

The Fifth Chapter “Marketing Problems in Mango Cultivation” analyses the problems faced by the farmers at marketing level, which include, problems in storage facilities of mango by growers, problems in transporting, problems in procurement of packing materials of mango by growers, problems of getting marketing information, problems faced by the growers in the market, problems of expenses in marketing of mango, problems in the marketing of mango, problems of sample growers with regard to procurement of mango by middlemen, problems of malpractices by middlemen, nature of problems for mobilizing finance from unorganized sector, interest charged by the unorganized sector from the growers, problems in getting finance from the organized sector and reasons for satisfaction and dissatisfaction in the mango cultivation by the farmers.

Sixth and Final Chapter, “Summary of findings and conclusion” deals with the conclusion aspects of study. It covers summary of findings, problems and suggestions and conclusion.

## **2.1 Introduction**

Mango is the most popular fruit in Madurai district.<sup>94</sup> It is considered to be the king of tropical fruits. It is equally liked by both the rich and the poor. The foremost reason for this is, it is the only fruit, which has flavour of all the fruits.<sup>95</sup> Mango and its products serve the Indians at varied occasions during its life span. Despite its confined distribution, demand for mango is spread throughout the country. Mango grows under varying soil and climatic conditions. Soil, moisture condition, temperature and humidity largely determine the adaptability and productivity of mango. In an area with poorly distributed rainfall it is grown with supplemented irrigation. The study area with respect to the location, soil type, and weather condition, cropping pattern, irrigation and profile of the sample growers is described below.

## **2.2 Origin and Development of Madurai District**

Madurai district is surrounded by various hills Yanamalai, Nagamalai and Pasumalai are the most prominent. Periyar and Vaigai are the two important dams whose reservoirs irrigate most of the cultivable land. River and tank wells are the other important sources of irrigation. Well-irrigation is also important and a large number of small and big wells are found in the district.

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<sup>94</sup>P.J.Rajkumar, "Marketing of fruits in Madurai district" *Indian Journal of Marketing*, Vol. XXXIII, No. 7, July 1999, p.13.

<sup>95</sup>S.Y.Chandrasekar, "Physiological disorders of Mango", *Kisan World*, Vol. 30, No. 11, November 2003, p.19.

Madurai district has never been self sufficient in rice and other food grains, even though the majority of the working population are engaged in cultivation. Crops like fruits, vegetables and flowers are important, which are exported to other districts in the state and also to some northern states. This district is famous for its orchards, forest product, handloom weaving and also for its agricultural products but is backward industrially. Madurai is the second largest city of Tamil Nadu after Chennai situated in the river Vaigai and is known as the city of temples and festivals. A teeming city, it is the hub of political activity in the state. It is often called the political capital of Tamil Nadu.

### **2.2.1 Location**

According to Statistical Handbook, Department of Economics and Statistics, Madurai district is one of the most important districts of Tamil Nadu where there has been a significant progress in agricultural development since the year, 1960. The district is located between 9°30' and 10°30' on the northern latitude and 77°00' and 78°30 on the eastern longitude. The capital of this district is Madurai, a city that enjoys a historical and literary reputation. Named after the goddess of the city, it is also referred to as Meenakshipatinam. The four sky-high gopurams (temple towers) have lent it the name of Nanmadakoodal.<sup>96</sup>

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### 2.2.2. Geographical Features

**The geographical area of Madurai district is 3,742 sq.km. accounting for nearly 2.9 per cent of the geographical area of the Tamil Nadu State. There are two revenue divisions and seven taluks and there are 596 villages in this district. The Dindigul district, the Sivagangai district, the Virudhunagar district and the Theni district serve as the northern, eastern, southern and western boundaries respectively of the Madurai district. Madurai district is classified into six sub-zones (southern plateau and hill region) under zone and among the 13 agro-climatic zones in the country. Normally sub-tropical climate prevails over the district without any sharp variation.**

### 2.2.3 Climate and Rainfall

Generally, Madurai district has a hot, dry and variable climate. The summer season here extends from March to July and in April-May the summer reaches its zenith. There are two observatories in Madurai district (one in Madurai south and

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<sup>96</sup>*A Statistical Handbook*, Department of Economics and Statistics, Madurai, 2004, pp. 27-30.

other at Madurai Airport). The Madurai district has been divided into seven taluks and thirteen blocks. Table 2.1 explains the details of Blocks and taluks in Madurai district.

**Table 2.1**  
**Blocks and Taluks of Madurai District**

Sl.No.	Name of the Taluk	Sl.No.	Name of the Block	Total Number of Panchayat Village
1.	Madurai North	1.	Madurai East	39
		2.	Madurai West	32
2.	Madurai South	3.	Thirupparankundram	43
3.	Melur	4.	Melur	36
		5.	Kottampatti	27
4.	Vadipatti	6.	Vadipatti	23
		7.	Alanganallur	37
5.	Usilampatti	8.	Usilampatti	18
		9.	Chellampatti	29
6.	Peraiyur	10.	T. Kallupatti	42
		11.	Sedapatti	31
7.	Thirumangalam	12.	Thirumangalam	38
		13.	Kalligudi	36

Source: Hand Book of Madurai district, 2003-2004, District Statistical Office, Madurai.

Table 2.1 has explained the blocks and taluks of Madurai district. The district has 13 blocks. Among these blocks the highest number of villages are in Thiruparankundram block registering 43 villages. The minimum number of villages is in Usilampatti block registering only 18 villages. The district has been divided into 7

taluks. Among these, each taluk is again sub-divided into two separate blocks, except the taluk of Madurai South.

#### 2.2.4 Demographic Factors

Population is one of the major factors for determining economics of any country. India is the second largest populated country in the world after China. The population of the study area is described below in Table 2.2.

**Table 2.2**  
**Population of Madurai District**

Sl.No.	Particulars	1991	2001
1.	Male population	1222160	1303363
2.	Female population	1178179	1274838
3.	Rural population	1203791	1134025
4.	Urban population	1196548	1444176
	Total	2400339	2578201

Source: 1.Census of India 1991 and 2001.

2.Handbook of Madurai District, District Statistical Office, Madurai, 2002-03.

**It is inferred from the Table 2.2 that the population of the district as per the 2001 Census was 2578201 of which 1303363 were male and 1274838 were female. The**

**rural population was 1134025 and the urban population was 1444176. The density of population in the district is 525 per sq.km against the state average of 528 per sq.km.**

#### 2.2.5 Occupational Pattern

**There are different people engaged in different fields like-wise classified into cultivators, agriculture labourers activity, marginal workers and the like. The distribution of the labour force in the Madurai district during 2001 is presented in Table 2.3. The occupational pattern of the total population in Madurai district for the year 2001 is in Table 2.3.**

Table 2.3

Occupational Pattern in Madurai District in  
2001

Sl.No.	Category	Madurai District	
		Number	Percentage
<b>1.</b>	<b>Total workers</b>	<b>1081686</b>	<b>90.09</b>
	<b>a. Cultivators</b>	<b>125892</b>	<b>10.49</b>
	<b>b. Agricultural labourers</b>	<b>332249</b>	<b>27.67</b>



	<b>c. Household industry manufacturing processing, servicing and repairs, workers</b>	<b>36774</b>	<b>3.06</b>
	<b>d. Other workers</b>	<b>586771</b>	<b>48.87</b>
<b>2.</b>	<b>Marginal workers</b>	<b>118985</b>	<b>9.91</b>
<b>3.</b>	<b>Total workers (1 + 2)</b>	<b>1200671</b>	<b>100.00</b>
<b>4.</b>	<b>Non-workers</b>	<b>1480593</b>	<b>55.22</b>
<b>5.</b>	<b>Total Population (3 + 4)</b>	<b>2681264</b>	<b>100.00</b>

**Source: Census of India 2001.**

**It is inferred from Table 2.3 that out of the total working population in the district, agricultural labourers accounted for nearly 27.67 per cent, 10.49 per cent registering 1,25,892 persons engaged in cultivation activities and other workers nearly 48.87 per**

**cent of the total number of workers. The household industry, manufacturing and the like accounted for 3.06 per cent of the total number of workers, while the marginal workers constituted the remaining 9.91 per cent of the working population. The overall total population of the district nearly 44.78 per cent registering 1200671 persons are engaged in total working activities. The remaining 55.22 per cent registering 1480593 persons are non-workers.**

#### 2.2.6 Soil Type

**Besides rainfall and irrigation, the type of soil also determines the water use efficiency. The soils in the study area are not uniform in colour and fertility. The types of soil available in the district are thin red, deep red, red sterile loamy, laterite, black and red sandy. The soils are porous and quickly drained. This is the reason for the successful cultivation of mango in the area. As regards mineral resources, limestone deposits, granite and the like are available in the district.**

#### 2.2.7 Climate

**Madurai district favourably uses the tropical climate. The mean minimum temperature ranges from 21.0°C to 26.7°C and the maximum temperature varies from 30.5°C to 38.7°C. The temperature in degree centigrade is minimum 27.8°C and maximum 39.5°C. May and June are the hottest months and the maximum temperature recorded during these months.**

#### 2.2.8 Rainfall

**The district receives maximum amount of rainfall from the North-east and the south-west monsoons. But the rainfall is scanty in other seasons. Table 2.4 shows the annual average rainfall in the district for 6 years from 1999-2004.**

Table 2.4

**Taluk-Wise Annual Rainfall of Madurai District  
(In m.m.)**

Sl . N o.	Name of the Taluk	1999	2000	2001	2002	2003	2004	Total	Avera ge
1.	<b>Madurai North</b>	3688 .5	3795 .6	2764 .9	3705 .0	3548 .4	3423 .7	20926 .1	3487. 6
2.	<b>Madurai South</b>	2215 .5	2485 .3	1958 .7	2004 .7	2364 .4	2532 .2	13560 .8	2260. 1
3.	<b>Melur</b>	4048 .0	4424 .0	2817 .5	3509 .5	3095 .2	4379 .9	22274 .1	3712. 3
4.	<b>Vadipatti</b>	3776 .7	3746 .6	3216 .5	3625 .1	3008 .7	4246 .3	21619 .9	3603. 3
5.	<b>Usilampatti</b>	1308 .5	2040 .1	1442 .4	1796 .8	1816 .0	1921 .5	10325 .3	1720. 8
6.	<b>Peraiyur</b>	--	--	--	--	623. 5	956. 2	1579. 7	789.8
7.	<b>Thirumanga lam</b>	598. 6	813. 2	739. 8	906. 6	1576 .8	1542 .2	6177. 2	1029. 5
	<b>District Annual Average Rainfall</b>	2233 .6	2472 .1	1848 .5	2221 .1	2290 .4	2714 .5	13780 .2	2296. 7

**Source: Asst. Director of statistics,  
Madurai.2004.**

**It is inferred from the Table 2.4 the  
overall rainfall during the study period from  
1999 to 2004. The minimum average rainfall  
in the district recorded was 789.8 mm in  
Peraiyur taluk and the maximum average**

**rainfall was in Melur taluk registered as 3712.3 mm. There was no rainfall data recorded from 1999 to 2002 in Peraiyur taluk. The district annual average rainfall was recorded the maximum amount of rainfall registering 2714.5 mm in 2004 and low rainfall recorded in 2001 registering 1848.5 mm. The season-wise rainfall in millimeters in Madurai district during June 2002-03 is furnished in the following Table 2.5.**

Table 2.5

Monthly Season-Wise Rainfall in Madurai District in 2002-03

Sl.No.	Period	Rainfall	
		Normal	Actual
<b>1.</b>	<b>South-West Monsoon</b>	<b>300.1</b>	<b>211.4</b>
	<b>Total</b>	<b>48.5</b>	<b>78.4</b>
	<b>June 2002</b>	<b>57.6</b>	<b>4.4</b>
	<b>July 2002</b>	<b>85.8</b>	<b>97.1</b>
	<b>August 2002</b>	<b>108.5</b>	<b>31.5</b>
	<b>September 2002</b>		

<b>2.</b>	<b>North-East Monsoon</b>		
	<b>Total</b>	<b>406.5</b>	<b>368.5</b>
	<b>October 2002</b>	<b>189.9</b>	<b>254.4</b>
	<b>November 2002</b>	<b>153.1</b>	<b>108.1</b>
	<b>December 2002</b>	<b>63.5</b>	<b>6.0</b>
<b>3.</b>	<b>Winter</b>		
	<b>Total</b>	<b>15.7</b>	<b>1.4</b>
	<b>January 2003</b>	<b>10.4</b>	<b>0.1</b>
	<b>February 2003</b>	<b>5.3</b>	<b>1.3</b>
<b>4.</b>	<b>Hot Weather</b>		
	<b>Total</b>	<b>112.7</b>	<b>167.4</b>
	<b>March 2003</b>	<b>13.3</b>	<b>2.4</b>
	<b>April 2003</b>	<b>44.3</b>	<b>65.9</b>
	<b>May 2003</b>	<b>55.4</b>	<b>99.1</b>
	<b>Total</b>	<b>835.0</b>	<b>748.7</b>

**Source: Meteorological office, Airport, Madurai, 2004.**

**It is clear from Table 2.5 that the level of rainfall during winter season was much lower in the other seasons.**

#### 2.2.9 Land Utilization Pattern

**The majority of the working population of Madurai district is predominantly engaged in agriculture and other allied activities. The district has a total geographical area of 374173 hectares.<sup>97</sup> Total land available in the district is utilized for different purposes. The details of such purposes and their respective share in the total area are shown in Table 2.6.**

Table 2.6  
Land Utilisation in Madurai District in 2002-03

Sl.No.	Classification	Area (in Ha.)
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<sup>97</sup>*Statistical Hand Book*, Department of Economics and Statistics, Madurai, 2004, p.34

<b>1.</b>	<b>Forest</b>	<b>50452</b>
<b>2.</b>	<b>Barren and uncultivated uses</b>	<b>13201</b>
<b>3.</b>	<b>Land put to non-agriculture uses</b>	<b>69258</b>
<b>4.</b>	<b>Cultivable waste</b>	<b>5695</b>
<b>5.</b>	<b>Permanent pasture and other grazing land</b>	<b>232</b>
<b>6.</b>	<b>Land under miscellaneous tree crops and groves not included Net Area Sown</b>	<b>2029</b>
<b>7.</b>	<b>Current fallow</b>	<b>17009</b>
<b>8.</b>	<b>Other fallow land</b>	<b>94400</b>
<b>9.</b>	<b>Net Area Sown</b>	<b>121897</b>
<b>10.</b>	<b>Geographical area according to village records</b>	<b>374173</b>
<b>11.</b>	<b>Total cropped area</b>	<b>123929</b>
<b>12.</b>	<b>Area Sown more than once</b>	<b>2032</b>

**Source: 'G' Returns of the Madurai District for the year 2002-03.**



**It is shown from Table 2.6 that the Madurai district is primarily an agriculture-based district, with a net area sown contribution to nearly 374173 hectares of the total geographical area in 2002-03. Forest and hills account for 50452 hectares and 123929 hectares of total cropped area respectively. Land put to non-agricultural uses constitutes 69258 hectares of the total geographical area.**

#### 2.2.10 Size of Land Holding

**The size of the land holdings was in ten categories starting from 0.05 hectares and ending with the classification according to the size of the holdings above 20 hectares. The total number of holdings in 2002-03 was 303195. The area under these holdings worked out to 205634 hectares for the year 2003-04. The distribution of the number of holdings and the total area under these holding classified according to the size of the holdings are presented in Table 2.7.**

Table 2.7

Size of Land Holdings in Madurai District in 2002-03

Sl.	Size of Land	Number of	Percentage to	Total Area	Percentage to
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No.	Holdings (in Ha.)	Holdings	Total Holdings	to Holdings (in Ha.)	Total Area
<b>1.</b>	<b>Below 0.5</b>	<b>182622</b>	<b>60.23</b>	<b>41502</b>	<b>20.18</b>
<b>2.</b>	<b>0.5 to 1.0</b>	<b>62461</b>	<b>20.60</b>	<b>43571</b>	<b>21.19</b>
<b>3.</b>	<b>1.0 to 2.0</b>	<b>38699</b>	<b>12.76</b>	<b>53921</b>	<b>26.22</b>
<b>4.</b>	<b>2.0 to 3.0</b>	<b>11487</b>	<b>3.79</b>	<b>27625</b>	<b>13.43</b>
<b>5.</b>	<b>3.0 to 4.0</b>	<b>3980</b>	<b>1.31</b>	<b>13656</b>	<b>6.64</b>
<b>6.</b>	<b>4.0 to 5.0</b>	<b>1777</b>	<b>0.59</b>	<b>7892</b>	<b>3.84</b>
<b>7.</b>	<b>5.0 to 7.5</b>	<b>1420</b>	<b>0.47</b>	<b>8520</b>	<b>4.14</b>
<b>8.</b>	<b>7.5 to 10.0</b>	<b>407</b>	<b>0.13</b>	<b>3480</b>	<b>1.69</b>
<b>9.</b>	<b>10.0 to 20.0</b>	<b>284</b>	<b>0.09</b>	<b>3639</b>	<b>1.77</b>
<b>10.</b>	<b>20.0 and above</b>	<b>58</b>	<b>0.01</b>	<b>1828</b>	<b>0.90</b>

	<b>Total</b>	<b>30319 5</b>	<b>100.00</b>	<b>20563 4</b>	<b>100.00</b>
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**Source: Hand Book of Madurai District,  
2002-04, District Statistical Office,  
Madurai.**

**From Table 2.7 it is found that nearly 80.83 per cent of holdings were below the size of one hectare and they accounted for nearly 41.37 per cent of the total cultivation area of the holdings. Holdings less than two hectares accounted for 93.59 per cent of the total number of holdings. About 23.91 per cent of the total area was accounted for by nearly 5.69 per cent of the total number of holdings and these holdings were between 2 and 5 hectares. Holding above the size of five hectares accounted for nearly 0.70 per cent of the total number of holdings. The number of persons holding less than 0.5 hectares is 1,82,622 being 60.23 per cent. This figure is the highest among the total land holdings of the district. Hence, it can be concluded that the majority of the cultivators are small farmers.**

### 2.2.11 Agriculture and Irrigation

**Madurai district has never been self-sufficient in rice and other food grains, even**

**though majority of the working population are engaged in cultivation of paddy twice in a year. The certain areas of the district, like Thirumangalam, crops like fruits, vegetables and flowers are cultivated and sent to other districts in the state also to some northern states. The normal seasons for cultivation of paddy are June – August and September-December. During these seasons, short-term and long-term crops are sown. Cattle dung, leaf manure, tank silt, municipal compost and oil cakes, besides chemical fertilizers, are the important manures used in the district. Cumbu and groundnut are also cultivated in Madurai district during May-June. Ragi, which is the staple food of the poorer class, is also cultivated in this district. Cotton is sown on rain-fed and irrigated areas, plantain is commonly grown in almost all the taluks of the district. The agricultural prosperity of Madurai district had largely increased by “grow more food” campaign after independence. Under this programme, all the uncultivated lands were brought under cultivation using improved seeds and better manuring encouraged intensive cultivation. Besides, unoccupied Government lands were permitted to be used for conventional cultivation. Loans and advances were liberally given for the promotion of cultivators, especially in kinds,**

**by means of better seeds and fertilizers. Periyar and Vaigai are the two important dams whose reservoirs help most of the cultivable land. River, tanks and wells are the other important sources of irrigation. Well irrigation is also an important source for water and therefore, a large number of wells, small and big are found in the district.**

**Paddy, cotton, coconut, tobacco and sugarcane are cultivated with the help of the irrigational facility.**

#### **2.2.12 Animal Husbandry**

**In Madurai district, the livestock population consists of cattle and buffaloes, sheep, goats, pigs and poultry. The Animal Husbandry Department controls the activities throughout the district, with their headquarters in important centres. There are veterinary hospitals, dispensaries, laboratory and animal disease intelligence units, besides tertiary sub-centres, which look after the welfare of animals. The intensive cattle development projects are being implemented in Madurai district. Seven bull stations are carrying out artificial insemination work, under a special animal husbandry programme and different schemes like calf rearing, poultry production and**

**piggery production are being implemented. Units are working in different centres in the district for the eradication of infectious diseases. A number of co-operative institutions have also been set up and are working for the development of livestock.**

### **2.2.13 Communication and Transport**

**Madurai district is well served by roads and railways. Major surface roads constitute National Highways and State Highways. Madurai district enjoys comparatively good weather condition. The easy availability of granite and quartz in most parts and quarries of other materials make it possible for good maintenance of roads. A few bridges over rivers connect interior parts for traffic. Since Madurai itself is a pilgrim center, the city serves as a transit point to pilgrims and tourists who visit Rameswaram and Cape Comerin. Madurai is well connected by air and rail with other parts of the country. A daily flight service operates to the headquarters of the State. During summer seasons, jasmine flower is airlifted from Madurai to a number of destinations inside and outside the country.**

## 2.2.14 Industries

**Madurai district is not rich in minerals even through it is not totally extinct. Crystalline limestone and building stone are available in large quantities in Thirumangalam and Melur taluk of the district, which are used for making cement and for constructions purposes. Madurai district is one of the leading industrial and trading – populated districts in Tamil Nadu. Industries of the district have been classified into three broad categories namely household, small scale and medium and large-scale industries. A little more than one third of the urban population is engaged in household industry, that too, mainly in Madurai. Handloom weaving is the major household industry in the district. The district has many weavers’ co-operative societies. Other important items are making toys and dolls, processing of food articles, manufacturing of safety matches and allied articles. Manufacture of metal products except machinery and transport equipment covers 30 per cent of the total industries in the district. Household articles such as stainless steel, aluminium and iron utensils, containers, locks, agricultural implements**

**and steel furniture are produced. Food products follow next and there is a list of more than 100 items such as sweets, biscuits, pickles, jams, vermicelli, appalams and the like. These items have a ready market. Manufacturing of transport equipment occupies the third place in the small-scale industries.**

**Madurai city is famous for dying, as it is one of the largest locations in south India. Another peculiar character of Madurai is wax printing, done in Madurai city, which was once prevalent on a large scale. This is also declining slowly because of mechanical printing. The Harvey Mills has celebrated its centenary, now under the name of Madura Coats (P) Ltd. There are many cotton mills in the district out of which more than half of them are manufacturing yarn and textiles. The remaining is manufacturing yarn alone and most of them are under the private sector, barring one under the co-operative sector. Other important industries in the district are chemicals, cotton seed oil, metal and alloys, cement, electric goods, automobiles, paper and pulp products, rubber goods, leather goods, sewing machines, engineering products, sugar mills, flour mills and food production. Industrial training**



**institutes are functioning in Madurai, which impart training in various trades.**

#### 2.2.15 Rivers, Canals and Waterways

**The two important rivers in Madurai district are Vaigai and Suruliar. Both these rivers originate from the Western Ghats in the Cumbum valley. They run a considerable distance on a parallel course and join near Allinagaram in Theni District and pass through Madurai district and enter the adjoining district. Govundam Nadi is another important river in this district.**

#### 2.2.16 Tourism

**An old city, Madurai exhales religious fervour being a heaven of peace and sanctity for the teeming millions of pilgrims who visit the temple city. Art, architecture and culture form today a honeycomb for modern pilgrim-cum-tourists. The Dravidian Cult of Amman worship of the presiding deity, Meenakshi, Lord Siva's consort Meenakshi, another form of Sakthi bestows on her equal power with Siva, and in acceptance of this**

**concept, Lord Siva has positioned her in the one half of his body (Arthanareeswarar). This accepted supremacy of woman is often mentioned in ancient texts as “Maduraiveedu” where the dominant of the household is female. Madurai city has its past glory embedded in rich detail. The three Tamil sangams, each an academy of Tamil poets and scholars, flourished here under the royal patronage of Tamil Kings some two thousand years ago. The glory of its erstwhile royal Pandian dynasty is found in a few monuments, which light up the eyes of modern tourists with awe and admiration. The successive Nayak rulers preserved their predecessor’s splendours with added spice of their own. Meenakshi temple and arts gallery, Mariamman Theppakulam, ThirumalaiNaick Palace, Thirupparankumdrum and Alagarkovil are the places in and around Madurai city which attract a large number of visitors. During the harvest pongal festival season in the month of January, the conduct of bullfights (Jallikattu), a unique rural sport of Tamil Nadu, can be witnessed at Alanganallur village of Madurai district. Here, the bull is allowed to run in an open stretch of land pursued by the bullfighter whose aim is to catch the bull and tame it and win a cash award usually tied to the arms of the bull.**

### 2.2.17 Infrastructure

**Madurai district is provided with good infrastructure facilities in respect of transport, communications and power supply. The district has well - laid out roads and it comprises 2073 kms of panchayat union road and 905 kms of panchayat roads.**

**The railway line connects all the major towns within and outside the State. Besides, the district possesses a very good communication network and almost all the villages in the district are fully electrified. There is an adequate availability of power supply for agriculture.**

### 2.2.18 Irrigation

**Water is an important determinant factor of production of crops in agriculture sector.**

**Irrigation is the artificial application of water to the soil for normal growth of plants.**

**Well irrigation and canal irrigation are the main sources of irrigation in the study area.**

**The irrigation in Madurai district for the year 2003 is described in Table 2.8**

Table 2.8

Irrigation in Madurai District in 2002-03

Sl.No	Source	Number	Area Irrigated in Hectares	Percentage to Total
<b>1.</b>	<b>Government canals</b>	<b>51</b>	<b>19106</b>	<b>31.98</b>
<b>2.</b>	<b>Private canal</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>3.</b>	<b>Tanks</b>	<b>292</b>	<b>6446</b>	<b>10.79</b>
<b>4.</b>	<b>Ground water</b>	<b>30645</b>	<b>34197</b>	<b>57.23</b>
	<b>Total area irrigated</b>	<b>30988</b>	<b>59749</b>	<b>100.00</b>

**Source: Hand Book of Madurai District 2003-04, District Statistical Office, Madurai.**

**It is observed from the Table 2.8 that more than 57 per cent of the total area is irrigated by ground water. Tank and government canal cover only 10.79 per cent**

**and 31.98 per cent respectively of the total irrigated area.**

### 2.2.19 Sources of Water Supply

**According to the water supply there are different blocks in Madurai district depending on the cultivation and other agricultural purposes. The water supply is not uniform in Madurai district. It varies in each block. The block-wise water supply is presented in Table 2.9.**

Table 2.9

#### Block-Wise Sources of Water Supply

Sl. No.	Block	Canal		Wells Used for Irrigation purpose	Tub e Wells	Wells used for Dome stic Purpo se	Reser voir
		No s.	Leng th (kms .)				
<b>1.</b>	<b>Madurai East</b>	<b>7</b>	<b>23 .0</b>	<b>10 40</b>	<b>--</b>	<b>20 74</b>	<b>--</b>
<b>2.</b>	<b>Madurai West</b>	<b>6</b>	<b>18 .6</b>	<b>18 15</b>	<b>--</b>	<b>44 68</b>	<b>--</b>
<b>3.</b>	<b>Thirupparamk undram</b>	<b>1</b>	<b>17 .6</b>	<b>28 62</b>	<b>--</b>	<b>54 84</b>	<b>--</b>

<b>4.</b>	<b>Melur</b>	<b>3</b>	<b>24</b> <b>.0</b>	<b>43</b> <b>60</b>	<b>3</b>	<b>30</b> <b>60</b>	<b>--</b>
<b>5.</b>	<b>Kottampatti</b>	<b>1</b>	<b>8.</b> <b>0</b>	<b>34</b> <b>84</b>	<b>--</b>	<b>64</b> <b>8</b>	<b>1</b>
<b>6.</b>	<b>Vadipatti</b>	<b>13</b>	<b>6.</b> <b>0</b>	<b>30</b> <b>01</b>	<b>11</b> <b>1</b>	<b>31</b> <b>30</b>	<b>--</b>
<b>7.</b>	<b>Alanganallur</b>	<b>17</b>	<b>11</b> <b>.0</b>	<b>33</b> <b>92</b>	<b>12</b> <b>1</b>	<b>40</b> <b>1</b>	<b>1</b>
<b>8.</b>	<b>Thirumangalam</b>	<b>2</b>	<b>31</b> <b>.0</b>	<b>42</b> <b>52</b>	<b>32</b>	<b>99</b> <b>8</b>	<b>--</b>
<b>9.</b>	<b>Kalligudi</b>	<b>--</b>	<b>--</b>	<b>22</b> <b>75</b>	<b>4</b>	<b>13</b> <b>72</b>	<b>--</b>
<b>10.</b>	<b>Usilampatti</b>	<b>--</b>	<b>--</b>	<b>39</b> <b>23</b>	<b>36</b>	<b>10</b> <b>66</b>	<b>--</b>
<b>11.</b>	<b>Chellampatti</b>	<b>1</b>	<b>30</b> <b>.4</b>	<b>50</b> <b>06</b>	<b>15</b> <b>4</b>	<b>51</b> <b>7</b>	<b>--</b>
<b>12.</b>	<b>Sedapatti</b>	<b>--</b>	<b>--</b>	<b>60</b> <b>95</b>	<b>46</b>	<b>14</b> <b>80</b>	<b>--</b>
<b>13.</b>	<b>T.Kallupatti</b>	<b>--</b>	<b>--</b>	<b>22</b> <b>36</b>	<b>12</b>	<b>98</b> <b>4</b>	<b>--</b>

**Source: Hand Book of Madurai District,  
District Statistical Office, Madurai,  
2003-04.**

**It is depicted in Table 2.9 that the maximum number of canals is in Alanganallur block registering 17 canals. The total length of canals is 11 kms. The wells are used in Madurai district for both domestic as well as agriculture purposes. Tirumangalam block occupies the primary position in the length of canals registering 31 kms and the Vadippatti block has the lowest position with 6 kms. The maximum number of wells are used in Sedapatti block registering 6095 for irrigation purpose and the smallest number of 1040 wells are in Madurai East block. No tube wells are used in Madurai East, Madurai West, Thirupparamkumdrum and Kottampatti blocks. Wells used for domestic purpose are highest in Thirupparamkumdrum block and lowest in Alanganallur block accounting for 5484 and 401 wells respectively.**

#### **2.2.20 Reservoirs**

**The lands in the district are irrigated by dam, tank, well and borewells. The water reservoirs in Madurai district are furnished in Table 2.10.**

Table 2.10

Reservoirs in Madurai District in 2002 - 2003

Sl. No.	Name of the Dam	Dam			
		Water spread area (in ha.)	Height (Mts).	Capacity (Cu.m.)	Length of Canals in Kms.
<b>1.</b>	<b>Periyar</b>	<b>2643</b>	<b>46</b>	<b>15662.00</b>	<b>65.00</b>
<b>2.</b>	<b>Vaigai</b>	<b>260</b>	<b>21</b>	<b>6091.00</b>	<b>46.00</b>
<b>3.</b>	<b>Peria Aruvi</b>	<b>2360</b>	<b>26</b>	<b>23.60</b>	<b>18.00</b>
<b>4.</b>	<b>Sathayar</b>	<b>2080</b>	<b>56</b>	<b>20.80</b>	<b>17.00</b>

**Source: Office of the Assistant Engineer, P.W.D. Madurai and Melur, 2003-2004.**

**It is clear from Table 2.10 that the four dams irrigate the lands in the district. Of the four, Peria Aruvi and Sathayar dams are in Madurai district. Though Periyar dam is situated in Idukki district of Kerala State its water is utilised by Tamil Nadu and Vaigai dam is situated in Theni district. Its water**



**irrigated is also utilized for drinking purpose of Madurai city.**

**Among the major crops grown in Madurai district, paddy, sugarcane, banana are cultivated in irrigated conditions only. Cholan, cumbu, greengram, groundnut and cotton are the major crops which are cultivated both in irrigated and in unirrigated conditions. The details of area under various crops and the area of crops irrigated in Madurai district during the year 2002-03 are given in Table 2.11.**

Table 2.11  
Crops Grown in Irrigated Area of Madurai  
District in 2002-03

Sl.No.	Crop	Percentage to Total Area Sown	Area in Ha.
<b>1.</b>	<b>Paddy</b>	<b>66.92</b>	<b>43959</b>
<b>2.</b>	<b>Jowar</b>	<b>0.28</b>	<b>186</b>
<b>3.</b>	<b>Cumbu</b>	<b>0.43</b>	<b>284</b>
<b>4.</b>	<b>Maize</b>	<b>0.19</b>	<b>126</b>
<b>5.</b>	<b>Ragi</b>	<b>0.12</b>	<b>76</b>
<b>6.</b>	<b>Greengram</b>	<b>0.43</b>	<b>285</b>
<b>7.</b>	<b>Redgram</b>	<b>0.01</b>	<b>7</b>
<b>8.</b>	<b>Blackgram</b>	<b>0.04</b>	<b>27</b>
<b>9.</b>	<b>Thattai</b>	<b>0.03</b>	<b>20</b>
<b>10.</b>	<b>Motechai</b>	<b>0.03</b>	<b>11</b>
<b>11.</b>	<b>Groundnut</b>	<b>1.87</b>	<b>1229</b>
<b>12.</b>	<b>Castor seeds</b>	<b>0.01</b>	<b>4</b>
<b>13.</b>	<b>Sunflower</b>	<b>0.01</b>	<b>9</b>
<b>14.</b>	<b>Coconut</b>	<b>10.41</b>	<b>6836</b>
<b>15.</b>	<b>Cotton</b>	<b>1.70</b>	<b>1118</b>
<b>16.</b>	<b>Sugarcane</b>	<b>8.58</b>	<b>5639</b>
<b>17.</b>	<b>Coriander</b>	<b>0.08</b>	<b>53</b>
<b>18.</b>	<b>Banana</b>	<b>3.25</b>	<b>2136</b>
<b>19.</b>	<b>Fruits and vegetables</b>	<b>5.62</b>	<b>3680</b>
	<b>Total</b>	<b>100.00</b>	<b>65685</b>

**Source: 'G' Return, Office of the Assistant Director of Statistics, Madurai, 2003-04.**

**It is inferred from the Table 2.11 that among the various crops grown under irrigation in this district, paddy crop occupies the first place with 66.92 percent followed by coconut with 10.41 percent**

#### **2.2.21 Area, Production and Yield of Major Crops**

**A well-served irrigational system and the farming operation, both intensive and extensive, have successfully increased the agricultural production to a laudable extent. The introduction of high-yielding varieties has increased the yield and production of all the crops in the State as well as in Madurai district. The area, production and yield of major crops in Madurai district are presented in the following Table 2.12.**

Table 2.12

Area, Production and Yield of Major Crops in  
Madurai District, 2002-03

Sl. No.	Crop	Area (in Hec.)	Production (in Tonnes)	Average Yield rate (in Kg./Hec.)
<b>1.</b>	<b>Paddy</b>	<b>43959</b>	<b>185331</b>	<b>4216</b>
<b>2.</b>	<b>Cholam</b>	<b>9390</b>	<b>12104</b>	<b>1289</b>
<b>3.</b>	<b>Cumbu</b>	<b>2986</b>	<b>3739</b>	<b>1252</b>
<b>4.</b>	<b>Ragi</b>	<b>209</b>	<b>418</b>	<b>2000</b>
<b>5.</b>	<b>Korra</b>	<b>27</b>	<b>7</b>	<b>259</b>
<b>6</b>	<b>Varagu</b>	<b>169</b>	<b>232</b>	<b>1373</b>
<b>7.</b>	<b>Samai</b>	<b>84</b>	<b>71</b>	<b>845</b>
<b>8.</b>	<b>Maize</b>	<b>614</b>	<b>1232</b>	<b>2007</b>

<b>9.</b>	<b>Redgram</b>	<b>1160</b>	<b>746</b>	<b>643</b>
<b>10</b> <b>.</b>	<b>Bengalgram</b>	<b>148</b>	<b>86</b>	<b>581</b>
<b>11</b> <b>.</b>	<b>Greengram</b>	<b>4596</b>	<b>1719</b>	<b>374</b>
<b>12</b> <b>.</b>	<b>Blackgram</b>	<b>1798</b>	<b>910</b>	<b>506</b>
<b>13</b> <b>.</b>	<b>Horsegram</b>	<b>1662</b>	<b>787</b>	<b>474</b>
<b>14</b> <b>.</b>	<b>Cotton</b>	<b>9505</b>	<b>1987</b>	<b>209*</b>
<b>15</b> <b>.</b>	<b>Sugarcane</b>	<b>5639</b>	<b>863534</b>	<b>153@</b>
<b>16</b> <b>.</b>	<b>Banana</b>	<b>2136</b>	<b>121555</b>	<b>56@</b>
<b>17</b> <b>.</b>	<b>Mango</b>	<b>5647</b>	<b>14344</b>	<b>2540</b>
<b>18</b> <b>.</b>	<b>Coriander</b>	<b>338</b>	<b>116</b>	<b>343</b>
<b>19</b> <b>.</b>	<b>Chillies</b>	<b>400</b>	<b>260</b>	<b>65</b>
<b>20</b> <b>.</b>	<b>Onion</b>	<b>908</b>	<b>5880</b>	<b>6475</b>

**Note: \* Bales of 170 kgs.**

**@ In tonnes**

**Source: Season and Crop Report of Tamil Nadu, 2003-04.**

**Table 2.12 shows that paddy, the most popular crop was cultivated in Madurai district to the extent of 43959 hectares and production was 185331 tonnes in 2002-03. But in mango cultivation, the area constituted 5647 hectares and production accounted for 14344 tonnes. The average yield rate of paddy and mango crop accounted for 4216 kg./ha and 2540 kg./ha respectively. The production of major crops indicates that the higher values are accounted for in terms of sugarcane cultivation (863534 tonnes).**

### 2.3 Summary

**In this part of the chapter the researcher has presented the various aspects of the study area namely Madurai District. Madurai District is one among the premier districts in Tamil Nadu, which has all kinds of natural resources in it. As per the census report 2001 of government of India, the total**