
<td>5</td>
<td>Size of vents of head sluice</td>
<td>4 Nos. of 4’0” X 6’9”</td>
</tr>
<tr>
<td>6</td>
<td>Discharge</td>
<td>434 C/s</td>
</tr>
<tr>
<td>7</td>
<td>Direct ayacut</td>
<td>8731.78 Ac.</td>
</tr>
<tr>
<td>8</td>
<td>Indirect ayacut</td>
<td>3047.92 Ac.</td>
</tr>
</tbody>
</table>


**The Marudur Anaicut:**

The first Civil Engineer in Tirunelveli district, Captain Caldwell, wrote about this dam as follows: “….The whole consisting of a rude mass (the result of repeats ruin and repair) which at the same time manifests a considerable degree of enterprise on the part of the ancient inhabitation of the country displays a very moderate share of corresponding skill or judgment." Its repair in 1808 cost nearly Rs.15,000. Two pillars engraved with inscriptions refer to repairs carried out by Torin in 1792 and seem to mark the limits of the reconstruction then carried out.\(^{28}\)

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Subsequent History:

The Srivaikuntam Anaicut:

The anaicut, at Srivaikuntam is a work of comparatively modern origin. Planned by one Captain Horsley, a contemporary of E.B. Thomas and protégé of Arthur Cotton, the Srivaikundam dam project reached the design state in the early 1850s. It was delayed by the 1857 rebellion because it relied upon imperial funds, but started moving again in the late 1860s under the leadership of Collector Puckle,29 The Mutiny, however, intervened, and no further action was taken in the matter for about five years and when the project was taken into consideration in 1862 it was then found that the original estimates were found to be inadequate. The scheme remained in abeyance until Collector Puckle took it up in 1866. In a year money to the extent of its Rs.20,000 was contributed by the ryots notably by those in Tentirupperai. The stones from the ruins of dismantled palayamkottai fort were used and therefore the project could be completed without any difficulty.

In January 1868 the partial failure of the monsoon and the consequent short supply to the Kadamba tank and the other tanks south of the river, Puckle, pressed the necessity of cutting immediately a channel at the point. Sanction was obtained to spend the unused balance of over 18,000 rupees on this work. Captain Prendergast's estimate had meanwhile been revised and sent up in 1868 by Lieutenant Shepherd. In spite of this important modification, the rise in prices had sent the

29 David Ludden, Peasant History in South India, p. 144.
estimate up to Rs.8.31 lakhs. However the area ultimately to be irrigated was calculated at 33,000 acres, and a return of 16 percent on the project was estimated.30

Papanasam Reservoir project:

The first reservoir to come up in the Tamiraparani basin is the Tamiraparani reservoir was "Hopelake" or Papanasam reservoir. This Project was mainly intended to conserve the flood water in the upper reaches of the Tamiraparani and to regulate their distribution to benefit Tirunelveli and Thoothukkudi districts. First Colonel A.T. Cotton proposed it and subsequently Captain Horsley in 1854 prepared a blue print to construct a dam about two km. above the Sorimuthayyan temple and eight km. from Papanasam falls, The reservoir was to extend up the Valley of the main river as far as the foot of the famous waterfalls of Banathirtham. Below the falls, the Tamiraparani is reinforced on the left bank by Karaiyar and on the right bank by the Pambar which descends from the Singampatti hills.31

During the years, 1855 and 1856 the project was examined by the Government but kept in abeyance. In 1872, the project was reexamined by Puckle along with the Gadananathi project. The site was surveyed and the proposal was deferred. The scheme was reviewed by Macleod in 1894 and the construction work was started in 1938 and completed in the year 1944.32

32 Ibid.
Description of the Anaicut and its system:

The anaicut, as it stands, is 1,380 feet long-between the wide walls rising eight feet above the general level (two feet were added in 1894-1895, as the bed of the river silted badly in front of the anaicut)\(^{33}\) of the river with a breadth, at the crown, of 71/2 feet. The pipes were at the time of the construction of the work brought up to the level of the crest, in order to accommodate a bridge, to be built. The existing bridge was built in 1890 by the District Board, originally founded by the ryots.

The Chittar System:

The Irrigation system of the Chittar with its numerous elements, the chief of which are the Hanumanadhi and the Pampanadhi, comes next in importance to that of the Tamiraparani. The river is controlled by eighteen anaicuts, the last of reach (at Gangaikondan) is eight miles above the point share in the village of Seevalaperi. The river joins the Tamiraparani three miles lower down there was once another dam of it’s supplied a large tank in Seevalaperi. It breached in and the tank-bed was under cultivation for a year. In 1856 a scheme for restoring the anaicut and tank was examined, but nothing came of the investigation. In 1868 the puckle again brought the project to notice, but again nothing was done.\(^{34}\)


\(^{34}\) Ibid.
The Seevalaperi Tank and Anaicut:

The Chittar tributary feed water to fifteen anaicuts, the last of which is eight miles above the point where the Chittar falls into the Tamiraparani. There was another anaicut once, some three miles lower down, but it now lies in ruins, and much of the stone has been taken away for reverting the bank of the river. This ruined anaicut that fed the large Seevalaperi tank once breached in 1796 and never since repaired. The bed of this tank was cultivated with dry grain, but the ryots suffered from drought and had to abandon their cultivation in the bed of the tank.  

On 22nd September 1840 from the collector E.B. Thomas of Tirunelveli suggesting certain measures under which the ryots of his District were asked to undertake the repairs of tanks and other works of irrigation at their own expense.

Bridge Across Tamiraparani River:

The Collector of Tirunelveli E.P. Thomson, submitted a report to the secretary P.B. Smith of board of revenue that the completion of the bridge over the Tamiraparani river between Ambasamudram and Kallakurichi at cost of Rs.17,225 in 1840. The amount of subscriptions received was Rs.19,056. A considerable sum in excess was collected.

The successful completion of the subscription bridge was with the support of the Engineer Officer Caption Fallen designed and Lieutenant Francis

35 Reprint Old Records about Papanasum Reservoir Project in Tinnevelly District, p. 19.
36 Board of Revenue Consultation, Vol.2181, dated: 01.02.1848, p.2076.
superintended the erection and the Tahsildar Mutaiah Pillay arranged for workmen and materials under the management of Collector C.J. Bird.37

In September 1838 Thomson, the Collector of Tirunelveli, forwarded copy of a letter from Sulochenam Mudaliar Naib (deputy) sheristadar of Tirunelveli cutcherry proposing to construct a bridge over the river Tamiraparani between Palayamkottai and Tirunelveli at his own cost & soliciting the support of Government recommending for the favorable consideration of the Board. The estimate of this Bridge was 36,000 rupees. But to cover all contingencies, Sulochenam Mudaliar was prepared to set apart 40,000 Rupees for the undertaking.38

From E.B. Thomas, Collector of Tirunelveli reporting the completion of the bridge built at the sole expense of Sulochanum Mudaliar, naib sheristadar of Tirunelveli district over the Tamiraparani rivers between the towns of Tirunelveli and Palayamkottai since 1843. On the first opening of the bridge in 1843 a public meeting took place in Tirunelveli of all the Europeans and respectable notables of the place to appreciate the public spirit exhibited by Sulochenam Mudaliar.39

A large elephant was the first to cross the bridge followed by the 15th regiment N.I. In marching the order under Colonel Derville a detachment of European artillery followed by Sulochenam Mudaliar and Douglas, the Session Judge.

38 Board of Revenue Consultation, Vol.1713, dated: 06.08.1840, p. 9891.
The Total cost of the bridge to Sulochanum Mudaliar including the ornamental work worked to less than 56,898 rupees. The aid contributed by Government had been the services of the civil engineer and his assistants, Lieutenant Selly of the artillery and the labour of 100 convicts engaged in earth work. Before the erection of the bridge there was a yearly expense to government of Rs.465 rupees, 9 anna 7 paisa for keeping up 2 ferry boats and of rupee 318, anna 3 :- for a tappal boat and 5 men ant Tirunelveli this was now saved.  

“The final completion of the bridge over the Tamiraparani river between the towns of Tirunelvelli and Palayamkottai was published in the Fort St. George gazette and praising that worthy conduct of this individual be acknowledged by government by some appropriate title as public benefactor.”

Sulochenam Mudaliar applied to defray the expense of eight handsome copper bridge lamps from England by Sulochenam Mudaliar at a cost of Rs.1000 and also requesting the board to grant a fixed sum yearly for changing the lighting and that any repair which may require from the expense of government.

E.B. Thomas the Collector of Tirunelvelli prepared and estimates of the annually repair of lighting in the Sulochenam Mudaliar Bridge accros the Tamiraparani River and forward it to the board under the date on 19th June 1845 the board granted for the disbursement of the sum of Rs.567 Rupees, and 10 anna.

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40 Ibid.
41 Board of Revenue Consultation, Vol.1957, dated: 27.02.1845, p. 2948.
42 Board of Revenue Consultation, Vol.1965, dated: 08.05.1845, p. 5673.
### TABLE: IV -6

**Disbursement of Annual Repairs of Lighting**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Rupees</th>
<th>Anna</th>
<th>Paisa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coconut quil to light three out of the six wicks of each lamp for 8 lamps being 4 measure per day or for 365 days</td>
<td>1460</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coconut quil to the light the other 3 wicks in addition to the above vize the lamp complete on festival and particular days in which passenger cross the bridge in large numbers the whole might being 15 days in a year at 4 measures per day.</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Measures</td>
<td>1520</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At 4 anna per measure</td>
<td>380</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Value of thread for the whole year</td>
<td>6</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>Value of cloth for cleaning the lamps</td>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pay of 2 anna for cleaning and lighting the lamps</td>
<td>168</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>For breakage of glass per annum</td>
<td>10</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>567</td>
<td>10</td>
<td>-</td>
</tr>
</tbody>
</table>

**Source:** *Board of Revenue Consultation*, Vol.1976, dated.04.08.1845, p. 9387.

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**Coimbatore District:**

**Bhavani:**

The Bhavani is a perennial stream which affords the best irrigation in the erstwhile Coimbatore district. Its water from its several anaicuts irrigated large tracts of lands. The principal old anaicuts across it were the Kannoniyampalayam anaicut in the Avinashi taluk and the Kodiveri anaicut in the Gobichettipalayam taluk.

The former which was 12 miles below Mettupalayam and which was irrigating some 400 acres, has since been submerged with its ayacut by the Lower Bhavani Project. The latter was originally constructed some 370 years ago. In view of the difficulty of
feeding its two channels when the supplies in the river were low sand bags were formerly put over its crest to raise the level of water.\textsuperscript{43}

The Bhavani River in its course from the Bhavani Sagar to the Cauvery irrigated Satyamangalam, parts of Odiyur, Perundurai and Erode. The Amaravati irrigated the taluk of Chakragiri and Dharapuram. And that part of the Cauvery which flowed through the border of Salem and Coimbatore more securely irrigated the taluks of Erode and Karur.\textsuperscript{44} Moreover, there are a number of minor rivers like Shanmukha Nadi in Dharapuram, or the Palar (flowing from Kerala) in Pollachi, in addition to a considerable number of channels throughout the district. In terms of the number of water courses in 1819-20, the Karur, Pollachi and Coimbatore taluks seemed to get larger channel irrigation.

The tanks were not much important in Coimbatore; their total number in 1819-20 was 219, which increased to 299 by 1851-52. The major concentration of the tanks was in Andiyur, Koligal and Chakragiri. The wells, which were extensively used for garden and even dry land, were largely found in Perundurai, Cheyyoor, Erode and Kangeyam.\textsuperscript{45}

The Bhavani has also other channels and some tributaries. There is the Kalingarayan channel in the Erode taluk which takes off on the right at the Kalingarayan anaicut near the Bhavani Bridge just above the Junction of the Bhavani

\textsuperscript{43} B.S. Baliga, \textit{Madras District Gazetteers – Coimbatore}, p. 257.
\textsuperscript{44} \textit{Board of Revenue Consultation}, Vol.1402, dated: 10.04.1834, p.3035.
\textsuperscript{45} Arun Bandopadhyay, \textit{The Agrarian Economy of Tamilnadu 1820-1855}, p. 25.
and the Cauvery, which is 62 miles long irrigating about 12,800 acres. There was the
Orakkarai Venkatrama Chettiar anaicut in the Avinashi taluk which flowing into the
Bhavani on the right irrigated a few acres. As this anaicut and its channel were in
ruins proposal to construct a new masonry anaicut with head sluices, etc., was made
to restore the channel at a cost of 6 lakhs of rupees to irrigate about 300 acres.\textsuperscript{46}

A petition presented to government by Samy Koundan in 1837 and
other inhabitants of Chittrachavedy village in the Coimbatore district complained of
the loss due to widening the River Noyel and which was forwarded to chief secretary
by the sub Collector for consideration and report on 20\textsuperscript{th} April 1837. According to the
government order J.A. Anstruther, the sub Collector, conducted a survey and
communicated with the acting secretary P.B. Sinslett that they were the proprietors of
the gardens on the borders of the Noyyel River. Under these circumstances and as the
widening of the River was stated to have been determined that it was a necessary
measure. So the Board rejected the petition.\textsuperscript{47}

Total expenditure in Coimbatore District on new irrigation works
amounted to Rs.26,268. The new works included the extension of the Kalingarayan
Channel, the operations of which were very unsatisfactory, and much delayed by
various circumstances during latter part of the year 1856. The Arkancottah and
Thaddapally channels from the River Bhavani also did not progress rapidly.\textsuperscript{48}

\textsuperscript{46} B.S. Baliga, \textit{Madras District Gazetteers – Coimbatore}, p. 257.
\textsuperscript{47} \textit{Board of Revenue Consultation}, Vol.1578, dated.19.09.1837, p. 12838.
\textsuperscript{48} John Gray, \textit{General Report on the Administration of the Several Presidencies and
In 1845 as the public water course at Kotagiri was neglected. The original channel had broken in many places and Major F. Minchin who made a survey found it impossible to repair it. Therefore on 21st September 1846 the board ordered that to cut a channel by the side of the road leading to Kotagri to irrigate his lands at Cunnoor.\textsuperscript{49}

And finally, there is the Chickarasampalayam which falls into the Bhavani just before it flows into Satyamangalam. It has been proposed to put up a reservoir across the stream 4 miles from Chickarasampalayam to irrigate 250 acres. The idea of utilizing the surplus waters of the Bhavani by constructing more reservoirs for the extension of irrigation in the district is more than a century old. It was again and again considered in the last century, in 1834, 1857, 1866, 1880, and 1897 but to no avail.\textsuperscript{50}

Some works have been constructed on the Siruvani, an important tributary of the Bhavani. The siruvani is a perennial stream which rises in the Attapadi valley 25 miles west of Coimbatore town and fed by the Muthikulam waterfalls and also by some streams. After flowing north it falls in to the Bhavani. At one time the question of a combined water supply and hydro-electric scheme for supplying drinking water and electricity to Coimbatore town by constructing a dam on the Siruvani was considered, but the hydro-electric scheme was abandoned after the pykara Scheme was taken up. For supplying drinking water however, a dam was subsequently constructed to height of 23 feet at a cost of Rs.2,17,725 across the

\textsuperscript{49} Board of Revenue Consultation, Vol.2045, dated: 29.10.1846, p. 13728.

\textsuperscript{50} B.S. Baliga, Madras District Gazetteers – Coimbatore, p. 257.
Siruvani just below the confluence of the Gopiar on its left at a place where it runs in a narrow gap on a rocky bed to form a small lake. A little water that surplus over the dam flows into the old course of the Bhavani. A channel takes the water from the lake through a tunnel 6 feet by 8 feet long cut at a cost of Rs.8,60,180 through hills which form the watershed between the Bhavani and the Noyyal.51

The Noyyal, is a jungle stream whose freshes are noted for their brief duration. The irrigation under its channels has consequently been supplemented by tanks which it fills up along its course. It has specially enriched the neighbourhood of Coimbatore by its channels and tanks. Its water was fully utilized for irrigation in the Coimbatore and Palladam taluks. No less than 13,213 acres were irrigated under its 8 anaicut in the Coimbatore taluk. Of these anaicuts, the Neeli anaicut irrigated 1,030 acres on the right; the Padukkadu anaicut 585 acres on the left; the Kuniamuthur anaicut (or the Perur anaicut) 1,037 acres plus 1,747 acres on the right; the Coimbatore anaicut 143 acres plus 2,327 acres on the left; the Kuruchi anaicut 60 acres plus 452 acres on the right; the Vellalore anaicut 338 acres plus 331 acres, on the right; and the Singanallur anaicut 455 acres plus 845 acres' on the left. Besides this, 3,062 acres were irrigated under its 17 anaicuts in the Palladam taluk, but the extent of cultivation under these anaicuts was small, except under the Oddarpalayam anaicut which irrigated 634 acres plus 129 acres. One of these anaicuts also irrigated some areas in the Dharapuram taluk and a channel from another of these anaicuts supplied water to the Sulur tank in the Palladam taluk. The increased ferocity of the

51 Ibid., p. 262.
freshesthe Noyyal as well as the decrease in its underground flow was attributed to the denudation of the Bolampatty forests at its source.\textsuperscript{52}

**Northern Districts:**

The Palar rose in Nandi hills in Karnataka state, and flowed 93 Km in Karnataka, 33 Km in Andhra Pradesh and 222 Km in Tamil Nadu before its confluence into the Bay of Bengal at Vayalur about 100 Km south of Chennai. The cities of Vaniyampadi, Ambur, Vellore, Aroct, Walajapet, Kanchipuram and Chengalpattu are located on banks of Palar River. Of all the total of seven tributaries the chief tributary was Cheyyar River.\textsuperscript{53}

The Cooum (Kuvam) is formed by the surplus water of the Kuvam tank, and after flowing through the Saidapet *taluk* and Madras city merged into the sea near Fort St. George. Besides these, there were the two smaller streams of the Cheyyar and the Adayar. R.A. Bannerman, Deputy Secretary of Board of Revenue authorized the repairs of Cheyyar tank with the promise that the *sarkar* would bear half the charge provided the other half was borne by the Mittadar bearing half. This condition was applied with regard to the great tanks of Maduranthagam and Chembarambakkam.\textsuperscript{54} The antagonism between the languid waters of these rivers and the sand-laden currents of the Bay resulted in the formation of a string of brackish backwaters along the coast, the chief of which were the Pulicat and Ennore Lakes.

\textsuperscript{52} Ibid., pp. 262-263.


\textsuperscript{54} *Board of Revenue Consultation*, Vol.1301, dated: 22.09.1831, pp. 9820-9821.
These were connected by the Buckingham canal. None of them was navigable, and for most of the year the smaller ones were dry.

The Adyar is a short river about 42 km long from its origin to the sea. Originating near Chembarambakkam lake in Chengalpattu district it joined the Bay of Bengal at the Adayar Estuary. The river collects surplus water from about 200 tanks and lakes, small streams and the rainwater drains in the city. Two small streams standing beyond Tambaram assumed the proportion of a river after the confluence of the surplus discharge of Chembarambakkam tank.

The catchment of the river lay in the Chembarambakkam basin. Of the 450 Minor irrigation tanks in its basin 219 were in the Chembarambakkam group. When there was a good North East Monsoon most of the tanks filled and overflowed - causing floods in this river. The average annual yield of Adayar had been computed as 140 MCM.\(^5\)

Chengalpattu had an elaborate tank system, and the larger tanks of Uttiramerur, Thenneri, Chembarambakkam, Red Hills, and Maduranthagam were all located in central and southern parts of the district. The Chembarambakkam tank was the biggest one, irrigating usually as many as 52 villages. However, these tanks were not always in full supply. The tanks of the northern taluks were mostly shallow and insecure.\(^6\)

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The river system could not be always depended upon, while the tank system was subjected to failure. The latter was not only due to seasonal scarcities, but also to certain defects in the construction of the tanks concerned. The tanks often breached or inundated in the middle of a season, causing subsequent loss of water; and sometimes water was let off through sluices in anticipation of inundation and then there was no water. Consequently, even some cultivable, good wetland could become waste in Chengalpattu district.\(^{57}\)

The Chembarambakkam irrigation tank near to Madras city has a registered ayacut irrigating 6,192 hectares. There is an unwritten convention among the ayacutdars covered by this outlet to use waters on a weekly rotation. They have seven locations of temporary diversion bunds. The distribution was made by mutual arrangement. One among the beneficiaries of the unit acted as the co-ordinator for water distribution.\(^{58}\)

**Veeranam Tank:**

Adjacent to North Arcot, the district of South Arcot also had important rivers and irrigation tanks. The major rivers are the Vallar, the Pennaiar. Of these rivers, it was only the Kollidam which had an extensive network of channels irrigating mainly the taluk of Mannargudi of the district. Most of the tanks were concentrated on both sides of the Vellar in the southern parts of South Arcot, and on both sides of the Pennaiar and the Gadilam from the west to the east belt in the central South Arcot. Some of the tanks were very big, like the Viranam *yeri* extending over Mannargudi and Chidambaram.

\(^{57}\) *Ibid.*

\(^{58}\) A. MohanaKrishnan, *Selected Papers on Irrigation*, p. 75.
Viranam has been called the largest tank of South Arcot. Its bund is about ten miles long, and when filled to the level at which the calingulahs are open, it is twenty-five miles in circumference. The tank was linked with the Kollidam by the Vadavar channel which was 14½ miles long and in its course toward the tank, distributed water to seventy-eight villages from twenty-six sluices, erected at intervals on its banks. Similarly the Khan Sahib Canal irrigated the extensive villages of the Chidamбарam taluk in its course from the Viranam yeri to Pichchavaram forest areas. The Veeranum Tank in South Arcot which irrigated thousands of acres, across 149 villages in 1850 and provided a revenue of Rs.1,14,500.

Yet cultivation was dependent on seasons to a great extent in South Arcot. Except Mannargudi and Chidambaram, the rainfall level was indispensable even for the workability of the available irrigation facilities. The Pennaiyar, but more markedly the Gadilam, were highly vulnerable to any unfavorable season. So was also the innumerable number of small tanks whose capacity of storing water was limited. The district experienced the most unfavorable seasons in 1823 - 1824 and 1832 - 1833, and a number of generally unfavorable seasons in 1821 - 1822, 1828 - 1829, 1831 - 1832, 1838 - 1839, 1843 - 1844, 1845 - 1846, 1850 - 1851 and 1853 - 1854. The very good seasons were 1837 - 1838, 1839 - 1840 and 1854 - 1855; the remaining seasons were mixed ones. Within these broad seasonal trends, there were occasional failures of the early moderate rain (important for the good dry cultivation), or of the late rain (important for indigo cultivation) The result of all these was that South Arcot as a whole remained a predominantly dry district, and

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with the possible exception of only one part, its wet cultivation was generally insecure.\footnote{Arun Bandopadhyay, \textit{The Agrarian Economy of Tamilnadu 1820-1855}, p. 23.}

Compared to the former districts, Salem was a very big district. It included the present Salem and Dharampuri districts. There were 15 taluks in Salem which was divided into three physical zones: Balaghat, Baramahal and Talaghat, the last being also known as Payenghat. Salem was predominantly a dry area, more than 90% of cultivation belonging to that category. Of the little over 7% wet land of the district, most was concentrated in the southern taluks (i.e. the Talaghat Division).\footnote{Ibid., pp. 23-24.}

\textbf{Well Irrigation:}

The private investment in wells varied in size and nature in different parts of Tamilnadu. Wells and tanks also cost differently in different parts of Tamilnadu. In Tirunelveli, the expense of digging a new well capable of irrigating from about 0.2 acres to about 20 acres ranged between Rs.2 to Rs.200. But in most of the other districts the cost was much higher. In Guntoor it was Rs.50 to 400, and in Coimbatore, the expenses ranged from Rs.150 to 300. In Tiruchirappalli, the cost was very high, and it averaged between Rs.500 and 600.\footnote{Ibid., p.117.} In Thanjavur, wells capable of providing water for two years cost Rs.15 only, while wells constructed in the sand and clay tracts for tobacco cultivation cost between Rs.25 and Rs.35. In Madurai, a well sufficient to irrigate 17 acres of dry land would cost as much as Rs.150, which could be recovered only after 6 years. In Tiruchirappalli, for the taluks south of the Cauvery,
the recovery of the money invested in wells took about 15 years, while in the north of
the Cauvery the period was seven years. The high cost was a hindrance to the
expansion of irrigation through wells in Coimbatore and Tiruchirappalli. In
Coimbatore, wells used to cost between Rs.150 and Rs.300.

As far as the tanks were concerned, the variations equally existed. In
Madurai, the cost of construction per tank varied between Rs.204 and Rs.744. In
Madurai, as far as tanks were concerned, the cost factor certainly affected their
construction.64

The factor that determined the volume of investment in the
construction of wells was the state of the other sources of irrigation. Where channel or
tank irrigation was insecure and insufficient and repair works neglected by the
government or when there was a large failure of these sources of irrigation, the need
for construction of wells was increasingly felt, irrespective of the-cost factor. For
example, though the produce through well irrigation was only two fifths of the usual
produce through tank or channel irrigation, the ryots sank more and more wells in
Madurai in the very unfavorable season of 1836 - 1837. Similarly, in North Arcot
where tank irrigation for various reasons was declining, wells were increasingly dug
to meet growing need of cultivation. Indeed, it was even stated that kudimaramath
was neglected by the industrious cultivators who preferred sinking wells to
contributing labour to the common irrigation repairs in North Arcot. 65

64 Arun Bandopadhyay, The Agrarian Economy of Tamilnadu 1820-1855, p. 56.
65 Ibid.
Private investment in wells was checked by the system of additional taxation and this again, hindered the conversion of dry land into wet or garden through wells. The Collector of Chengalpattu thought that no extra tax should be imposed at least for five years since the construction of a well. In Tirunelveli, no additional taxation was imposed. If a ryot cultivated dry land through the newly constructed well at his own cost, in Salem, along with the rule of additional taxation, there was the vexatious rule insisting on a peasant taking prior permission of the tahsildar before digging a well. The Collector recommended that only wells at a cost up to Rs.20 with such prior permission in a place not harmful to government source of irrigation should be exempted from additional taxation. In Coimbatore also, well and irrigation was finally checked by similar conditions.66

But in spite of the heavy charges and the uncertainty attending it, well-construction was considered worthwhile, and there were thousands of wells even in districts which afforded few facilities. As against tanks which often dried up, the advantage of wells was the certainty of supply. Hence tobacco, chilies, onions and other garden crops which required a constant supply of water were raised largely by means of well irrigation. Wells were considered to be the very "heart and life of the district," and the "mainstay" of the ryot as well as of the revenue.

The methods of raising water from wells were extremely simple and they were the same throughout the period. Cattle power was largely employed, the most common method being the water-wheel. A pair of oxen moving up and down an inclined plane raised and lowered a skin bucket suspended over a roller pulley. By

66 Ibid., p. 57.
this method the cost of irrigating a dry grain crop ten to twelve times amounted to Rs.20 to 24 per acre. Another common contrivance was the *yettam* or *picotah*, which is still seen in many gardens and fields. Water was raised in a bucket by a man walking up and down a balance beam, moving on a pivot, to the end of which the bucket was attached. In some parts a *capily* was used by which two teams consisting of a man and a pair of bullocks could supply half an acre with water for rice cultivation. In Malabar, a machine called a *chakram* was employed for draining fields, and in other parts, a basket suspended by four ropes. All these instruments for raising water were very ingenious, simple and effective, but they involved an enormous wastage of labour and of time.\(^{67}\)

As for well irrigation, its extension was checked by the additional taxation in Chengalpattu in the 1830s and 1840s. A marked increase in the number of wells occurred, particularly since 1838-39 which can be partly accounted for by the better counting and probably more by greater use of well irrigation for increasing dry culture and for wet culture in bad seasons, as in 1838-39.

The total number of wells maintained by the government in 1847-48 was 21,186, of which 7015 or about 33 per cent were out of repair. Of the private wells in the same year, the major concentration was in Chetpat (3031), Kallakurichchi (2700), Tindivanam (2405), Villupuram (2215) and Virudhachalam (2105); and their number was the smallest in Chidambaram (84), Mannargudi (114) and Cuddalore (171). But compared with the total number of wells which had existed during the survey of 1807, the (private) well irrigation had increased notably in the

\(^{67}\) *Ibid.*
taluks of Tiruvadi, Villupuram and Virudhachalam, each of which had insecure wet cultivation. This is because of failure of channels in these taluks.  

As for Salem in the 1840s, the number of wells and tanks remained almost unchanged. In Baramahal, cultivation through wells was scarcely prevalent. However, the increase in the number of wells was checked due to the rule of fasalijasti by which additional taxation would be imposed on any improvement of land through wells. If a ryot converted his dry land into garden or wet land, or his garden into wet land by means of water drawn from any government tank and well, the difference between the original assessment and the average rate of revenue of the converted kind of land in the same or adjoining villages would be added to the jamabandi accounts under the head of fasalijasti. At the same time for any repair of an old well or channel in garden waste land undertaken at any expense below Rs.15 by the ryots themselves, there would be no remission on the usual rate of revenue. The ryots were allowed to enjoy temporary concessionary rates only for substantial repairs undertaken at a considerable cost. However, in the early 1840s, the fasalijasti rules were so modified that no additional assessment would be imposed in cases of improvement of the regularly assessed dry land through sinking of wells at the expense of ryots themselves, subject to two conditions: First, if such a well was sunk near the sources of water managed by the government, it would be considered a government well, and regular fasalijasti would be collected. Secondly, if a ryot cultivated his own land by water from others' wells, he was subject to fasalijasti assessment.  

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68 Ibid., p. 50.
69 Ibid., pp. 50-51.
As for Coimbatore, the district known for its extensive use of well irrigation, the wells were mostly used for garden lands. The average assessment of these lands was about four times that on dry lands, and the system of charging full rates for garden lands without any provision for commission certainly discouraged well-digging, and sometimes caused even abandonment of many wells.\textsuperscript{70}

In the two divisions of Madurai and Dindigul in Madurai district, the working of tanks and wells was different. As for the number of tanks, there was a sharp decline in Madurai. Even in the securely wet tracts of Madakulam and Uthamapalayam in the Madurai division, only small pond irrigation was more common. It has been found that the number of small ponds exceeded 2000 in this division during the period. As for wells, the Dindigul division remained throughout at the top in total number, but the overall rate of increase was higher in the Madurai division than in Dindigul, though there was some decrease in the late 1830s in this division. Probably the small pond irrigation in Madurai was increasingly supplemented, by the construction of wells in the insecure tracts of the district.\textsuperscript{71}

Wells were mostly concentrated in the rain fed villages of Thanjavur. In Tirunelveli the number of wells significantly increased prior to 1840. Well irrigation was also common in Tiruchirappalli. David Ludden has computed the growth of the Tamiraparani irrigated acreage at a rate of more than 1\% per annum in between 1825 and 1854. But as he points out the investment came through both public and private investment.\textsuperscript{72}

\begin{flushright}
\textsuperscript{70} \textit{Ibid.}, p. 52. \\
\textsuperscript{71} \textit{Ibid.} \\
\textsuperscript{72} \textit{Ibid.}
\end{flushright}