CHAPTER - III

Development - IRRIGATION

Water is a precious commodity throughout the world and its limitations are being felt more acutely in the tropics where a great part of the cultivated area is under rainfed agriculture with scare possibilities of irrigation – land and water being limited; their efficient use is basic to the survival of an ever increasing population in the world. The success of agriculture depends on the extent to which the soil moisture reservoir is managed for optimum crop production. Scientific management of irrigation water provides the best insurance against weather induced fluctuation in total food production. A third of India’s cultivated land is subjected to scarcity conditions and chronic famine conditions prevail causing great distress to the people. The only way to help them is to transfer water other basins. The country will be forced to face many difficult water problems earlier than many other countries, because it has a huge population and is rapidly increasing year after year. Therefore, to increase the agricultural production, priority has to be given for adequate water supply. The precious commodity has to be exploited quickly and wisely and at the same time protected against pollution and wasteful uses. An integrated policy for water resources management, in addition to efficient utilization of the resources for optimum crop production, should
meet the requirements of growing industry, human and livestock consumption, and provide for flood control and hydro–electric power generation. Our water resources are insufficient to meet the long–term requirement of agriculture, industry and other users unless its judicious and economic use is ensured.

The available resources are ill distributed, resulting in seasonal abundance and devasting floods in some areas while large tracts in other regions are chronically drought affected. The continual drought conditions and the food shortage have brought into sharp focus the importance of increasing the efficiency of water management and extending irrigation facilities to additional areas. There have been glaring disparities in income and living standards between the dry and drought areas on the one hand, and the irrigated and high rainfall. Providing irrigation to the maximum extent possible is the major step in relieving the drought–affected areas from scarcity conditions. Irrigation has been in practice in India since ancient times. There is evidence that during Vedic period, (4000 B.C.), people used to irrigate their crops with dug wells or inundated waters. Irrigation was gradually extended during the later Hindu, Muslim and British periods. The early irrigation ventures were concerned with the construction of wells and tanks to impound rain water and connected canal works for water distribution. The nineteenth
and early twentieth century’s witnessed the expansion of irrigation in India. The objective was to provide the basis for economic development and to eliminate hunger and poverty. Full realization of the benefits from modern irrigation farming, depends on the provision of a wide range of services. Maximum agricultural production cannot be achieved without adopting modern techniques and services. Other benefits of irrigation development may include the accelerated growth of particular regions to relive population increase and social unrest, minimize local food shortage and achieve a more balanced national development. In the of irrigation, agriculture has become a gamble on monsoons. Efforts were made to supply water artificially to agricultural crops. The intensity of droughts has reduced considerably as a result of these measures.¹

So irrigation has become quite essential for agriculture in a country like India. In the words of Sir Charles Trevelyan, “Irrigation is everything in a country like India; water is even more valuable than land”. Irrigation may be defined as the “artificial application of water to the land for agriculture purpose. It is a means of supplementing the natural rainfall² for the cultivation of crops, and the works required to give effect to such supply are “Irrigation works”. The function of irrigation is to supplement

the supply of water falling in the form of rain on an area to be cultivated at the season and to the extent required for the successful cultivation of the crop. There are two types of irrigation, viz, flow irrigation and lift irrigation. The flow irrigation is practiced where the supply of water is available at such a level that it is conveyed on to the land by gravity. In contrast to this is the lift irrigation and this is taken up when the water supply is at too low a level to run by gravity on the land. The most common application of lift irrigation is irrigation from wells. The flow irrigation is of two types, viz., inundation irrigation and perennial irrigation. Inundation irrigation is also called as flood irrigation. Generally, this is not done in Karnataka. In respect of perennial irrigation, is supplied in accordance with the requirements throughout the crop period. The flow irrigation is classified as direct and tank irrigation or reservoir irrigation. Direct Irrigation implies that water is drawn directly from a river or stream without the intervention of any storage work while the water for tank irrigation is drawn from tanks. Many systems are a combination of both the methods.

The origin of irrigation goes back at least to 4,000 years in Egypt and China and almost as early in Mesopotamia and India. Civilization began in environment requirement irrigated agriculture. It is only during the past 1,500 years that the scene of greatest agricultural activity shifted
to more humid regions. Upon these humid regions have grown the great population centres. Irrigated – agriculture permits greater control of production factors than any other system of farming. Nature is often bountiful but she is not always dependable. Farmers, who produce consistently high yields, are those leaving the fewest production factors to chance. In most areas, the great unpredictable and uncontrollable factor is the weather with irrigation it is even possible to do something with this. When soil moisture is maintained near optimum, the maximum value can be obtained from other production factors. Irrigated – agriculture has developed most extensively in arid regions where natural precipitation is inadequate for the production of many crops. Many regions of high annual rainfall and the irrigation water needed are inversely proportional to precipitation. No definite line can be drawn between areas where irrigation is essential and areas where it is not needed.

Irrigated – agriculture permits great control of production factors than any other systems of farming. Of all the resources needed for a major effort to overcome the lagging development of two – thirds of the globe, none is more needed and none is in more critical supply than water. There is enormous growth in the absolute demand for water in every phase of our contemporary life. Population growth, rising living standards in the industrial countries, the pen top drive for development in
the emerging nations, the need to increase food supply, the use of new
varieties of grains and the introduction of sophisticated fertilizers and
insecticides, intensive agriculture, industrialization on a broad scale all
place enormous demands on our available water. Once the intrinsic value
of water has been recognized by all segments of the population, the need
for an intelligent and comprehensive of the population, the need for an
intelligent and comprehensive water policy will also be accepted. It will
have to be managed on a broad scale encompassing many disciplines.
Perhaps, the most important part well is the exacting of water savings and
the utilization of programmes of water conservation. There is urgent need
for improved water application efficiency, better overall water
management and the rehabilitation of out model schemes. Irrigated –
agriculture has developed most extensively in arid regions where natural
precipitation is inadequate for the production of many crops. Irrigation
has become necessary in sub – humid regions.³

While the importance of irrigation in tropical and sub – humid
areas is recognized, the problems of irrigation arise only in arid and semi
– arid condition, where the agriculture depends on careful management of
soil and water. The rivers of the state are entirely rainfed and are mainly
under the influence of the south – west monsoon. The total area under

irrigation in the state prior to commencement of planning was 6.89 lakh hectares constituting 4.9 percent of the net cultivated area. Though Major River like Ghataprabha, Malaprabha, Krishna and Bhima exist in the state, irrigation has not been to the desired extent. The low percentage of irrigation is due to certain historical factors. There were three major basins. The usefulness of ground water development schemes for bringing about integrated development of water resources for quick increase in food production was recognized.\(^4\)

Even in the imperial Gazetteer of India while referring to the irrigation in the state it is mentioned that, “among individual states, the first place may be given to Mysore”. Almost every valley contains a chain of tanks, the first overflowing into the second and so as until a terminal tank is filled”. A number of schemes were taken up and the application of sound materials of construction to these works and to regulation of channels below them as also the distribution of water for irrigation may be said to have created quite a new era in the channel system of erstwhile Mysore.

\(^4\) K. Puttaswamaiah Op.cit p- 479
3:1 HISTORY OF IRRIGATION IN MANDYA DISTRICT

Irrigation is by no means a recent innovation; it has been known for many centuries in India. Irrigation in old Mysore state which presently forms southern part of Karnataka was practiced chiefly from tanks, river channels and wells. The same pattern of irrigation practiced existed in Mandya which was then a part of Mysore district. Mysore state, with an area of 29,489 square miles, has more than 30,000 tanks. These tanks or artificial reservoirs, known as Keres vary in size from small ponds to extensive lakes. Referring to these tanks, Sir Charles Elliott, the first census commissioner for India, remarked in 1870 that the ingenious method in which each valley was made to certain a chain of irrigation tanks, and each river to feed a series of irrigation channels, left the British officers who administered the province little to do but the old works in through repair. The same pattern of irrigation practiced existed in Mandya which was then a part of Mysore district. Mainly it was irrigated by tanks that covered most of the area. The only works before the nineteenth century, which will be classified as having any extensive public utility, are the tanks which stud the whole surface of maidan taluks and river channels.

5 Census of India 1951, Vol XIV, Mysore, part 1, p-6
6 C. Hayavedana Rao opicit p - 157
Agricultural production depends to a great extent on the development of irrigation. The tanks are the oldest in the irrigational system. In ancient days, the cultivates constructed small tanks across streams to impound sufficient water for their farming needs. There were many numbers of tanks of this description. The moti talab in Mandya district was one of the big tanks, supplying water for wet cultivation. Major sankey, one of the earliest engineers, who worked in the state, addressed himself to the task of repairing tanks. In memorable words he said. “To such an extent has the principle of storage been followed, that it world new require some ingenuity to discover a site for a new tank. While restorations are, of course feasible, any new work of this description would within the area be almost certainly found to cut off the supply of another, lower down and to interfere in fact with visted interests”.7

Though there are many isolated tanks in various regions, the vast majority of them are constructed on a connected system of streams and their fuders, which are abundant in the table – land of old Mysore.

During the regency of Dewan Purnaiah, a generous sum was spent on irrigation works. This expenditure was, to a great extent, incurred on the repairs of old tanks and canals, the majority of which had fallen into disuse during the reigns of Haider Ali and Tippu Sultan. During the

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7 Mysore state Gazetteer, Mandya district, 1967,p – 91
period when the British commission was in power in Mysore, a large amount was spent on irrigation works. Most of the tanks were improved and many reconstructed from the disused condition into which they had fallen. After the formation of the public works departments in 1856, the expenditure on irrigation went up.

Special attention was directed to irrigation between the years 1872 and 1878, because a separate irrigation branch of the public works department was constituted since the rendition in 1881, grants for irrigation were increased and a liberal policy pursued. In 1913, on the specific recommendation of the chief Engineer, the Government raised the annual grant for promoting irrigation works and the grant was distributed under various heads like Major tanks, Minor tanks, canals and investigation.

3.2 RESTORATION OF DISUSED TANKS:

After the commissioner’s rule the restoration of disused tanks had come to a definite state of advancement and was handed back to the Mysore Maharaja in 1881. It was in 1886, the Government of Mysore decided to hand over all the minor tanks or those yielding a revenue not exceeding Rs. 300 to the Revenue Department, the cultivators doing the

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8 Ibid – p · 91
earth work themselves and the Government only paying for masonry works where needed. All the other tanks were called Major tanks. The restoration of these Major tanks was direct responsible of the Government and the cultivators contributed a moiety for their betterment. This scheme was tentatively introduced in one taluk of each district and after trial, was extended to all other areas. A tank inspector was appointed in each taluk to assist the Amildar and a trained sub–overseer was posted in each district to help the tank inspectors in technical matters. Under the rules issued in 1904, the cultivators were required to contribute one–third of the total cost of restoration including earth work, the one–third being met out of public funds.

In selecting tanks for restoration, preference was given to those where the cultivators came forward with their contribution with a view of making the minor tanks restoration scheme a success, it was decided that larger and more liberal Government grants be made available for the improvements of such tanks. During 1915 – 15, the responsibility for working the minor tanks restoration scheme and the entire control of the operations were vested in the Revenue commissioners. In this regard, the cultivators were responsible for doing the earthwork, so as to keep the bunds in strong condition. The repairs to stone order and masonry were done by the Government. In order to provide for the obligation of
cultivators in regard to the maintenance of major tanks and the restoration, repair and maintenance of minor tanks, the Government of Mysore, in 1911, passed a regulation called the Tank Panchayat Regulation (No. of 1911)\(^9\). The panchayats constituted under this regulation had absolute control over the tanks as also the power to administer the funds earmarked for their restoration, repair and maintenance.

The preparation of serial maps and tank registers was also undertaken. In 1916, the minor Tanks Restoration Regulation XIII of 1916 was passed, providing for the recovery of the cultivators share of cost of Restoration compulsory. Later measures fixed the cultivators contribution at one – fourth of the actual cost of restoration.

Among the many tanks in this district, the Thonnur tank called also the Moti Talab, in the Pandavapura taluk, is an old tank with historical associations. Moti Talab or ‘the lake of Pearls’ is situated about three miles to the left of the seventh mile of the Pandavapura Railway station – Nelligere Road. This tank has been constructed by putting up an earthen bund across the gap between two rocky hills. The bund of this tank is said to have been constructed in the 12\(^{th}\) century by Sri Ramanuja Charya who

\(^9\) Ibid p - 92
named it as Tirumala Sagara. Nasir Jung, son of the then subedar of the Deccan, gave it the name of Moti Talab.\textsuperscript{10}

3:3 ROLES OF RIVERS IN IRRIGATION:

Mandya district is blessed by nature with perennial rivers, the water of which are used for raising wet crops. Even in the old days anicuts were constructed across the rivers, and the canal waters were let into the fields for growing paddy, sugarcane and other water–fed crops. The rivers in the district, which have been put to irrigational use, are the Cauvery, Hemavathi, Shimsha and other small rivers and streams.

The river Cauvery enters Mandya district near the Krishnaraja Sagara Dam in the Srirangapatna taluk. It flows from the north to south and then turns towards the east. The river leaves the district near a point on the Malavalli – Kollegal taluk border.

The river Hemavathi enters the district from the north – western side of the Krishnarajapet taluk near Guddehosahalli and then flows in the western side of the same taluk from north to south and leaves the district form the south – western side of the taluk.

The river Lokapavani River takes its origin in the Honakere hobli of Nagamangala taluk and flows from north to south in Nagamangala,
Pandavapura and Srirangapatna taluks and joins the Cauvery River near Baburayanakoppal in the Srirangapatna taluk.

The river Veeravaishnavi enters the district in the Bellur hobli of the Nagamangala taluk and flows from west to east and leaves the district from the eastern side of Nelligere hobli.

The more important of the streams made use of for irrigation purposes are the M Sarahalla in Pandavapura taluk, Narayandurga thore in Krishnarajapet taluk and Koppa tank waste – weir halla and Nidasale tank waste. Weir halla in Maddur taluk. These important streams were made use of for irrigation by constructing pickups and anicuts across them.

Even the anicuts play an important role in irrigation. There were six anicuts in district out of which three are old ones and the rest were newly constructed. The old were the Mandagere, Hemagiri and Thaggally anicuts, while the new ones are the Bolenahalli, Uyyanahalli and Dummasandra anicuts.

The Mandagere anicut is an old one, constructed across the Hemavathi river near Mandagere in Akkihebbal hobli of the Krishnarajapet taluk. This anicut is 666 feet in length. There are two channels from this anicut, viz., the Mandagere right bank channel running
to a length of 37 miles and the left bank channel running to a length of 21 miles.

The Hemagiri anicut is also an old one, constructed across the Hemavathi river near Bandihole in Akkihebbar hobli of Krishnarajapet taluk. This anicut is of size – stone masonry in surki mortar and it is 1,360 feet in length. The left bank channel taken out of this anicut called the Hemagiri Canal is 23 miles of length.

The Thaggally anicut is constructed across the Shimsha river near Thaggally in Maddur taluk. This anicut is of burnt brick in Surki mortar and is 825 feet in length. There are two channels opening from this ancient viz., the Shimsha right bank channel running to a length of 12 miles and the Shimsha left bank channel running to a length of 23 miles.

The new anicuts like the Bolenahalli anicut is constructed across the river Lokapavani near Bolenahalli in Melkote hobli. The length of the anicut is 132 feet and it is constructed with size – stone masonry. There is a feeder channel for a length of three and three-fourth miles to feed the Madarahalli tank.

The Uyyanahalli anicut is also constructed across the Lokapavani river near Uyyanahalli in Nagamangala taluk. The length of the anicut is
370 feet and is constructed with size – stone masonry. The length of the channel is three miles and one furlong.

The Dummasandra anicut is constructed across veeravaishnavi river near Dummasandra in Nagamangala taluk. The length of the anicut is 400 feet, while the length of its right bank channel is four miles.\textsuperscript{11}

\textbf{3:4 CAUVERY RIVER}

Even before the Krishnarajasagar dam was built across the Cauvery river, the water of river were made use of for irrigation to a certain extent. Several anicuts were constructed across the Cauvery and its main tributary, the Hemavathi, and these anicuts, canals were opened out for supplying water to the irrigated tract. The anicut and the canals, though very old, fulfilled the needs of the cultivators in the area to some extent. At the time of the construction of the Krishnarajasagar dam, a statement was prepared showing the area and assessment under the various channels in the Cauvery valley. The following figures pertaining to Mandya district have been taken from that statement. They show the extent of the area irrigated by the Cauvery and the Hemavathi rivers and the amount of revenue realized at that time:

\textsuperscript{11} Ibid pp – 94 – 95
### TABLE 3:1

<table>
<thead>
<tr>
<th>Name of channel</th>
<th>Government</th>
<th>Inam</th>
<th>Total</th>
<th>Amount of Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chikkadevarayasagar</td>
<td>..</td>
<td>13,328</td>
<td>917</td>
<td>14,245</td>
</tr>
<tr>
<td>Devaraya</td>
<td>..</td>
<td>1,832</td>
<td>190</td>
<td>2,022</td>
</tr>
<tr>
<td>Virajanadi</td>
<td>..</td>
<td>7,047</td>
<td>373</td>
<td>7,420</td>
</tr>
<tr>
<td>Bangaradoddi</td>
<td>..</td>
<td>681</td>
<td>81</td>
<td>762</td>
</tr>
<tr>
<td>Maddur Ancient</td>
<td>..</td>
<td>1,377</td>
<td>116</td>
<td>1,493</td>
</tr>
<tr>
<td>Kemmanu</td>
<td>..</td>
<td>925</td>
<td>33</td>
<td>958</td>
</tr>
<tr>
<td>Vaidyanathpur</td>
<td>..</td>
<td>222</td>
<td>27</td>
<td>249</td>
</tr>
<tr>
<td>Bairan</td>
<td>..</td>
<td>240</td>
<td>40</td>
<td>280</td>
</tr>
<tr>
<td>Chamanahalli</td>
<td>..</td>
<td>576</td>
<td>31</td>
<td>607</td>
</tr>
<tr>
<td>Mandagere</td>
<td>..</td>
<td>2,497</td>
<td>546</td>
<td>3,048</td>
</tr>
<tr>
<td>Hemagiri</td>
<td>..</td>
<td>19</td>
<td>1,362</td>
<td>1,381</td>
</tr>
<tr>
<td>Akkihebbal</td>
<td>..</td>
<td>330</td>
<td>50</td>
<td>380</td>
</tr>
<tr>
<td>Kalhalli Kannambadi</td>
<td>.. Since submerged in the reservoir</td>
<td>869</td>
<td>347</td>
<td>1,216</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1,087</td>
<td>69</td>
<td>1,156</td>
</tr>
</tbody>
</table>


The lower channels in the Cauvery valley are the Virjanadi Devaraya, Chikkadevaraya and Bangaradadoddi, the right bank low level channel and the left bank low level channel. As already stated, even prior to the construction of the Krishnarajasagar dam, these channels were existing and were supplying water for irrigation. The following statement shows. The length of each channel and the extent of irrigation under each of them:
TABLE 3:2

<table>
<thead>
<tr>
<th>Channel</th>
<th>Length</th>
<th>Extent of irrigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virajanadi Channel</td>
<td>42 miles</td>
<td>10,094 acres</td>
</tr>
<tr>
<td>Devaraya Channel</td>
<td>23 miles</td>
<td>2,400 acres</td>
</tr>
<tr>
<td>Chikkadevaraya Channel</td>
<td>72 miles</td>
<td>Not available</td>
</tr>
<tr>
<td>Bangaradoddi Channel</td>
<td>5 miles</td>
<td>920 acres</td>
</tr>
<tr>
<td>Right Bank low-level Channel</td>
<td>19 ½ miles</td>
<td>3,420 acres</td>
</tr>
<tr>
<td>Left Bank low-level Channel</td>
<td>13 miles</td>
<td>1,430 acres</td>
</tr>
</tbody>
</table>


Close to the village of Sitapur in the Srirangapatna taluk, is the Madadkatte dam, a low straggling structure of rough stone, 776 yards in length and averaging 15 yards in width. Form this small dam, the Chikkadevaraya channel is led off. This channel runs to a total length of 72 miles in both Mandya and Mysore districts. In its course, the channel cross the Anche – halla and Mosale – halla streams and also the Lokapavani river. The Chikkadevaraya channel passes through Hararu, Kyatanahalli, Nelamane, Patsomanahalli, Settihalli and Arakere. Both the anicut and the channel were constructed at the time of Sri Chikkadevaraya Wodeyar, a celebrated ruler of Mysore.

A few years below the Madadkatte, is the Devaraya anicut, giving rise to a small channel of the same name on the right bank, the length of the channel is eight miles. This channel ends at the village of Palhalli, which was once the headquarters of the Mysore Ashtagram taluk.
The Bangaradoddi anicut is constructed across the Paschima vahini branch of the Cauvery river. The channel draw from anicut (Bangaradoddi Channel), after crossing the little Paschimavahini Island, is led over to the Srirangapatna island by means of an aqueduct. It then divides itself into three branches, one entering the Srirangapatna fort by means of an underground duct, the second terminating at the Darya Daulat garden and third after traversing the island ends near the Gumbaz.¹²

The management of the Cauvery irrigation as a major factor which exercised the minds of the state engineers, who were constantly asked by the Durbar to increase the Potentialities of irrigation. As regards the general irrigation policy of the Government, the Dewan K. Sheshadri Iyer explained in 1886 that it was to be a settled policy of the Government to assign for the general improvement of irrigation as large an allotment as was compatible with other demands on the finances of the state. The Durbar was conscious, said the Dewan, that a great deal remained to be done either in the shape of general improvements or the reconstruction of ruined or abandoned tanks likely to be remunerative or the restoration and where practicable the extension of channels drawn from the Cauvery and other rivers.

¹² Ibid p - 96
Though the magnitude of these works in the aggregate was very large, still the Government accepted it as a settled principle that their annual operations on them were to be the time being. In the case of the tank maintenance scheme already described the Rs 500 limit was lowered to one of Rs 300 and put into operation in eight selected taluks, one in each district instead of only seven. A new public works division was formed and to it was entrusted all improvements of irrigation and the restoration and extension of channels drawn from the rivers Cauvery, Hemavathi, Kapini and Lakshmanathirtha. Improvement and extension of channels engaged the earnest attention of this new division. A forecast programme for the next five years was prepared in 1889 including all projects costing over Rs. 20,000. In this programme were included the great Marikanave dam, a project for the construction of a new anicut across the Cauvery to be called after the name of Chamaraja Wodeyar and the permanent improvement of the old Chikkadevarajasagar, Virjanadi and Devaraya system. The Dewan invited the representatives to make any suggestions on the programme by way either of alterations or additions from their knowledge of local wants and local interests and several of the suggestions so made were accepted. In the Virajanadi

13 M. Shama Rao, Modern Mysore Vol – 2, printed by Higgibothams, south parade Bangalore 1936, p - 118
14 Ibid p - 120
channel command, the Maddur Ane atckat brought 900 additional acres and the Mandagere channel atckat 1,500 acres. In 1890, the Maddur tank was restored so as to allow more for irrigation. At the time of retirement of Colonel Bowen, who was the chief Engineer of the state, investigations were under way to improve the irrigation capacity of all the anicuts on the Cauvery river and this work was completed in 1892. In 1893, the Dewan took personal interest and ordered the improvement of the Maddur Ane Channel and also the Kalhalli channel in Krishnarajapet taluk. The Sulekere tank in Malavalli taluk required much improvement and this was also attended to.\textsuperscript{15}

Repeated representations were made in the Mysore Representative Assembly to extend the irrigation command under the Kalhalli channel in the French Rock sub–division.

This was also attended to and more water was supplied to irrigated fields. In 1899, the Devaraya anicut was improved and strengthened.

In 1900, a new aqueduct was constructed at a point near the seven – and – a – quarter mile of the Chikkadevaraya sagar channel. The Chikkadevarayasagar anicut was a very old one and due to periodical heavy floods in the Cauvery River, the strength of the anicut was not up

\textsuperscript{15} Mysore state Gazetteer Mandya district 1967 p - 98
to the mark. In 1904 the Government decided to construct a new anicut and sanctioned Rs. 1,03,319 for this purpose. In that year, under the personal directions of Dewan Krishnamurthi, the work was taken up in right earnest and was completed in 1905. The same year, reconstruction of the Hemagiri anicut in Krishnarajapet taluk was sanctioned at an estimated cost of Rs. 93,000 and the work was finished within a year.

As stated earlier, irrigation, as practiced within the Mysore state at that time, was either from tanks, a vast number of which existed all over the area or from channels which were in the Cauvery valley. The tank played an important part in producing rice and garden crops, but the irrigation from this source was not always dependable. In 1876 – 77, a year of extreme drought, the country suffered much for want of food and about one – fifth of the population of the old Mysore state is said to have died from the effects of the disastrous famine. The irrigation from the old Cauvery channels was more secure, but its command area was small. Water from these channels was usually available only for the first crops and the irrigation of Perennial crops suffered from serious disabilities. Water supply in summer was very precarious and crops like sugarcane and mulberry could not be extensively cultivated. It was, therefore, proposed to provide water for irrigation throughout the year for perennial crops. In pursuance of this proposal it was thought best and feasible to
impound the waters of the Cauvery on a large scale by recourse to modern aspects of hydraulic engineering. The government embarked on a sound policy of utilizing the potential to a great extent, and earnestly went about surveying the possibilities that the Cauvery River offered to construct a reservoir.

3:5 A DREAM OF A DAM:

Although anicuts across perennial rivers were known to exist from ancient times, it was only during 1870 – 1880 that attempts were made to construct high masonry dams across large rivers. Ever since the feasible of high masonry dams become apparent, the question of construction a reservoir on the Cauvery River engaged the attention of the successive chief engineers of the state.

3:6 STAGES OF INVESTIGATION

A reservoir would have been built long ago, had the principles involved in the building of high masonry dams been so well understood formerly as they were later Colonel Sankey a late chief Engineer of the state, ordered investigation for an irrigation reservoir project about the year 1870. As a result of the surveys, it was reported that there was one suitable for a high dam on the Cauvery at Ramaswamy Kanive, close to
the borders of Coorg and Mysore.\textsuperscript{16} The cost of the reservoir at this site was considered prohibitive. About the year 1885, Mr. Mc Laughlin, and Executive Engineer, was placed on special duty by Colonel Bowen, the chief engineer, to investigate a reservoir scheme for the combined purpose of irrigation and water supply to the city of Mysore. This project was also abandoned on account of its high cost.

In 1898, the Mysore government undertook the construction of a reservoir at Marikanive in the Chitradurga district at an estimated outlay of Rs. 37 lakhs. In the mid-1890’s a third field of infrastructural investments, namely generation of electricity, was been explored.\textsuperscript{17} Mysore, like the rest of south India was definite in coal and the transport of this bulky fuel to the gold mines was a great problem. The possibility of generating electric power by the utilization of the Kaveri at Shivanasamudram was therefore investigated by a number of British exports and supported by the Resident, Col. Henderson. All available funds were required to this undertaking; attention for a time was diverted from the Cauvery project. But since the power station came to be established at Shivanasamudram in 1902, a reservoir on the Cauvery or one of its tributaries became an urgent necessity. In 1902 the work were

\begin{flushright}
\textsuperscript{16} Ibid p - 99
\textsuperscript{17} Bjorn Hettne The political Economy of Indirect Rule Mysore 1881 – 1947, 1978 New Delhi p -237
\end{flushright}
completed and the current transmitted to the Kolar Gold Field. It is told that the switch was operated by Mrs Robertson, wife of the British Resident. Under the orders of Mr. Mc Hutchin, then the chief engineer, Mr V. H. Karve, a former superintending engineer, re investigated the Ramaswamy Kanive site and come to the conclusion that the foundations there would be unsatisfactory. He then selected two other sites for a dam on the river near Kannambadi, eight and ten miles respectively west of Srirangapatna. The late captain Bernard Dawes, who was Deputy Chief Engineer at the time, after careful investigation, recommended the lower site. This site was approved by Mr. McHutchin after Dr. W.F. Smeeth, the then government geologist, had examined the foundations and pronounced them to be strong and sound. In his final report dated 25th July 1908, Captain Dawes proposed to construct a reservoir with a dam, 70 feet high, to be eventually raised to 115 feet. Rough estimates were prepared for the first stage of the scheme.

Captain Dawes idea was to earn a large revenue by supplying power to Madras and Coimbatore, besides, the Kolar Gold Fields, and from the net income so earned, to construct a system of canals capable of irrigating 3,00,000 acres eventually. Captain Dawes summed up his financial forecast in these words.

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“In the 30th year, the original debt will be liquidated, and by the beginning of the 39th year, the whole of the irrigation channels will be complete. The state will them be the owner of a property free of all charges except Rs 8 lakhs for maintenance and bringing in a revenue of Rs. 60 lakhs per annum and this on an original borrowed capital of Rs 175 lakhs”. Under the advice and guidance of Mr. McHucthin, Captain Dawes worked on these proposals with great zeal and ability, but partly on account of the heavy cost and partly because he contemplated expenditure on works outside the state, the project was not carried to the stage of practical action.

Later on, on the 5th May 1911, the government of Mysore received another report from the chief Engineer on the Cauvery project. After careful consideration of the project report, the Government in their order dated 12th October 1911, gave final sanction for the construction of the first stage of the reservoir scheme estimated to cost about Rs. 80 lakhs. The reservoir was named ‘Krishnarajasagar’ after the late Sri Krishnaraja Wodeyar in whose reign its construction was undertaken.

3:7 ADVENT OF KRISHNARAJASAGAR DAM:

The Krishnarajasagar Reservoir was thus formed by the construction of a dam across the Cauvery River, nine miles on the
upstream side of the historic town of Srirangapatna and 12 mile from Mysore city. The lake, at the maximum water level, has a water spread of about 50 square miles construction of this reservoir was undertaken with the object of ensuring steady supply water for generating station at Shivanasamudram to meet the growing demand for power in the state and to supply water for irrigation in the arid tracts of Mandya district. The Cauvery River where the dam was to be constructed did not only pass through Mysore but also Madras. Since 1892 there existed an agreement between Madras government and Mysore government, entitled. Rules defining the limits within which no new irrigation work are to be constructed in Mysore state without reference to Madras government. Madras although a lower river state, could veto only any irrigation work in Mysore. The reason why Mysore had to accept the 1892 agreement was of course its constitutional position under the British Government.

In the words of Sir M. Vishweshwaraiah, the scheme was to “open out a vista of possibilities of ever increasing value in the state by adding to the productive power of the people with the increase in agricultural produce and development of industries and manufacture”. The catchment area of the river above the dam is 4,100 square miles, half of

19 M.B. Hussain, the Cauvery water dispute (Bangalore 1927) p - 5
20 Ibid p - 6
21 Mysore state Gazetteer Mandya district 1967, p - 100
which his in the regions of Coorg and Mysore district. The flow of the river at the site of the dam fluctuates from a normal high flood of 10,000 cusecs during the monsoon months to a flow of even less than 100 cusecs in summer. The highest flood discharged in the river, which occurred in 1924, was 2,90,000 cuses. In spite of protest from Madras, Vishweshwaraiah got the permission from the viceroy to proceed with the first stage of construction. In the first stage of the construction of the Krishnarajasagar Reservoir, it was the intention of the government to raise the dam to a height of 97 feet with weir crest at 80 feet above the bed of the river. A sum of Rs. 91 lakhs was earmarked for this stage of the work. The first stage progressed according to schedule.

The excavation of the foundation in the river bed, however, gave considerable trouble owing to the presence of water and spring and the existence of a deep mica vein close to the south bank. The storage of water secured at the first state not only enabled the government to guarantee to the Kolar Gold mines power supply up to 9,321 H.P. As previously agreed to but also to supply additional power to the extent of 5,000 H.P.

As there were differences of opinion between Madras and Mysore in respect of the second stage of the reservoir, the government of India appointed in 1914 a committee arbitration head by Sir H.D. Griffin. The
award contained a proviso placing the Mysore Government under an obligation to deliver a constant water supply of 900 cubic feet per second in summer months, while the natural river flow was on occasions as low as one-tenth of that discharge, compelling Mysore thus to pay a heavy price under the award. The first stage of construction of the dam took a definite shape by 1914 when the laying of the foundation in the river-bed was over. The difficult portion of the work in the river-bed and on the banks was completed and the masonry rose to a height of 60 feet above the bed on the south side and 36 feet at the gap in the centre of the dam. Arrangements were made for the construction of turbine sluices in the dam with a view of electric energy was contemplated to be supplied to the Belagola Pumping station, which supplied to the water supply to Mysore city.\footnote{Ibid p - 101} In 1915, the dam rose to a height of 65 feet with the aid of scouring sluices fixed in the dam, the discharge in the river, except during high floods, was regulated according to requirements. The outlay on the construction of the dam during 1915 was Rs. 26, 92, 000,\footnote{Ibid p - 101} bringing the total up to the end of July 1915 to Rs 71, 45,000.\footnote{Ibid p - 101} During the year 1916,
the outlay earmarked was Rs. 20, 93,170 and the total upto the end to the end to June 1916 was Rs. 92, 39,373.\textsuperscript{25}

By 1919, the height of the dam was raised to 107 feet on the two flanks and the low level canals and other channel works were attended to the expenditure on the construction of the dam exceeded Rs. 155 lakhs. In order to give effect to the rules and regulations framed under the terms of the Griffin award, a temporary division of the Public works Department, called the Gauging and Regulation Division was formed with headquarters in Mysore city. All the works connected with the Cauvery valley irrigation were made the sole responsibility of a separate chief engineer, who was also appointed joint secretary to the government.\textsuperscript{26}

During the year 1920, the construction work in the reservoir project further progressed and the temporary weir gap was raised from + 63 feet to + 75 feet. The turbine sluices, high level irrigation and scouring sluices on the north bank was at + 107 feet and that on the north bank + 100 feet. The sides of the south bank low level canal were property riveted. By 1921, the first stage of the reservoir works was nearly completed. The gap in the dam was raised to a height of 80 feet above the river bed, thus completing the storage contemplated for the first stage. A portion of the body wall of the waste weir was constructed upto 77 feet above the river

\textsuperscript{25} Ibid p - 102
\textsuperscript{26} Ibid p - 102
– bed. All these works were completed before the outbreak of the Monsoon, and a flood of nine feet was safely passed over the river gap of the dam. In order to help the cultivating raiyats, the available water from the reservoir was given for ten days in the month in the near reaches of the sluice for raising food crops.

In 1922, a special committee, presided over by Sir Frederick St. John Gebbie, was appointed to go into the question of future policy in regard to the reservoir project. The opinion of the committee centred on the feasibility of combining the Cauvery power scheme and the reservoir works. By 1923, the total expenditure on the reservoir project came to Rs. 211 lakhs. However, the Madras government appealed to the secretary of state for India and the British government asked the Mysore Government (Vishweshwaraiah had then resigned) to open fresh negotiation with the government of Madras. In 1924, new agreement was signed and this was also forced upon Mysore.\(^27\) However, the new agreement permitted Mysore to go ahead with the second stage of construction. The project was carried through. The grant during the year 1925 for the reservoir work was Rs. 14, 69, 875. The low gaps in the dam were all filled up, and the raising of low portions to 122 feet went on as scheduled. During the high floods in 1925, water was stored upto 106 feet and passed over the

\(^{27}\) M.B. Hussain, the Cauvery water dispute (Bangalore 1927) p - 7
106 feet weir to a depth of one – and – three fourths feet. The programme envisaged in that year was to raise the masonry to 122 feet throughout the whole length to the dam and subsequently to raise it to 130 feet as recommended by special committee. The total expenditure upto the end of 1924 including the canals works came to Rs. 227.9 lakhs. During 1926, a sum of Rs 10.5 lakhs was provided for the reservoir works. The work of raising the dam to its full contemplated level of 130 feet progressed satisfactorily.

In 1927, Dewan Mirza Ismail appointed Vishweshwaraiah as the chairman of the committee which was to recommended measures for irrigation under the Cauvery reservoir. The numbers of the committee were:

1) K.R. Srinivasiengar;

2) B. Subba Rao;

3) H. Nanjundaraj Urs;

4) B. Narasinga Rao;

5) K.R. Seshachar;

6) K. Narayana Iyengar, Secretary to the committee.

The recommendations of the committee have been summarized as follow.
1) Administrative sanction may be accorded to the entire canal project estimated to cost rupees 222 lakhs.

2) The programme for expenditure for 5 years may be provisionally approved, not perhaps as a definite commitment but as a indication of Government policy that funds will be provided as fast as they are needed to carry the work to completion;

3) Steps may be taken to have an Irrigation Act passed by the legislative as early as possible.\textsuperscript{28} The supplies of water available in the storage level of 106 feet were sufficient to irrigate over 60,000 acres. In 1926, the excavation of the high level canal was in full progress, the first three miles having been completed and water allowed for irrigation.

The year 1928 was a notable one in the construction of the Krishnasagar reservoir works. In that year, the construction of the dam to a height of 130 feet was completed leaving the crest of the weir at R.L. 106 feet. The original estimates of the project were closed at this stage. But it was felt that the raising of the weir to 124 feet required earnest attention. During 1929, a sum of Rs. 8.90 lakhs earmarked to push through the remaining work. The excavation of the high level canal went

\textsuperscript{28} Report of the committee Appointed by the Government for the Development of Irrigation under the Krishnarajasagar (Cauvery Reservoir), 1927, pp- 1-9
on as programmed. The Hulikere tunnel was bored to a length of 4,000 feet against the full length of 9,200 feet. The dispute, which was pending settlement with the government of Madras regarding the interpretation of certain rules of the 1924 agreement, was settled by compromise through the good offices of Mr. S.E. Pears, the British Resident in Mysore, in collaboration with Justice Sir A page of the Calcutta High court. By 1932, the Krishnarajasagar dam works were practically over. It was the largest of the engineering works undertaken in the old Mysore state and a standing monument to the talent, skill and resources of the Mysore engineers public works Department who were solely responsible for its design and execution. It is said that, the committee turned out to be more enthusiastic than the government about the project and spoke about the “smiling in the fields and gardens” which were to be the result of irrigation in the dry taluks of Mandya and Malavalli. In 1931 the project was finished Cauvery project thus had a long and painful birth.

3:8 DETAILS OF THE DAM:

The reservoir dam is 8,600 feet long, 130 feet high above the river bed and is intended to store 124 feet depth of water at full reservoir

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29 P.103, PMRA 1932 oct pp – 11 - 12
30 Ibid p - 12
31 Government order laying down the future policy regarding the Krishnarajasagar and other allied works (sep 1924), Government of Mysore, KSA.
32 V.S.N. Rao, Mokshagundam Vishweshwaraih his life and work Mysore 1937 p - 21
level. The high above the deepest foundation is 140 feet and the width of the dam at this depth is 111 feet. The storage capacity of the reservoir is 43,934 million cubic feet above the sill of the irrigation supply sluices, which are 60 feet above the bed level and the total capacity is 48,335 million cubic feet. A motorable roadway, 14½ feet wide, is formed on the top of the dam with ornamental parapets on both sides lit with electric lights. The profile of the dam is of the non–overflow gravity type with necessary front and rear slopes. It can withstand the water pressure of 124 feet depth at its face.33

**3:9 SURKI MORTAR**

The masonry of the dam is of random rubble stone set in Surki mortar, the facing being built of roughly hewed stones and laid in horizontal position to the required profile. The stone used for the construction is hard granite, obtained from quarries situated within a radius of five to seven miles. The mortar used for the masonry was specially prepared at the site with natural hydraulic lime and clay available in the locality. It is called surki mortar and is manufactured by burning the natural hydraulic lime at the site and mixing this quicklime with burnt broken bricks in the ration of 1:4 and grinding the mixture to a paste in the power mills. This special kind of mortar was first evolved by

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33 Mysore state Gazetteer, Mandya district 1967 p - 104
the Mysore. Engineers during 1889 and was used in the construction of the vanivilas sagar dam across the Vedavathi River in Chitradurga district. This mortar was subsequently perfected on the Krishnarajasagar dam construction, as cement manufacture in India was still in its initial stage in those days and the material had to be imported at a high cost from foreign countries. Since then this kind of mortar is being exclusively used in the construction of other dams also. This mortar has certain inherent superior qualities over cement mortar on account of its low rise in temperature during setting. This contraction joints unnecessary for structures built of it. The whole dam, being of a magnitude requiring special attention for each detail, was carried out under piece work no contractors were employed at any stage. This system of work called for great organizing ability and intensive supervision on the part of the engineering staff. The quantity of masonry in the dam is roughly 30 million cubic feet and the cost of the masonry worked out of Rs. 31 per 100 cubic feet. The quantity of excavation involved for the foundation was 8.73 million cubic feet at Rs 55 per 100 cubic feet. The number of labourers employed during the peak construction period was as many as 10,000.

34 Ibid p-104
35 Ibid p - 104
36 Ibid p - 104
3:10 SLUICES

There are, in all, 171 sluices of different sizes in the dam at various levels providing for flood disposal and scouring irrigation and power generation. The flood disposal and scouring sluices comprise:

(a) 40 vents of eight feet by twelve feet with sill at 106 feet above the bed situated immediately after the entrance gate at the south end. These vents are provided with lift gates worked electrically by a travelling crane;

(b) 48 vents measuring ten feet by eight feet with their sills at 103 feet above the bed located in continuation of the above sluices and worked electrically by another travelling crane. There are also provided with lift gates.

(c) On the top of these lift gate, there are 48 vents of ten feet with their sills at 114 feet above the bed and provided with automatic gates, which are placed in six batteries of eight gates each. These gates open automatically with the rise of water level in the reservoir above the maximum water level. This was patented by the late Dr. M. Vishweshwaraiah. The above lift and automatic gates numbering 136 are all of cast iron and were manufactured at the Mysore Iron and steel works, Bhadravathi;
(d) In continuation of the automatic gates, are located 16 sluices of ten feet by twenty feet with their sills at 80 feet above the bed, each provided with a gate operated electrically by an independent crab winch;

(e) At the centre of the dam, i.e., at the original river course, are situated eight deep level scouring sluices of six feet by twelve feet with their sills at 12 feet above the bed. These gates are operated mechanically by independent crab winches; and

(f) On the north bank of the river, are located three more scouring sluices of six feet by fifteen feet, with their sills at 50 feet above the bed, also with gates worked mechanically by independent crab winches. The maximum discharge which can be passed through all the above sluices is 3, 50,000 cusecs. The surplus waters are let off through suitable waste weir channels with necessary protective works.

The irrigation sluices at the dam consists of;

(a) Three vents, six feet by twelve feet, with their sill at 60 feet above the bed situated on the north bank of the river to feed the north bank high level canal known as the Vishweshwaraiah canal, which
is designed to irrigate 1, 20,000 acres, and also a left bank low level channel commanding about 1,500 acres and

(b) One vent of six feet by eight feet at 60 above the bed located at the south end of the dam. The right bank low level channel takes off from this vent emerging through a tunnel immediately below the entrance gate of the dam. This channel designed to irrigate an extent of 3,500 acres. All these irrigation sluice gates are worked independent of each other mechanically by crab winches. The turbine sluices consist of four pen – stock pipes of six feet diameter with their centres fixed at 53 feet above the bed; the gates and their parts for these were obtained from Switzerland.37

Works on the tunnel and on the Maddur branch channel of the Irwin canal which commands 30, 000 acres, have been completed. The work on the Cauvery branch, which is to irrigate 63,000 acres, was slowed down owing to the reduction of grants; but sufficient progress was made in the first six miles of this branch to permit the supply of water under execution. Water was also supplied to ten existing tanks in the tract to supplement their scanty natural storage. The construction of the Keragod branch, taking off from the Maddur channel, was sanctioned during the year 1932. This

37 Ibid pp – 104, 105
branch is 15 miles long and is designed to irrigate 10,000 acres. The total outlay on the Irwin canal works during the 1932 was Rs. 16: 35 lakhs. 38

A survey sub-division for the preparation of projects for development of irrigation in the Arkavati valley was constituted from the 1st December 1935 and was attached to the Krishnarajasagar Division. 39

3:11 VISHWESHWARAIAH CANAL DIVISION (IRWIN CANAL)

There is a separate division of the state public works department to look after these canals, called the vishweshwaraiah canal division, located at Mandya. All the improvement works such as removal of silt, lining and the like are done by the Vishweshwaraiah canal division with a regular programme and on priority basis. Current meter gauging was also gauged to Irwin canal 40. By constant care and timely improvements of canal system, not only the old atchkats have sufficient water supply, but also there is a possibility of findings out fresh atchkats. Thirty street lights were provided along the road leading from the north end of the dam along with the Irwin canal to the north bank gardens. 41 The irrigation under

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38 PMRA. 1932 oct p - 12
39 MAR 1935-36 p 92
40 Ibid 1935 – 36 p 92
41 Ibid 1935 – 36 p 93
Irwin canal developed rapidly. With a view to meet the growing demand for power and irrigation, it was felt necessary to increase the storage at the Krishnaraja Sagar Reservoir from 120 to 124 feet. The question was examined by a special committee. The committee recommended to government and immediate steps were taken.\textsuperscript{42} There is a committee called the Advisory Board for Irrigation Development under Krishnarajasagar and Nugu projects, which gives suggestions from time to time. All the improvements and developments are executed under the expert advice of this special board. This Advisory Board meets once in every three months to review the progress achieved and to suggest fresh improvements. The Divisional commissioner, Mysore Division, is the president of the Advisory Board and the Executive Engineer, Krishnarajasagar Division, is the secretary. The Irwin canal and its branches were practically completed. The channels so far opened out have provided water supply for an extent of 56,000 acres against 120,000 acres contemplated. Out of this area, an extent of about 8,800 acres forms government waste lands, the remaining 47,200 acres being in private holdings.\textsuperscript{43}

\textsuperscript{42} Ibid 1935 – 36 p 94
\textsuperscript{43} Ibid 1935 – 36 p 95
The construction of the Vishweshwaraiah canal, which is the main irrigation canal of the Krishnarajasagar reservoir, has enabled the setting up of the Mandya sugar factory and the co-operative sugar mills at Pandavapura.\textsuperscript{44} The increased capacity of the sugar factory at Mandya and the various facilities created for growing sugarcane and for transport have contributed to the rapid development of irrigation under the canal.\textsuperscript{45} The opening of sugarcane cess fund roads in the Vishweshwaraiah canal region plays a vital role in the development of irrigation in the tract. The creation of a two-furlong dry belt zone around the several villages have been implemented in the canal area as an anti-malaria measure.

It was estimated that a total extend of about 7,200 acres was under unauthorized irrigation in the village reserve zones in the canal area. This large-scale unauthorized irrigation in the upper reaches resulted in shortage of supplies of water to the tail-end areas under the several branches. As a result, several branches and distributaries of the canal were being allocated for raising semi-dry crops. To examine the issue thoroughly and to make suitable recommendations, the state government appointed a committee called the Vishweshwaraiah canal team. The team after actually examining the local conditions, was satisfied that the two-furlong dry zone was quite flexible and suggested the reduction of village

\textsuperscript{44} Mysore State Gazetteer, Mandya district 1967 pp – 110 - 111
\textsuperscript{45} MAR 1935 – 36 p - 95
reserves. The team did not suggest a general reduction in the village reserves. A reduction generally to a one – furlong dry zone would cause greater dampness due to raising of sub – soil water in the villages and consequent increase in disease associated with such dampness. When the recommendations were fully implemented, the unauthorized irrigation would be regularized to an extent of 2,500 to 3,000 acres. Silt gets deposited along the several channels and erosion is the immediate problem. The removal of silt is being attended to periodically to avoid the head up so as to facilities the easy flow of water in the channels upto the tail end. The clearance of silt and repairs necessitated by erosion on the canal system is done by registered contractors.

As the work in the Mysore district survey charge comprising the Mysore and Mandya districts, was increasing and owing to the somewhat complicated nature of the work on account of certain peculiar features of the Irwin canal (v.c. canal) area, the formation of the Mandya district into an independent survey charge, with a full – time officer, was sanctioned for a period of two years from July 1943\textsuperscript{46}. The irrigation officer is the authorized authority who is to enforce the irrigation act. He is competent to dispose of minor cases. The assistant engineer, who looks after the canals and water distribution, is the irrigation officer. If the cases under

\textsuperscript{46}MAR 1943 – 44 p - 64
the irrigation Act are of major magnitude, they are brought before courts of law. The Mysore irrigation Act, 1932, as amended by Act VII of 1938 and VIII of 1952, is in force in the canal area. Water from the canals is let out from the outlets in branch canals. Though the hikkals excavated by the cultivators, water is led to the fields. There are controlling arrangements for several distributaries and the channel water is led according to the atchkat below the sluices.

The question of revising the Act so as to make it more comprehensive is under the consideration of the state government. The regulation of water supplies under the Vishweshwaraiah canal system is looked after by the public works department with necessary technical staff. The water supply for the monsoon irrigation starts from July every year and continuous till December. For sugarcane, water is supplied from January to June several notification indicating the regulation of water in various branches are issued from time to time for the information of the public, well in advance of the commencement of the monsoon or at the time of summer supplies, as the case may be.

The common irrigation offences in the channel area are tampering with the sluices, breaching of distributaries or closing of hikkals and drawing water for unauthorized irrigation within the village reserve where irrigation is prohibited for health reasons. During summer supplies,
unauthorized use of water for raising kar paddy is quite wide – spread throughout the irrigated tract. The irrigation officer is empowered to take action on the defaulters. In cases such as breaking of sluice gates, the help of the police is sought and after investigation, prosecutions are launched.\textsuperscript{47}

3:12 CLASSES OF IRRIGATION WORKS

Irrigation works are now classified into three categories, viz., major, medium and minor works. The major schemes are those which cost more than five crores of rupees while the medium schemes are those which cost more than rupees 15 lakhs but less than rupees five crores. The schemes which cost less than rupees 15 lakhs are called minor works. Well are used for lift irrigation, the water being raised from a lower level. The raising of water is effected either by manual labour or by animal or mechanical power. At present, sustained efforts are being made to introduce pumping sets for irrigation.

3:13 ACREAGE UNDER IRRIGATION:

Out of a total of 6,75,817 acres of land put to agricultural use in the district, 1,80,911 acres came under various irrigation sources like canals,
tanks and wells. The following table indicates the areas under different sources of irrigation during 1964-65.

**TABLE 3:3**

<table>
<thead>
<tr>
<th>Taluk</th>
<th>Government Canals</th>
<th>Tanks</th>
<th>Well</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandya</td>
<td>37,991</td>
<td>5,278</td>
<td>160</td>
</tr>
<tr>
<td>Maddur</td>
<td>27,838</td>
<td>9,600</td>
<td>200</td>
</tr>
<tr>
<td>Malavalli</td>
<td>27,460</td>
<td>3,952</td>
<td>500</td>
</tr>
<tr>
<td>Pandavapura</td>
<td>13,600</td>
<td>3,489</td>
<td>196</td>
</tr>
<tr>
<td>Krihnarajpet</td>
<td>14,008</td>
<td>2,779</td>
<td>320</td>
</tr>
<tr>
<td>Nagamangala</td>
<td>565</td>
<td>9,447</td>
<td>100</td>
</tr>
<tr>
<td>Srirangapatna</td>
<td>23,272</td>
<td>131</td>
<td>25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>144,734</strong></td>
<td><strong>34,676</strong></td>
<td><strong>1,501</strong></td>
</tr>
</tbody>
</table>


It is seen from the above table that, out of 1,80,911 acres under various sources of irrigation, 1,44,734 acres were fed by government canals drawn from the perennial rivers like the Cauvery, Hemavathi and Shimsha. Tank water irrigated 34,676 acres. Mandya district has a number of tanks in all the taluks, except the Srirangapatna taluk, where the Cauvery canals are the main source of irrigation. Maddur taluk has the largest irrigated area under tanks, having a command area of 9,600 acres.48

Thus Cauvery Reservoir project or Krishnarajasagar as it came to be called, was to be a multi – purpose project. It would not only make the

generation of additional power to the Kolar Gold Fields possible, but also form the basis of a number of industries in Bangalore and Mysore districts. It was intended to irrigate a large, previously very dry area, where paddy and sugar could be cultivated. It was the largest, water reservoir built in India till then and of course it had to be a rather expensive undertaking.\textsuperscript{49} Mandya was rapidly transformed from a sleepy country – town to a commercial centre in which Krishnaraja sagar constituted the dynamic core on which the surrounding country – side depended. Sir Mirza Ismail proved to be quite right. According to one critical view “the capitalist made of production came floating down the canals with the water”\textsuperscript{50}

\textsuperscript{49} Bjorn Hettne, The political economy of indirect rule Mysore 1881 – 1947, 1978, p -269
\textsuperscript{50} P.O. Reinton, Technology and Social structure in Karnataka, p -7.