CONCLUSION
The use of irrigation for agricultural purpose is traced to the early Egyptians, who were irrigating their fields with water from the Nile river. Evidence shows that other ancient civilizations, such as those of the Babylonians and the Chinese, also developed largely as a result of irrigation-based agriculture. In India irrigation was practiced extensively in the Punjab and Sind in the Indus Valley in the north and in the Cauvery Delta in the south. Excavations in Mohanjodaro and Harappa have confirmed the existence of extensive irrigation systems in the Indus Valley. According to Kautilya’s *Arthashastra* there were officers to monitor fresh water sources, dams, tanks and irrigation systems. Sangam literature mentions paddy cultivation through river and tank irrigation. *Pattinapaalai* refers to the existence of two tanks – Suryakundam and Chandrakundam in the port city of Poompuhar. *Silappadhikaram* of Ilango Adigal, belonging to this period gives clear evidence of irrigated agriculture. Karikal Chola constructed the Kallanai in 1st A.D. across Cauvery and averted unprecedented floods in the river Cauvery. In Tondaimandalam region, the kingdom of the Pallavas thrived from 5th century to 9th century because of huge irrigation tanks. Several largest irrigation tanks like Chembarambakkam tank, Cauverypauk in the Palar basin, were built during the Pallava reign. Similarly, in two other regions of Pandya-mandalam and Cholamandalam big embankments were constructed to raise the level of water so that it passed into channels to irrigate paddy fields in the up-river tracts. In Tirunelveli the system made out of the flow of Tamiraparani river was capable of irrigating the entire region in the thirteenth and fourteenth centuries.
Even though the rulers developed water resources, the local people seem to have maintained them. From the stone inscriptions found in Uthiramerur, we could see there existed in the time of Imperial Cholas an *Eri Varium* containing a group of people under Nattamai of the village to maintain the irrigation tanks (Eris). Even the procedure how the members were to be selected for *Eri Varium*, avoiding the corrupt and persons of less integrity had been clearly stated. During this period, irrigation was managed by *sabhas* or assemblies in Brahmadeya villages. In non-Brahmadeya villages there were assemblies called *ur*, which managed the irrigation tanks. Above the *sabhas* and *urs* at the village level were the Nagarams (towns) and the Nadus (territories). The custom of *Kudimaramath* was followed and according to this system free labour was offered by certain lower caste groups. During the Vijayanagar-Nayaka period in the sixteenth and seventeenth centuries, the initiative in the creation and maintenance of irrigation works came from *palayakkaras* and *amaranayakas*.

I

The East India Company administration that took over the governance of territories in the south introduced ryotwari system, while converting erstwhile palayams into zamins. In both ryotwari tracts and zamindari areas, the district administration had the power to auction off the land for the arrears of land tax. In case of total bankruptcy, the zamindari management was taken over by the District Collector. The grant of revenue remission was rare and even there the remission given was inadequate. This too was applicable to the ryotwari lands only. As the zamindars were paying the *peshcush* (land tax) in a fixed amount, the remission did
not apply to them. In ryotwari areas the land revenue was generally fixed at half the gross produce on dry lands and three-fifths on wet lands. Higher rates were levied on the gardens or improved lands, where high-value crops were grown. The Board of Revenue itself admitted in 1818 that the cultivator often got only a fifth of the crop or less.

Though the creation of channels and any major repairs of both channels and tanks were always regarded as part of government responsibility, there was no Public Works Department prior to 1850. Irrigation was looked after by Civil Engineering Department under the Board of Revenue. The Collectors had to report to the Board of Revenue as to what works required repair, with an estimate of the expenditure. Minor repairs were looked after by the local authorities, while the major ones were entrusted to the Superintendent of Tank Repairs and Water Courses. Any major investment in channel works and tank irrigation was negligible in comparison with the land revenue earned from the wet areas. Indeed, except the Upper and Lower Kollidam Anaicuts in the late 1830s, benefiting parts of Thanjavur and South Arcot, all public expenditures were only on repair works.

The inadequacy of the government expenditure on irrigation was due to the colonial policy of making investment only in profitable propositions. The sanction of any project by the Board of Revenue depended on how much returns the investment would bring forth. Therefore needs of tank irrigation in many places were not attended to. Again, even in cases where Civil Engineers recommended repairs of irrigation channel, the Collectors often ignored them. They saw to it that annual investment did not exceed 7% of the annual revenue of the wet lands of the district.
As a result of the above policy, even the limited expenditure was only in a few richly irrigated areas where wet crop cultivation was extensive. In parts of Thanjavur and in Salem, for example, extensive repairs and improvements in the form of sluices were undertaken several times, beginning from 1821-1822. Similarly, despite some delay, extensive channel work was executed in Chidambaram, South Arcot. In dry regions the government negligence in repair works was very obvious. In North Arcot, where the repair of tanks was entirely the government's responsibility, it was neglected to such an extent that the number of tanks in good condition drastically declined and that nothing was done, despite the appeals of the farmers to the Collector.

In 1809 the duty of superintendence of tanks was divided between two Civil Engineers and in 1819, their number was raised to three. They toured the districts, examined the reservoirs and channels and effected repairs where ever necessary. However the money allocated for the expenditure on irrigation works was totally inadequate. It was claimed that "large sums" were spent on account of irrigation but these "large sums" really amounted to a few thousand rupees per annum for districts yielding some lakhs of revenue each. As far as charges on repairs were concerned, according to the computation of the Public Works officials in 1852, they were less than 2% of their total annual yield and little more than 4% on the revenue derived from them.

For a long period of time the supervision of repairs was entrusted to officials who had no knowledge of engineering. This led to a great deal of wasteful expenditure. Besides during British rule, the farmers desirous of constructing tanks or
wells at their own expense had to apply to the district Collector for his permission. If any ryot dug a well or built a tank without Collectors permission, he shall be charged upon the land. When experts were finally recruited, they were less in number, while their responsibilities were too heavy to manage the affairs of irrigation. It was not till 1838 that the Maramath Department was reorganized. The whole Presidency was divided into eight maramath divisions with a civil engineer at the head of each. Till the eighteenth century, 4 to 5% of the gross produce of each village was set aside for the maintenance of the irrigation tanks, including regular de-silting, and maintenance of the inlets and irrigation outlets. Manyams or lands free of revenue were assigned for the maintenance of the tanks and there were functionaries responsible for their maintenance. Kudimaramath was the traditional community-based system devised for the maintenance of the Eris. Even after the advent or the British, Kudimaramath prevailed for some time. The Tahsildars looked after tanks and water courses with assistance from village peon, toti, taliari and others. They would watch the tanks and watercourses and as soon as any damage was discovered, the Tahsildars would alert the ryots of the village or villages concerned. But with the decay of village corporate life and the weakening of the power of village officers, Kudimaramath fell into disuse. Further, the Company assumed an increasing responsibility for irrigation during the later stages of their administration, while the ryots' role diminished proportionately. On the whole however, Kudimaramath as a system had become defunct.

The Maramath Department during the British rule undertook public works of all kinds and was thus a very important department of the government in the early British period. The English Collectors assumed the charge of works of irrigation
along with that of collection of land revenue. The East India Company had framed rules relating to the tank department for the district Collector’s guidance. The Collectors were directed to conduct all correspondence in respect of estimates or actual charges on tank irrigation, repair of roads and *choultries* through the Inspector of Tank Estimates. As the maintenance of the irrigation works in good condition was essential to the guarantee of revenue, Engineering Officers were appointed under the title of “Superintendents of Tank Repairs” to aid the District Collectors.

Irrigation gave security to agriculturists and made agricultural production larger and more diverse. Yet while both railways and irrigation demanded large investment of capital resources, the former was felt important because the Company Government had to give outlet to the surplus earned by the factory owners in England after Industrial Revolution. Moreover they required that network to move the troops from one part to another to crush any rebellion or revolt by any aggrieved group. Even as late as 1840 the collector of Tirunelveli E.B. Thomas suggested certain measures of which one was the ryots to undertake the repairs of tanks and other works of irrigation at their own expense. Despite floods, silting, breaches, and deterioration, farmers who used the Tamiraparani water always had an incentive to get repairs done immediately and investors were in plenty with cash to do the job. But this was not the case in other parts, especially in dry regions.

II

The British laid down rigorous bureaucratic procedures for the planning and executing any repairs to be undertaken on the then existing irrigation works. Similarly stringent rule had been framed in the appointment of staff and
determining the salary. The official had been given written instructions to be followed in estimating the expenses and spending the money earmarked. Clarke, Collector of Madurai, informed the Board of Revenue in 1835 that 2 annas per cawny was fixed on the all the cultivated lands in addition to Maramath Cess. As pointed out earlier for a century before the advent of the British rule, irrigation had been badly neglected on account of wars and political changes. In 1801 when the East India Company took over the Thanjavur district, irrigation was rapidly deteriorating- the channels were silting up and fields were left uncultivated for want of proper water supply. To re-establish satisfactory irrigation conditions was one of the first problems for the British government. The success of the Jumna Canals in northern India prompted the colonial bureaucracy to attempt improvement of the Kollidam works in the south. In 1836 the work was completed and the lands irrigated from the Kollidam and Cauvery increased from 80,000 acres to 7,16,000 acres; and the land revenue was increased by Rs.44,000, per annum, giving a return of over 24% on outlay.

The development which took place in well irrigation was owing to the liberal policy pursued by the Company during the closing years of its rule. This was done by way of exempting private improvements from additional taxation from 1852, in which year orders were issued to the effect that the ryots would be allowed the full benefit of their own improvements, that the lands thus improved would not be subject to any additional assessment. A section of the official opinion consistently opposed the extension of irrigation on the assumption that the quantity of grain produced in the districts of the presidency was fully sufficient to meet the demand of the population. To support their argument they pointed to the prevalence of low prices in 1840's and pleaded that any additional production would tend to glut the market by further
reduction in the price of grain resulting in discouragement to the agriculturist thereby making him not use the additional means of irrigation provided at huge expenditure.

Another reason which made the Company cautious towards the extension of irrigation was the fear that there was not only insufficient labour in the country to execute such big projects but also insufficient agricultural stock to make use of the extended irrigation facilities if provided. Many huge tracts of good land, in spite of the extension of irrigation facilities, remained waste and uncultivated not because of inadequate supply of labour, or insufficient agricultural stock, but because of a very high assessment of land.

III

The British while taking over the imperial administration had inherited over 39,000 irrigation tanks which accounted for 45% of the area brought under irrigation through channels, tanks and wells. 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. Of the 450 Minor irrigation tanks in its basin 219 were in the Chembarambakkam group that irrigated about 6,192 hectares of land.

The British also took over management of the then existing ancient canal systems as on the Cauvery River. Without local maintenance these quickly fell into disrepair, so the government did not know what to do except to appoint engineers to look after them. Usually the large tanks were maintained by the state Government
and the smaller ones were in charge of the local revenue officials. In 1810 Lieutenant
Johnson, the Superintendent of tank repair in Thanjavur district explained to the
Collector Wallace that the unusual rains damaged the various places of and the
solidity of the embankments were necessary to the future security of the banks and
cultivation. In 1810 Wallace, the Collector of Thanjavur Ordered Lieutenant Johnson
Superintendent of Tank Repairs, to attend to the repairing work of south banks of
Srirangam, that required chunnam, jaggery, gravel & other materials to do the repairs.

The Collector of Thanjavur, forwarded a letter to the Board from the
Superintendent of Tanks Repairs regarding a project that proposed to supply water
from Kollidam into the Udayarpalayam to ensure a full supply of water to 23 villages.
The Board of Revenue was repeatedly told that the repairs required in the river
Cauvery, which branched out into numerous subordinate streams & channels, the beds
of all of which required to be more or less cleared out every season & their banks
partially raised & strengthened. The Board knew that accumulation of sand on the
bed of the Cauvery near the head of the island of Srirangam had obstructed the flow
of water into the district.

Similarly the fortification of the banks of the Coovam river along the
Poona malle road between Chetpet and Arumbakkam, repair of Chembarambakkam
and Madurantakam tank, the construction of a step in rear portion of the structure of
the Palar anaicut, and in lengthening the bead sluice, and extending an aqueduct and
three bridges in connection with the Cheyaur anaicut in the North Arcot District, an
anaicut across the Cheyaur River, in the South Arcot district were accomplished by
the British until 1830. In 1836, forced by the pressing needs Kollidam annaicut was
built. The Board of Revenue observed in one of its Proceedings to the fact that during the 35 years previous to the construction of the Kolli dam Anaicuts, namely from 1801 to 1836, Rs.30 lakhs of were spent on Public Works, and the annual increase of revenue was Rs.15 lakhs whereas, during the 17 years since the anaicuts were built, Rs.20 lakhs had been spent, and the revenue had risen only 2 ¼ lakhs annually. This boastful proclamation indicates that the British were forced to spend more on irrigation in order to get more returns in the form of land revenue.

Two vast lakes named Ponneri & Peria Ponneri overflowed to the extent of damaging the village in the neighborhood of the town of Udayarpalayam of Tiruchirappalli district. The Ponneri irrigation canal, 16 miles in length, with its subsidiary regulating sluices and minor channels for the distribution of water, were so advanced, and supplied water from the River Kolli dam, for the cultivation of a large area of waste land. The Uyyakondan channel was completed during 1855-56, and added to the irrigable capabilities of the District. 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 Kolli dam dam was lowered by 2 feet. This was done at a length of about 700 feet. This added considerably to the volume of the Kolli dam. 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.” 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.
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. The next important work undertaken 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. Viranam, the largest tank of South Arcot, irrigated thousands of acres, across 149 villages in 1850 provided a revenue of Rs.1,14,500.

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, Cheyoor, Erode and Kangeyam. The Bhavani had also other channels and some tributaries. The Kalingarayan anaicut near the Bhavani Bridge just above the Junction of the Bhavani and the Cauvery, was 62 miles long irrigating about 12,800 acres. The Siruvani was a perennial stream on which a dam was constructed at a height of 23 feet costing Rs.2,17,725. The Noyyal, a jungle stream enriched the neighbourhood of Coimbatore by its channels and tanks. No less than 13,213 acres were irrigated under its 8 anaicuts in the Coimbatore taluk.
In Madurai district, excepting the Periyar project, practically the whole of the irrigation works of the district, other than the wells, were made in the days of native rulers and palayakkarars. Statistics of the Revenue department then showed that out of a total of 4,580 minor works, about 2,846 irrigated less than ten acres, and the remaining 1,142 watering more than ten but less than 50 acres. R. Peter, Collector of Madurai, proposed a plan to the Board for an anaicut in the river Gundar in the Ramand zamindary in 1818. On 18\textsuperscript{th} April 1818, Peter wrote a letter to the Superintendent of Tank Repairs to make an estimate. The Collector warned that if anaicut was not raised and certain tanks repaired, before the ensuing monsoon, the land capable of yielding 11,000 kalams of seed grain would not yield not more than 3000 or 3500 kalams. So the Board gave its consent to the estimated expenditure to prevent the loss of revenue to the Company Government. As a result the anaicut proposed at the Ragunatha Cauvery river in the Ramanathapuram district dated 4\textsuperscript{th} July 1819 was executed.

Kalari tank is one of the largest tanks in the Ramanathapuram Estate. Its main supply was from the Ragunatha-Cauvery which after feeding several large tanks finally emptied itself into this tank. It had also a drainage area of 20 square inches but without the supply from the Ragunatha-Cauvery the tank was of little use. When the court took up the Estate, the Cauvery channel from Mudukulatur to Kalari Tank had almost disappeared and this tank received hardly any supply. But later it received too much water and the difficulty was to regulate the supply. The extent of cultivation under the tank was 68 acres. There were eight irrigation sluices to this tank, of which two were ruined and the rest in fair order. The repair of the two ruined sluices at a cost of Rs.1,980 and for the other Rs.410 was done.
The most important River of the Tirunelveli district was Tamiraparani. It has an almost perennial stream. Its principal tributary the Chittar or Chitranathi was crossed by eight anaicuts, out of which 7 Anaicuts were constructed by early rulers. The last of the anaicut Srivaikundam anaicut was constructed by the British. The British Government examined the course of the Tamiraparani above Sorimuthu Ayyanar Koil to ascertain the practicability or otherwise of storing up its waters, so as to form an inland lake in the manner proposed by Colonel Cotton. The tanks and channels of the Tamiraparani River were choked with mud and sand by the rainy season. For clearing then 8000 pagodas were usually required. In 1818 J.Cotton, the Collector of Tirunelveli addressed a letter to the Superintendent of Tank Repair Southern Provinces, that part of Kalakadu taluk had for some seasons suffered severely from drought. the repair of the Marudur anaicut in Tirunelveli district

De.Havilland, inspector of Tanks Estimates, planned for the repair of two anaicuts of Thuvarangadoo and the Veeranam Anaicut in the sequestered zamindary of Uthumalai in the Tirunelveli district at a cost of Rs.3,371 rupees, 8 anna and 6paisa. Estimate for repairing a nullah to Pillaiyarkulam was granted to Vencata Row, the then head sheristadar of the Tirunelveli province (1823). Another estimate made on 13th February 1823 for repairing an annicut situated in Chitranathi river in the vicinity of Pillayarkulam was sanctioned.

As the facts in the foregoing pages suggest, no massive irrigation project was thought of by the East Company administration. Instead only repair works were attended to that too after a great deal of delay.
IV

Notwithstanding the indifference of the colonial bureaucracy, to make matters worse in some places when attempts were made to build tanks the local zamindars protested. In a few other places people themselves came to blows. The Ponneri channel from the Kollidam irrigated 17 villages. The Collector of Tiruchirappalli District, addressed the rajah of Pudukottai on cutting a channel, as some waste lands attached to the village of Kullemangalam belonged to rajah Tondaimon. Though the raja had consented, the people of Kulemangalam resisted supported by raja's musclemen. In 1831 the village Munisiff, and other inhabitants of Paroovoyel in the district of Chengalpattu stating that the Zamindar Agateeswara with the inhabitants of Kulimadoolumpadoo had dug a new canal that filled up their channel with sand from Zamindair channel. When they repaird it the Zamindar’s supporters beat them. The work had to be abandoned, as the Collector refused to intervene in favour of the aggrieved people.

The In 1832 the Tahsildar of Musiri send a petition to the Collector of Salem in which the inhabitants of the village of Moganoor in the Salem district had obstructed the water from flowing into the channel of the Woravandoor village in Tiruchirappalli district. H.M. Blair, the Collector of Tiruchirappalli urged the Salem Collector to take necessary steps to prevent the people of Moganoor from obstructing the passage of the water in future. In 1833 the Prince of Arcot complained to the Board against the Tahsildar for preventing water taken from the channels of the tanks and rivulets to the cultivation of the prince’s lands in Tiruchirappalli and for removing a bund put up to prevent an inundation by the river.
A petition presented to government by Samy Koundan in 1837 and other inhabitants of Chittrachavedy village in the Coimbatore district complaining 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 20th April 1837. According to the government order, the sub Collector conducted a probe and informed that there was no substance in the complaint and so the Board rejected the petition. A Suit was instituted in the court of the assistant judge at Coimbatore by a cultivating tenant against the Collector and his colleagues for the recovery of loss caused by the refusal the defendants to allow water to his lands. The court was moved by the Collector to state whether the suit should not be preferred to the Collector in the first instance as according to one of the orders of the sadr Adalat of the Collector only can take cognizance of disputes regarding the irrigation of land.

According to a complaint given in 1825 to the Zamindar of Chokkampatti by the inhabitants of Puliyankudi. The Zamindar had deepened and formed a channel diverting water from Manikannda perikulam to his tank Samutrakulam resulting in the denial of water to their tanks at Elanthakulam. The inhabitants of Cheranmahadevi could not be persuaded to overcome the prejudices which they entertained against the completion of the work commenced by the Travancore government on the Kannadian canal. The Kannadian Anaicut was rebuilt in 1842 and that of Suthamalli had extensive repairs twice, viz, in 1842 and in 1855. The Collector held discussion with the Company’s officers as well as inhabitants of Cheranmahadevi and settled this matter justly and to the satisfaction of all parties. But the inhabitants of Cheranmahadevi were thought to be unjustly obstinate.
The encouragement given for individual investment in wells worked in varied ways since wells 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. 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.

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.
As for well irrigation, its extension was checked by the additional taxation in Chengalpattu in the 1830s and 1840s. 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 taluks of Tiruvadi, Villupuram and Virudhachalam, each of which had insecure wet cultivation. This was because of failure of channels in these taluks.

Wells were mostly concentrated in the rain fed villages of Thanjavur. Well irrigation was also common in Tiruchirappalli. In Tirunelveli the number of wells significantly increased prior to 1840. 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.

VI

During the early British regime, all irrigation works were the responsibility of military engineers of the Engineer Corps of the East India Company Armies, under the overall charge of a Military Board. These engineer officers only occasionally went to the war front and, when the fighting ceased, most of them returned to continue their civil work. Some of the notable army engineers were Arthur
Cotton, John Colvin, Proby T. Cautley and S.L. Jacob and they did splendid work in building some of the most important and magnificent canal systems in British India. As it was thought the training received in carrying out large railway or irrigation works by the Royal Engineers would make them efficient with an army in the field.

The defects of this system were the financing to large irrigation works from the yearly revenues. This was soon rectified and it was decided that only public works of a non-remunerative character, such as those relating to the creation and maintenance of civil and military buildings, the construction and maintenance of roads and other such works were to be charged against yearly revenues. The works aimed at promoting the prosperity of the country, such as railways, canals and harbors, were to be constructed from borrowed funds and treated as commercial undertakings and for such works separate capital and revenue accounts were to be maintained.

The British saw the need to put the water resources of Tamil Nadu and in particular the Thanjavur, Tiruchirapalli and the South Arcot districts on a sound and scientific footing. It was a major concern of the Board of Revenue to consider ways and means to improve the existing irrigation falsities and to introduce new ones. The Board placed on record the fact that from the year of Thanjavur ceded to the British to the year 1851, the sum spent on works of irrigation and communication in Thanjavur amounted to 52 ¼ lakhs.

The Military Board was abolished in 1854 and the Public Works Department was created in its place. There was a dearth of civil engineers in the
country, and hence the burden of carrying out civil engineering works fell on the military engineers, who were deputed to the P.W.D. on a permanent basis. In 1866, the P.W.D. was split into three branches; a Military Works Branch, a Civil Works Branch including irrigation projects and a Railway Branch.

In view of the rich return from the investment in irrigation projects, private entrepreneurs entered the field of irrigation under the "guarantee system" provided by the Government of India. Under this system, the Government of India guaranteed a return of 5% on the money invested. The imperial Government was unwilling to finance large irrigation schemes which required huge capital outlay from its revenues. The principle of financing productive irrigation projects from loans raised in the market, for the purpose, had not yet been introduced. The government under the crown, therefore, decided in 1858, to permit private enterprise to participate in the expansion of irrigation network in the country under the “guarantee system.”

The two irrigation companies floated in England viz., the East India Irrigation and Canal Company and the Madras Irrigation Company floated in 1858 and in 1863 respectively miserably failed to execute irrigation projects. The Government of British India had to take over the two irrigation companies and put an end to the concept of private enterprise in irrigation works. Irrigation development in the British period had mostly taken place as a measure of famine relief. After taking over the administration of Madras presidency, the East India Company became concerned about the dwindling land revenue and attempted to take measures to improve the irrigation sources in order to enhance the Company’s resources. Adding to the unsatisfactory irrigation facilities, droughts and famines were periodically
braking out leading to food deficit in the Madras presidency. The famines of 1811, 1823, 1824, and 1854 ruined the population particularly the peasantry. Dalyell, the investigator of Madras Famine in the 1860s rightly attributed famines to the neglect of a large number of irrigation works, which the British government inherited from the native rulers.