

# **PROJECT INFORMATION MEMORANDUM**

## **MODERN TERMINAL MARKET AT PERUNDURAI (COIMBATORE REGION)**

SIPCOT Industrial Growth Centre,  
Perundurai Taluk, Erode District, Tamilnadu

### **Project Initiated by**

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## **PROJECT INFORMATION MEMORANDUM**

### **I. INTRODUCTION**

#### **AN INNOVATIVE MARKET MECHANISM**

The present marketing system is characterized by long fragmented supply chain and high wastage. It is also deficient in providing fair share of consumer prices to producers and ensuring quality and hygiene of the produces. With this in view, the Central Government has introduced the concept of Modern Terminal Markets under the NHM, which is being implemented through the Public Private Partnership (PPP) mode. Terminal Market Complex (TMC) Project is conceptualised to operate on a hub and spoke model linking the Terminal Market Complex (the hub) with collection centres (the spokes). The proportion of non-perishable products shall not exceed 15 percent of the total throughput and the proportion of non-horticultural products within the perishable commodity shall not exceed 15 percent of the total throughput. The principal objectives of setting up Terminal Markets Complex (TMC) are:

- Link farmers to markets by shortening supply chain of perishables and enhance their efficiency and increase in farmers' income
- Provide professionally managed competitive alternative marketing structures with state-of-art technology, that provide multiple choices to farmers for sale of their agricultural produce
- Drive reforms in agricultural marketing sector resulting in accelerated development of marketing and post harvest infrastructure including cool chain infrastructure in the country, through private sector investment
- Bring transparency in market transactions and price fixation for agricultural produce and through provision of backward linkages to enable farmers to realise higher price and higher income

#### **Salient Features**

- a. Terminal Market Complex (TMC) can be set up in States, which undertake reforms in their laws relating to agricultural marketing, to provide direct marketing and permit the setting up of markets in private and cooperative sectors.
- b. TMC will operate on a Hub-and-Spoke Format wherein Terminal Market Complex (hub) would be linked to a minimum number of Collection Centres (CC) (spokes) which are essentially required to support the Terminal Market Complex project.
- c. Spokes will be conveniently located at key production centres to allow easy farmer access and catchment area of each spoke will be based on meeting convenient needs of farmers, operational efficiency and effective capital utilisation of investment.

- d. TMC will establish backward linkages with farmers through collection centres and forward linkages through wholesalers, distribution centres, retail cash and carry stores, processing units for exporters etc.
- e. Collection Centres in production areas will integrate producers and retailers, processing units and exporters etc. into market system. The number of Collection Centres shall be determined in each case depending on the size of the market, distance from growing areas and other factors.
- f. Electronic auction system will be established to ensure transparency in price fixation and competition.
- g. Scheme would attract and facilitate private sector investment in agribusiness sector by assisting key stakeholders in sectors, such as entrepreneurs, processing industries, exporters, producer associations and farmers etc. through provision of subsidy under NHM.
- h. Producers, farmers and their associations and other market functionaries from any part of the country may use infrastructure and facilities of TMC, directly or through collection centres.
- i. TMC will provide one-stop solution in terms of providing logistics support including transport services and cool chain facility.
- j. TMC Project will be implemented as a separate company/SPV to be registered under Companies Act, 1956 through suitable Private Enterprise (PE) to be selected as Promoter through process of competitive bidding. PE should offer to provide up to 26% share holding in equity for TMC Project to Producers' Association at inception of project and accordingly make reasonable efforts for ensuring the participation from Producers' Associations.
- k. The area of operation of the TMC should be clearly defined and any other proposal in future for setting up of TMC within the whole or part of the defined area of operation of the designated TMC and its CCs will not be granted any subsidy under NHM for a period of 10 years.

## **POTENTIAL FOR THE TERMINAL MARKET**

Tamilnadu is the third largest producer of fruits in the country accounting for 12 percent of the total output.

The marketable surplus of fruits, vegetables, and spices in Coimbatore Region is estimated at 7.6 lakh tonnes, 6.2 lakh tonnes, and 1.3 lakh tonnes respectively. Survey of farmers and traders in the Command Area reveals an overwhelming support and cooperation for the proposed Modern Terminal Market at Perundurai. The project can therefore expect a very positive patronage from the local farming community as well as traders. The farmers face a number of problems with respect to transportation, pricing, payment, storage, facility to sort and grade, sanitation, and so on. They do not get adequate prices for their produces and the

traders and contractors do not settle their payments on time. The traders too face problems with respect to transportation, sanitation, damage of produces, and so on.

With good tie-ups between buyers and sellers, and good backward and forward linkages, the proposed project would contribute to better production planning by the farmers in the region. The proposed Terminal Market can empower the farmers with feedback on consumer likes and requirements and help them in production planning and marketing tie-ups.

### **PROPOSED TERMINAL MARKET**

Terminal Market Complex (TMC) Project is conceptualized to operate on a hub and spoke model linking the Terminal Market Complex (the hub) with collection centres (the spokes). In the proposed project, the central hub will be set up at Perundurai Growth Centre in Perundurai Taluk, Erode District. Coimbatore Region is a major production centre for fruits like banana, mango, guava, sapota, and pineapple; vegetables like tomato, cauliflower, cabbage, brinjal, lady's finger, drumstick, and yam; spices like turmeric, tamarind, chilli, and coriander; and pulses, cereals, and flowers.

The project is proposed to be setup at State Industries Promotion Corporation of Tamilnadu (SIPCOT) Perundurai Industrial Growth Centre, Perundurai and Ingur Villages, Perundurai Taluk, Erode District. The site is considered well suited for the proposed Modern Terminal Market Complex in view of the following reasons:

- Centrally located to the command area of the TMC
- Government sponsored Industrial Estate
- Land cost is considerably cheaper than outside market rate (Rs.60 -100 lakh)
- Proximity to Erode and Coimbatore renders easy availability of qualified and skilled manpower, packaging materials, consumables, and support services like transportation, repair, and other facilities.
- Good physical and social infrastructure in terms of transportation, communication, hospitality, education, and banking
- Power infrastructure is well developed within the Growth Centre and therefore obtaining the power connection would not take much time.
- Adequate supply of water by SIPCOT
- Well-developed sewage and effluent drainage in the Growth Centre.

## II. BRIEF PROFILE OF TAMILNADU

### DEMOGRAPHIC PROFILE

#### Administrative Divisions

As summarized in the following Table, the state is comprised of 30 states, 201 taluks, 111 towns, and 16,317 villages.

**Administrative Divisions in Tamilnadu**

Divisions	1991	2001
Districts	21	30
Taluks	167	201
Blocks	385	385
Towns	469	111
Urban Agglomerations	34	27
Villages	16780	16317
Uninhabited Villages	958	917

**Source:** Census 2001

#### Socio-Economic Profile

The population of the state as per 2001 Census was 6.24 crore of which literates constituted 73.45 percent. Main cultivators accounted for around 20 percent and agricultural labourers accounted for 26 percent. The percentage of marginal agricultural labourers in the total population was 63 percent.

**Census Data at a Glance**

Parameter	Total	Male	Female	%	Sex Ratio
Population	62405679	31400909	31004770	100	987
Population (0-6)	7235160	3725616	3509544	13.11	942
Scheduled Castes	11857504	5932925	5924579	21.49	999
Scheduled Tribes	651321	328917	322404	1.18	980
Literates	40524545	22809662	17714883	73.45	777
Illiterates	21881134	8591247	13289887	26.55	1547
Workers	27878282	18100397	9777885	44.67	540
Main Workers	23757783	16303310	7454473	38.07	457
Main Cultivators	4738819	3107543	1631276	19.95	525
Main Agricultural labourers	6062786	3273642	2789144	25.52	852
Main Workers in household industries	1261059	594025	667034	5.31	1123
Main Other Workers	11695119	9328100	2367019	49.23	254
Marginal Workers	4120499	1797087	2323412	15	1293
Marginal Cultivators	377220	154946	222274	9.15	1435
Marginal Agricultural labourers	2574844	982718	1592126	62.49	1620
Marginal Workers in Household industries	238702	54564	184138	5.79	3375
Marginal Other Workers	929733	604859	324874	22.56	537
Non Workers	34527397	13300512	21226885	55.33	1596
Households	14665983				

**Source:** Census 2001

## ECONOMIC PROFILE

As per the Eleventh Five Year Plan document, the economy of the state had grown at 4.8 percent of average annual growth rate (AAGR) during the Ninth Plan period while it had achieved a 6.8 percent growth rate during the Tenth Plan period, with the tertiary sector being the major contributor to growth, showing an average growth of 7.7 percent. The primary sector has been responsible for pulling down the growth at 2.57 percent per year. The secondary sector has maintained its growth rate at 7.5 percent. During the Tenth Plan, the per capita income in the state grew at 5.7 percent per annum as compared to 3.5 percent during the Ninth Plan.

Between 2001-02 and 2006-07, the share of the primary sector in the Gross State Domestic Product (GSDP) sharply declined from 17.2 percent to 13.6 percent. The contribution of the secondary sector to the GSDP was 27.03 percent in 2001-02, which increased slightly to 28.03 percent in 2006-07. However, the tertiary sector's contribution to the GSDP has increased from 55.73 percent in 2001-02 to 58.3 percent in 2006-07. A closer look at the shares of the different sectors during the Tenth Plan period reveals that the share of primary sector deteriorated at the rate of -4.16 percent per annum and of the secondary sector grew at the rate of 0.8 percent per annum, while that of the tertiary sector increased its share at the rate of 0.93 percent per annum. As indicated in the following table, the structural change in the state economy is the reflection of the differences in the growth rates of the major sectors.

**Growth Rate of Major Sectors & Sub-Sectors**

No.	Sector	Ninth Plan 1997-98/2001-02	Tenth Plan 2002-03/2006-07
1	Agriculture & Allied	3.27	2.41
2	Forestry and Logging	0.71	1.04
3	Fishing	2.26	2.98
4	Mining and Quarrying	4.39	13.49
	<b>Primary Sector</b>	<b>3.10</b>	<b>2.57</b>
5	Manufacturing Registered	-0.42	8.91
6	Manufacturing Unregistered	2.99	6.97
7	Electricity, Gas, and Water Supply	-3.56	10.13
8	Construction	10.23	6.40
	<b>Secondary Sector</b>	<b>2.15</b>	<b>7.49</b>
9	Trade, Hotels & Restaurants	5.69	7.59
10	Railways	5.31	5.55
11	Transport	4.31	6.13
12	Storage	3.14	8.03
13	Communication	20.27	14.83
14	Banking & Insurance	5.69	9.12
15	Business Services	9.84	9.24
16	Public Administration	11.07	5.17
17	Other Services	6.16	6.35
	<b>Tertiary Sector</b>	<b>6.98</b>	<b>7.72</b>
	<b>GSDP</b>	<b>4.78</b>	<b>6.75</b>

Source: Eleventh Five-Year Plan Document

## AGRICULTURAL PROFILE

Agriculture is the major livelihood support to the rural in Tamilnadu. Though the share of agriculture has been declining over the years, its importance and influence on the economy cannot be understated. It acts as an important instrument not only of the growth of the economy but also of the welfare of the people. One of the main reasons for the unbalanced growth of the economy has been the decline in the share of and the growth of the agriculture sector. The sector has undergone a crisis during 1993-94 to 2006-07. Agriculture continues to be the mainstay of livelihood for more than 50 percent of the population in the state. It contributes 12 percent of the Net State Domestic Product. Agriculture is the single largest sector providing job opportunities for rural people, besides being the source of supply of food grains and other dietary staples and serving as the chief source of raw material for industries. The diverse agro-ecological conditions of the state favour growing fruits and vegetables. One important trend observed in the last decade is that horticulture development has gradually moved out of its rural confines into urban areas and from traditional horticulture to hi-tech horticulture. Thus horticulture assumes great importance as it provides a remunerative means for diversification of land use, improving productivity of land and increasing farmer income.

Agriculture in the state remains unprotected from the vagaries of the monsoon. Crop failure occurs every three years with stoic regularity. The worst crop failures tend to spread over two to three consecutive years. In certain parts of the state, agriculture is almost annually exposed to natural calamities like flood. Agriculture in the state is beset with a number of adverse characteristics such as deficiency in nitrogen, low productivity per unit of labour, scarcity of cultivable land, predominance of small farmers, and seasonal variations, etc. The state had aimed at achieving 4 percent growth rate in agriculture and 8 percent in horticulture and allied sectors during the Tenth Five Year Plan. The task became difficult in view of the constraints namely, erratic and inadequate monsoon, depletion of ground water, uncertainty in release of water from Mettur reservoir, deterioration of soil health, and increase in fallow lands. There was a steep fall in the growth of agriculture and allied activities by 21.80 percent in 2002-03. The situation improved in 2004-05 with a growth of 19.50 percent but fell again to 7.8 percent in 2005-06, and became negative during 2006-2007.

There are two major concerns. The growth rate of GSDP from primary/agriculture sector has declined. In spite of decline in the share of agricultural sector from about 44 percent in total income in 1960-61 to 24.82 percent in the 1993-94 and to 12.37 percent in 2006-07, majority of the state's rural population is still dependent on agriculture.

National Horticulture Mission is being implemented in Tamil Nadu from 2005-06 with 8 focus crops viz., mango, Anola, banana, cashew, chillies, turmeric, aromatic Plants and flowers in 13 districts of Tamil Nadu viz., Coimbatore Cuddalore, Dharmapuri, Dindigul, Erode, Krishnagiri, Madurai, Ramanathapuram., Salem, Sivagangai, Theni, Thiruchirapalli and Tiruvelveli. This scheme aims at holistic development of Horticulture involving appropriate

The target set for area, production, and productivity of crops during the Eleventh Five Year Plan in the state is as follows:



**Physical Target Set for the Eleventh Five-Year Plan**

No.	Crop	Area	Production	Productivity
		Lakh Ha	Lakh Tonne	Kg/Ha
1	Paddy	22.00	85.80	3900
2	Millets	10.50	21.00	2000
3	Pulses	10.00	7.00	700
	<b>Total Food Grains</b>	<b>42.50</b>	<b>113.80</b>	<b>2678</b>
4	Cotton	2.00	6.00 #	510
5	Sugarcane	3.80	47.52	12505 \$
6	Oilseeds	11.60	20.40	1759
7	Fruits	4.15	92.35	22.24*
8	Vegetables	3.74	104.38	27.93*
9	Spices	2.30	12.78	5.56*
10	Plantation Crops	3.80	15.47	4.08*
11	Flowers	0.40	3.20	8*
12	Medicinal Plants	0.09	0.18	1.98*
	<b>Total Horticulture Crops</b>	<b>14.48</b>	<b>228.36</b>	<b>15.76*</b>

**Notes:** # Lakh bale \$ in terms of gur \* Tonnes/Ha

**Source:** Eleventh Five-Year Plan Document

**Proposed Outlay in Eleventh Plan**

The outlay proposed for the Eleventh Five Year Plan in the state is as follows:

**Proposed Outlay in the Eleventh Five-Year Plan: Rs. Crore**

No.	Department	State	CSS 100 %	CSS Shared	Total
1	Agriculture Department	2101.73	93.93	363.07	2558.73
2	Horticulture Department	580.90	0.00	1540.80	2121.70
3	Revenue Department	100.00	0.00	0.00	100.00
4	Cooperation Department	102.00	0.00	0.00	102.00
5	Department of Agricultural Economics & Statistics	1.27	0.00	1.27	2.54
	<b>Total</b>	<b>2885.90</b>	<b>93.93</b>	<b>1905.14</b>	<b>4884.97</b>
	Ongoing Schemes	712.46	10.12	1381.70	2103.73
	New Schemes	2173.44	83.81	523.44	2781.24
	<b>Total</b>	<b>2885.90</b>	<b>93.93</b>	<b>1905.14</b>	<b>4884.97</b>

**Note:** CSS: Central Sector Scheme

**Source:** Eleventh Five-Year Plan Document

It follows from the above Table that the total outlay proposed during the current Plan period is around Rs.4884.97 crore of which the allocation in the horticulture sector is around Rs.2121.70 crore.

### III. PRODUCTION OF PERISHABLE HORTICULTURE & OTHER PRODUCES

The ranking of Tamilnadu with respect to production of fruits and vegetables is indicated in the following Table.

**All India Rank of Tamil Nadu in Production of Fruits and Vegetables**

<b>Fruit</b>	<b>Rank</b>	<b>Vegetable</b>	<b>Rank</b>
Banana	1	Tapioca	1
Grape	3	Onion	10
Sapota	5	Tomato	12
Mango	6		
<b>Overall</b>	<b>3</b>		<b>5</b>

### PRODUCTION OF HORTICULTURE IN TAMILNADU

Tamilnadu is endowed with seven agro-climatic conditions and varied soil types that is ideal for production of fruits, vegetables, spices, plantation crops, flowers, medicinal, and aromatic plants. The seven agro climatic zones are North Eastern Zone (Kancheepuram, Thiruvallur, Vellore, Thiruvannamalai, Villupuram and Cuddalore), North Western Zone (Dharmapuri, Krishnagiri, Salem, Namakkal and Perambalur), Western zone (Erode, Coimbatore, Karur and Dindigul), Cauvery Delta Zone (Trichy, Thanjavur, Thiruvarur and Nagapattinam), Southern Zone (Theni, Madurai, Pudukkottai, Ramnad, Sivaganga, Viruthunagar, Thirunelveli and Tuticorin), High Rainfall Zone (Kanniyakumari) Hilly Tribal Zone (the Nilgiris, Western Ghats). Fruits, vegetables, root and tuber crops, flowers, ornamental plants, medicinal and aromatic plants, spices and condiments, plantation crops and mushrooms form a significant part of the total agricultural produce in the State. The area and production of horticulture produce in the state is as follows:

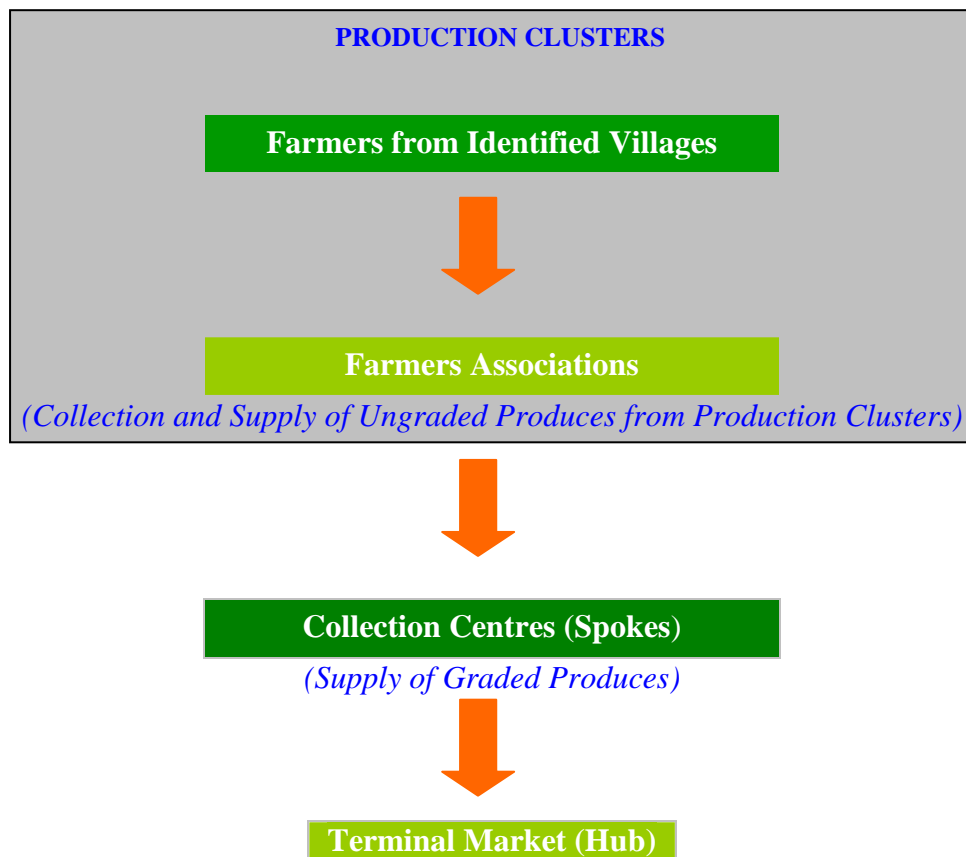
<b>Produce</b>	<b>Area</b>	<b>Production</b>
	<i>Lakh Ha</i>	<i>Lakh Tonnes</i>
Fruits	3.32	48.53
Vegetables	2.25	46.72
Spices	1.54	6.93

#### IV. FEASIBILITY OF THE TERMINAL MARKET PROJECT

##### BACKWARD LINKAGES

The backward linkages are supply chain activities that ensure supply of adequate quantity of produces of accpetable quality for the successful operation of the Terminal Market. The backward linakges for the proposed project is envisaged as follows:

##### Backward Linkage for the Proposed Modern Terminal Market



As indicated in the above diagram, the linkages in the project are the production clusters, Collection Centres, and the Terminal Market.

## PRODUCTION CLUSTERS

On the basis of the survey, the following major production clusters of fruits and vegetables have been identified in the region:

### Fruits

Banana	<ul style="list-style-type: none"><li>• Annur, Coimbatore District</li><li>• Karamadai, Coimbatore District</li><li>• Avanashi, Tiruppur District</li><li>• Sathyamangalam, Erode District</li><li>• Gobichettipalayam, Erode District</li></ul>
Mango	<ul style="list-style-type: none"><li>• Anamalai, Coimbatore District</li><li>• Sendamangalam, Erode District</li></ul>
Guava	<ul style="list-style-type: none"><li>• Attur, Salem District</li><li>• Panamarathupatti, Salem District</li><li>• Valappady, Salem District</li></ul>
Sapota	<ul style="list-style-type: none"><li>• Kolli Hills, Namakkal District</li><li>• Dharapuram, Tiruppur District</li><li>• Mulanur, Tiruppur District</li><li>• Ayothiapattanam, Salem District</li><li>• Panamarathupatti, Salem District</li><li>• Elachipalayam, Erode District</li></ul>
Pineapple	<ul style="list-style-type: none"><li>• Vennandur, Erode District</li><li>• Kolli Hills, Namakkal District</li></ul>

### Vegetables

Tomato	<ul style="list-style-type: none"><li>• Kinathukadavu, Coimbatore District</li><li>• Madukarai, Coimbatore District</li><li>• Ayothiapattanam, Salem District</li><li>• Mecheri, Salem District</li><li>• Omalur, Salem District</li></ul>
Brinjal	<ul style="list-style-type: none"><li>• Panamarathupatti, Salem District</li><li>• Talaivasal, Salem District</li></ul>
Lady's Finger	<ul style="list-style-type: none"><li>• Madukarai, Coimbatore District</li><li>• Thondamuthur, Coimbatore District</li><li>• Nambiyur, Erode District</li><li>• Talaivasal, Salem District</li><li>• Attur, Salem District</li><li>• Namagiripet, Namakkal District</li><li>• Tiruchengode, Namakkal District</li><li>• Vennandur, Namakkal District</li></ul>
Drumstick	<ul style="list-style-type: none"><li>• Dharapuram, Tiruppur District</li></ul>

Yam	•	Mulanur, Tiruppur District
	•	Uthukuli, Tiruppur District
	•	Gobichettipalayam, Erode District
	•	Perundurai, Erode District
	•	Talaivasal, Salem District

## Spices

Turmeric	•	Thondamuthur, Coimbatore District
	•	Uthukuli, Tiruppur District
	•	Kodumudi, Erode District
	•	Perundurai, Erode District
	•	Peddanaickenpalayam, Salem District
	•	Talaivasal, Salem District
	•	Namagiripet, Namakkal District
	•	Pollachi (South), Coimbatore District
Tamarind	•	Attur, Salem District
	•	Talaivasal, Salem District
	•	Veerapandy, Salem District
	•	Panamarathupatti, Salem District
	•	Ayothiappattanam, Salem District
Chilli	•	Kinathukadavu, Coimbatore District
	•	Madukarai, Coimbatore District
	•	Attur, Salem District
	•	Kolathur, Salem District
	•	Talaivasal, Salem District
Coriander	•	Pollachi (South), Coimbatore District
	•	Kinathukadavu, Coimbatore District
	•	Talaivasal, Salem District
	•	Valappady, Salem District

The above production clusters are centered around the proposed Collection Centres (the spokes) rendering collection of produces from them in quickest possible time so that the perishability is reduced to the maximum extent.

## Farmer Associations

The Farmer Associations are loose grouping of farmers from a village or group of villages formed by farmers who grow fruits and vegetables in the region. The farmers are responsible for bringing the produce to the Farmer Associations from where the produce will be consolidated before sending to the Collection Centers. At the farm level or the Farmer Association level, post-harvest value addition activities such as sorting, grading and packing will be carried out.

## **COLLECTION CENTERS (SPOKES)**

The Collection Centers are fully owned or jointly managed by the Terminal Market with the Farmer Associations. The Collection Centre will be managed by a professional manager with the help of an assistant. The Manager will be responsible for day to day operations at the center. The Terminal Market will ensure adequate infrastructure facilities at the centre for proper handling, storage, and packing of produces. Activities of a typical Collection Center include:

- Farmer registration
- Receiving produces from farmers
- Produce consolidation and dispatch to Terminal market
- Payment to farmers
- Training to farmers
- Making of a crop plan and dissemination

Collection Center would be set up at places close to production belts of fruits and vegetables and accessible by road. The Collection Centres can also send graded produces to the super stores depending on the demand from bulk buyers, if any. A farmer who does not wish to send the produce to a Collection Center can take the sorted and graded produce to the Terminal Market directly. Once produce is dispatched from a Collection Center, the payment is collected the same day it has been auctioned off or sold.

The criteria for the selection of location of Collection Centers are the following:

- Collection Centers must be set up close to production belts easily accessible to the proposed Terminal Market.
- Availability of sufficient land (3-4 acres)
- Easy accessibility from the proposed Terminal Market
- Collection Centre must be set up along a regular supply route.
- Collection Center is always set up in rural area.
- Collection center must have the capability to handle more than one produce.

Twenty Collection Centres have been identified on the basis of the above criteria. The name of the centres is given in Chapter 7. It may be mentioned that the identified centres provide connectivity for the production centres in the hinterlands with the Modern Terminal Market. The average distance from the production clusters to the Collection Centres is 25 km, which would be quite comfortable and acceptable to the farmers and traders in the region. The road facility for road transportation of produces from the identified centres to the Terminal Market is very good.

### **Quantity Handled by Collection Centres**

The analysis of data obtained from the study reveals that the average annual marketable surplus in the region is 7.6 lakh tonnes of fruits, 6.2 lakh tonnes of vegetables, and 1.3 lakh tonnes of spices; that is, a total of 15.1 lakh tonnes. The survey of farmers suggests that they are willing to supply an average of 70 percent of their produces to the Collection Centres. However, conservatively assuming that they would supply atleast a modest 35 percent of the total produces, the average collection may be reckoned at 5.5 lakh tonnes annually, that is, 1500 tonnes daily. Thus, each Collection Centre must be geared to handle an average of 75 tonnes per day. The center will supply an average of 75 tonnes of fruits and vegetables per day to the Terminal Market. This is equivalent to each member farmer of the Farmer Association (500

farmers per Collection Centre) supplying an average of 150 kg to the Collection Centre through the Association. The assessment of backward linkages for the proposed Terminal market is worked out in the following Table:

**Assessment of Backward Linkages for the Proposed Terminal Market**

No.	Assumptions	
1	Number of villages served by one Collection Centre	25
2	Number of Farmer Associations/Collection Centre	5
3	Number of farmers/Association	100
4	Registered farmers/Collection Centre	500
5	Registered farmers/village: 500 farmers ÷ 25 villages	20
6	Approximate quantity collected/farmer/day	150 kg
7	Approximate quantity collected/village/day: 150 kg x 20 farmers	3 tonnes
8	Approximate quantity collected/Collection Centre/day: 3 tonnes x 25 villages	75 tonnes
9	Total collection from the region/day: 75 tonnes x 20 Collection Centres	1500 tonnes
10	Total number of villages covered under the project	500
11	Total number of farmers covered under the project: 500 villages x 20 farmers	10,000
12	Number of Farmer Associations under the project: 5 x 20 Collection Centres	100

As mentioned in Chapter 4, the farmers and traders who were contacted during the survey have evinced keen interest in making use of the proposed Modern Terminal Market. Farmers have stated that they would like to sell 82 percent of their produces in the proposed Terminal Market. Similarly, traders have stated that they would like to sell 70 percent of their produces in the proposed Terminal Market. Therefore, the proposed project offers excellent backward linkages with the existing production centres.

## **AREA OF OPERATIONS**

### **The Command Area**

The command area for the proposed Terminal Market is comprised of the following districts:

- Coimbatore District
- Tiruppur District
- Nilgiris District
- Erode District
- Salem District
- Namakkal District
- Karur District





The proposed supply chain for the efficient collection of produces and transportation to the identified Collection Centres are as follows:

**Suggested Supply Chain**

Route No	Major Production Cluster	District	Collection Centre	Road Distance: Km
1	Annur	Coimbatore	Annur	-
2	Karamadai	Coimbatore	Annur	24
3	Kinathukadavu	Coimbatore	Pollachi	22
4	Madukarai	Coimbatore	Coimbatore	12
5	Thondamuthur	Coimbatore	Coimbatore	10
6	Pollachi	Coimbatore	Pollachi	-
7	Anamalai	Coimbatore	Pollachi	15
8	Dharapuram	Tiruppur	Dharapuram	-
9	Avanashi	Tiruppur	Tiruppur	10
10	Mulanur	Tiruppur	Kangayam	10
11	Uthukuli	Tiruppur	Tiruppur	10
12	Attur	Salem	Attur	-
13	Panamarithupatti	Salem	Salem	15
14	Valappady	Salem	Attur	10
15	Ayothiappattanam	Salem	Salem	7
16	Mecheri	Salem	Salem	22
17	Omalur	Salem	Salem	20
18	Thalaivasal	Salem	Attur	10
19	Kolathur	Salem	Erode	10
20	Peddanaickenpalayam	Salem	Attur	11
21	Veerapandy	Salem	Salem	14
22	Sathyamangalam	Erode	Sathyamangalam	-
23	Gobichettipalayam	Erode	Gobichettipalayam	-
24	Elachipalayam	Namakkal	Namakkal	10
25	Vennandur	Erode	Salem	10
26	Nambiyur	Erode	Gobichettipalayam	18
27	Kodumudi	Erode	Modakurichi	10
28	Perundurai	Erode	Erode	15
29	Kolli Hills	Namakkal	Namakkal	45
30	Namagiripet	Namakkal	Namakkal	30
31	Tiruchengode	Namakkal	Tiruchengode	-
32	Sendamangalam	Namakkal	Namakkal	12

The average distance of the Collection Centres from the nearby production clusters works out to 13 km only. The above routes are only suggestive and entrepreneurs may incorporate changes in the supply routes taking into account the road projects in pipeline in the region, and applying a more detailed logistics study to arrive at optimal transport solutions.

## AREA-WISE & COMMODITY-WISE PRODUCTION

### Production of Fruits

The district-wise production of fruits in the Command Area during the last three years has been as follows:

**District-Wise Production of Fruits in the Command Area: Tonnes**

District	Banana	Mango	Sapota	Guava	Pineapple	Others *	Total
<b>2006-07</b>							
Coimbatore	189060.0	10026.0	0.0	0.0	0.0	0.0	199086.0
Tiruppur	60647.4	10052.8	2588.4	279.2	0.0	10012.6	83580.4
Erode	269246.5	2341.5	1952.5	580.2	0.0	27473.0	301593.6
Salem	12863.0	47755.2	23478.0	21609.0	0.0	23216.0	128921.2
Namakkal	45840.0	24260.0	8120.0	4040.0	11240.0	6280.0	99780.0
Karur	91680.0	1240.0	1035.0	1210.0	0.0	4046.3	99211.3
<b>Total</b>	<b>715959.9</b>	<b>95813.9</b>	<b>37173.9</b>	<b>28141.5</b>	<b>11240.0</b>	<b>72546.6</b>	<b>960875.8</b>
<b>2007-08</b>							
Coimbatore	35795.0	18367.0	0.0	0.0	0.0	0.0	54162.0
Tiruppur	67327.8	10156.0	2692.4	259.3	0.0	10629.0	91064.5
Erode	329389.4	2455.2	1978.1	585.9	5.3	45674.7	380088.5
Salem	13366.5	56985.8	25819.2	23197.5	0.0	23069.8	142438.8
Namakkal	47980.0	24660.0	9160.0	4040.0	12460.0	7340.0	105640.0
Karur	92716.0	1120.0	0.0	1315.0	0.0	3965.0	99116.0
<b>Total</b>	<b>629340.6</b>	<b>113893.3</b>	<b>39649.7</b>	<b>29656.5</b>	<b>12465.3</b>	<b>92147.5</b>	<b>917152.9</b>
<b>2008-09</b>							
Coimbatore	194930.0	24568.0	0.0	0.0	0.0	0.0	219498.0
Tiruppur	24780.6	13514.3	3425.0	232.6	0.0	6518.8	48471.1
Erode	214476.2	2391.2	2050.0	725.0	0.0	41969.8	261612.2
Salem	20958.0	69298.5	22108.9	23765.5	0.0	22704.9	158835.8
Namakkal	46340.0	24300.0	11160.0	4380.0	9440.0	7400.0	103020.0
Karur	93636.0	1066.0	0.0	1267.0	0.0	4120.0	100089.0
<b>Total</b>	<b>641307.8</b>	<b>135299.3</b>	<b>38743.9</b>	<b>30649.6</b>	<b>9440.0</b>	<b>84298.9</b>	<b>939739.5</b>

**Note:** \* includes lemon, lime, mosambi, orange, grapes, papaya, pomegranate, muskmelon, watermelon, etc.

**Source:** TNSAMB

## Production of Vegetables

The district-wise production of vegetables in the Command Area in the region during the last three years has been as follows:

**District-Wise Production of Vegetables in the Command Area: Tonnes**

District	Tomato	Onion	Brinjal	L Finger	Drumstick	Yam	Others	Total
<b>2006-07</b>								
Coimbatore	76760.0	16080.0	0.0	0.0	0.0	0.0	0.0	93770.0
Tiruppur	38835.6	28920.9	0.0	2434.7	49199.2	4735.0	10458.7	139766.4
Erode	19789.0	12965.1	2154.3	877.2	352.3	15262.5	10425.1	62983.6
Salem	72618.0	13815.0	745.0	15644.0	456.0	3778.0	5463.0	141822.5
Namakkal	6556.0	50666.0	66.0	2662.0	0.0	132.0	4202.0	68266.0
Karur	2650.0	1306.0	836.0	672.0	14420.0	0.0	6760.0	26644.0
<b>Total</b>	<b>217208.5</b>	<b>123753.1</b>	<b>41343.1</b>	<b>22289.8</b>	<b>64427.4</b>	<b>24697.5</b>	<b>299016.9</b>	<b>792736.4</b>
<b>2007-08</b>								
Coimbatore	84436.0	10098.0	0.0	7184.0	0.0	0.0	2660.0	112388.0
Tiruppur	22482.0	46722.3	0.0	2397.6	50590.9	5840.0	9770.8	141894.9
Erode	2667.2	12609.5	2848.0	1098.1	515.0	13282.7	22325.0	56866.1
Salem	59738.0	14855.0	745.0	15795.0	476.0	3444.0	5283.0	118730.2
Namakkal	6952.0	45078.0	44.0	4048.0	0.0	242.0	6138.0	68904.0
Karur	2731.0	1216.0	916.0	713.0	13221.0	0.0	6636.0	25433.0
<b>Total</b>	<b>179006.2</b>	<b>130578.8</b>	<b>38830.9</b>	<b>31235.8</b>	<b>64802.9</b>	<b>22875.7</b>	<b>310668.0</b>	<b>777998.3</b>
<b>2008-09</b>								
Coimbatore	97112.0	11934.0	0.0	5558.0	0.0	0.0	2356.0	124967.0
Tiruppur	24854.6	30705.3	48.2	2663.4	23200.0	330.0	6928.6	92852.5
Erode	5809.7	15227.5	0.0	2481.7	1300.0	9180.0	12938.6	49233.7
Salem	98229.5	14313.0	688.0	12980.0	513.0	3229.0	4467.0	157393.6
Namakkal	21912.0	42636.0	902.0	12826.0	0.0	0.0	21582.0	116006.0
Karur	2312.0	1316.0	731.0	812.0	15336.0	0.0	5932.0	26439.0
<b>Total</b>	<b>250229.8</b>	<b>116131.8</b>	<b>54241.8</b>	<b>37321.1</b>	<b>40349.0</b>	<b>12811.0</b>	<b>329605.7</b>	<b>840690.3</b>

**Note:** \* includes potato, cauliflower, cabbage, carrot, beet root, sweet potato, capsicum, bitter gourd, ash gourd, pumpkin, etc

**Source:** TNSAMB

## Production of Spices

The district-wise production of spices in the Command Area in the region during the last three years has been as follows:

**District-Wise Production of Spices in the Command Area: Tonnes**

District	Turmeric	Tamarind	Chilli	Coriander	Others	Total
<b>2006-07</b>						
Coimbatore	3880.0	10280.0	970.0	5082.0	0.0	20212.0
Tiruppur	832.2	2194.2	372.7	0.0	40.7	3439.8
Erode	787.6	48419.5	298.9	0.4	563.2	50069.7
Salem	14313.0	27289.6	14480.0	607.0	1990.5	58680.1
Namakkal	935.2	5636.4	512.4	36.4	280.0	7400.4
Karur	716.0	560.0	735.0	33.0	462.0	2506.0
<b>Total</b>	<b>23180.0</b>	<b>100851.3</b>	<b>17742.3</b>	<b>7215.6</b>	<b>18198.8</b>	<b>167188.1</b>
<b>2007-08</b>						
Coimbatore	3330.0	11611.0	1936.0	656.5	0.0	17533.5
Tiruppur	672.9	2202.6	600.6	0.2	27.7	3504.0
Erode	807.5	41071.4	311.5	0.0	691.0	42881.3
Salem	13051.0	27424.6	12842.0	607.0	1864.5	55789.1
Namakkal	952.0	5392.8	484.4	5.6	476.0	7310.8
Karur	1030.0	793.0	931.0	38.0	638.0	3430.0
<b>Total</b>	<b>21389.2</b>	<b>95092.8</b>	<b>17443.4</b>	<b>2798.7</b>	<b>16042.3</b>	<b>152766.5</b>
<b>2008-09</b>						
Coimbatore	5344.0	12360.0	2904.0	706.6	0.0	21314.6
Tiruppur	883.1	614.9	520.7	3.3	26.0	2048.0
Erode	819.2	29327.6	189.4	0.3	238.7	30575.2
Salem	15101.0	27029.6	14653.0	577.0	1977.0	59337.6
Namakkal	960.4	3640.0	660.8	266.0	470.4	5997.6
Karur	1175.0	1120.0	1050.0	40.0	915.0	4300.0
<b>Total</b>	<b>26050.2</b>	<b>80757.6</b>	<b>20370.9</b>	<b>3093.6</b>	<b>16959.1</b>	<b>147231.4</b>

Source: TNSAMB

Note: \* include ginger, garlic, cumin, pepper, fennel, fenugreek, cardamom, nutmeg, and clove

## Production of Pulses, Cereals & Flowers

The district-wise production of pulses, cereals, and flowers in the Command Area in the region during the last three years has been as follows:

**District-Wise Production of Pulses, Cereals & Flowers in the Command Area: Tonnes**

District	PULSES			CEREALS			FLOWERS		
	2006-07	2007-08	2008-09	2006-07	2007-08	2008-09	2006-07	2007-08	2008-09
Coimbatore	30799.0	29600.0	21335.0	13294.0	11630.0	13193.0	2015.8	2218.0	2727.0
Tiruppur	16960.0	26127.0	29320.0	29265.2	31415.4	58640.0	4400.8	55.8	8.4
Nilgiris	0.0	0.0	0.0	3940.6	3609.4	3898.0	93.4	96.6	104.4
Erode	1550.6	1421.1	2806.1	89716.6	92861.6	108110.6	9626.8	11261.0	11340.0
Salem	27998.0	36106.1	21800.2	55089.0	51404.1	51807.0	9095.0	12189.0	15453.0
Namakkal	8651.0	8891.0	9671.0	8651.0	8891.0	9671.0	472.0	416.0	504.0
Karur	1338.4	2424.6	2068.8	18480.0	13633.0	11245.0	5.3	5.6	5.7
<b>Total</b>	<b>87297.0</b>	<b>104569.8</b>	<b>87001.1</b>	<b>218436.4</b>	<b>213444.5</b>	<b>256564.6</b>	<b>25709.1</b>	<b>26242.0</b>	<b>30142.4</b>

Source: TNSAMB

## ANNUAL MARKETABLE SURPLUS

The district-wise annual marketable surplus of fruits in the region is as follows:

**Annual Marketable Surplus of Fruits in the Region: Tonnes/Annum**

No.	District	Coimbatore	Tiruppur	Nilgiris	Erode	Salem	Namakkal	Karur	Total
1	Banana	189060.0	20815.7	31634.0	205897.0	19910.1	45413.0	675.0	513404.8
2	Mango	9925.0	8482.0	29.9	2295.0	65833.6	23814.0	28.0	110407.5
3	Lemon	0.0	0.0	0.0	25.0	983.2	0.0	2.8	1011.0
4	Lime	0.0	0.0	0.0	0.0	0.0	1724.0	0.0	1724.0
6	Orange	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	Guava	0.0	0.0	26.9	1.0	14516.0	607.0	0.0	15150.9
8	Grapes	0.0	0.0	64.1	688.0	22577.2	4292.0	17.3	27638.6
9	Sapota	0.0	0.0	0.0	125.0	0.0	0.0	0.0	125.0
10	Papaya	0.0	0.0	0.0	1947.0	21003.5	10936.0	10.0	33896.5
11	Pine Apple	0.0	0.0	0.0	34925.0	0.0	39.0	2.1	34966.1
12	Pomegranate	0.0	0.0	0.0	0.0	0.0	9251.0	0.0	9251.0
14	Watermelon	0.0	0.0	0.0	23.0	0.0	58.0	16.7	97.7
15	Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	<b>Total</b>	0.0	0.0	0.0	256.0	266.0	0.0	1.7	523.7
	<b>% Share</b>	0.0	0.0	0.0	0.0	5804.5	4821.0	0.0	10625.5
		<b>198985.0</b>	<b>29297.7</b>	<b>31754.9</b>	<b>246182.0</b>	<b>150894.0</b>	<b>100955.0</b>	<b>753.6</b>	<b>758822.2</b>
		<b>26%</b>	<b>4%</b>	<b>4%</b>	<b>32%</b>	<b>20%</b>	<b>13%</b>	<b>0%</b>	<b>100%</b>

It may be noted that the annual marketable surplus of fruits is around 7.6 lakh tonnes per annum.

The district-wise annual marketable surplus of vegetables in the region is as follows:

**Annual Marketable Surplus of Vegetables in the Region: Tonnes/Annum**

No.	District	Coimbatore	Tiruppur	Nilgiris	Erode	Salem	Namakkal	Karur	Total
1	Potato	0.0	0.0	25968.0	0.0	0.0	0.0	0.0	25968.0
2	Tomato	75992.0	20018.0	0.0	5732.0	93318.0	21473.0	3.9	216536.9
3	Cauliflower	0.0	0.0	222.0	0.0	0.0	0.0	0.0	222.0
4	Onion	15919.0	16905.0	0.0	12240.0	13597.4	41783.0	5.8	100450.2
5	Cabbage	0.0	0.0	70368.0	0.0	653.6	884.0	0.0	71905.6
6	Brinjal	6994.0	3223.0	0.0	2210.0	21825.4	15825.0	7.9	50085.3
7	Lady's Finger	5895.0	2243.0	0.0	2388.0	12331.0	12569.0	1.4	35427.4
8	Carrot	0.0	0.0	72045.0	0.0	0.0	0.0	0.0	72045.0
9	Beetroot	2257.0	6109.1	2835.0	0.0	0.0	129.0	0.0	11330.1
10	Sweet Potato	0.0	0.0	74.8	85.0	0.0	0.0	1.5	161.3
11	Drumstick	0.0	0.0	0.0	1235.0	0.0	0.0	178.0	1413.0
12	Capsicum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	Bittergourd	0.0	0.0	73.0	475.0	60.7	7524.0	0.9	8133.6
14	Ashgourd	0.0	0.0	0.0	1050.0	896.5	0.0	0.0	1946.5
15	Pumpkin	0.0	0.0	0.0	44.0	0.0	0.0	0.4	44.4
16	Yam	0.0	0.0	650.3	8812.0	1937.4	0.0	0.0	11399.7
17	Others	0.0	0.0	0.0	0.0	431.0	13496.0		13927.0
	<b>Total</b>	<b>107057.0</b>	<b>48498.1</b>	<b>172236.1</b>	<b>34271.0</b>	<b>145051.0</b>	<b>113683.0</b>	<b>199.7</b>	<b>620995.8</b>
	<b>% Share</b>	<b>17%</b>	<b>8%</b>	<b>28%</b>	<b>6%</b>	<b>23%</b>	<b>18%</b>	<b>0%</b>	<b>100%</b>

It may be noted that the annual marketable surplus of vegetables is around 6.2 lakh tonnes per annum.

The district-wise annual marketable surplus of spices in the region is as follows:

**Annual Marketable Surplus of Spices in the Region: Tonnes/Annum**

No.	District	Coimbatore	Tiruppur	Nilgiris	Erode	Salem	Namakkal	Karur	Total
1	Chilli	921.0	347.0	1.4	167.0	13920.4	647.0	7.5	16011.3
2	Tamarind	3661.0	1630.0	0.0	720.0	14346.0	941.0	14.0	21312.0
3	Ginger	0.0	0.0	10318.6	36.0	0.0	0.0	0.0	10354.6
4	Coriander	4980.0	1384.0	0.0	0.0	548.2	260.0	0.2	7172.4
5	Turmeric	10074.0	6099.0	10.2	28263.0	25678.1	3567.0	4.9	73696.2
6	Cardamom	0.0	0.0	8.0	1.0	3.0	57.0	0.0	69.0
7	Nutmeg	0.0	0.0	1.7	2.0	0.0	8.0	0.0	11.7
8	Clove	0.0	0.0	2.6	0.0	48.5	0.0	0.0	51.0
9	Others	0.0	0.0	330.5	2.0	1826.9	394.0	0.0	2553.4
	<b>Total</b>	<b>19636.0</b>	<b>9460.0</b>	<b>10673.0</b>	<b>29191.0</b>	<b>56370.9</b>	<b>5874.0</b>	<b>26.6</b>	<b>131231.4</b>
	<b>% Share</b>	<b>15%</b>	<b>7%</b>	<b>8%</b>	<b>22%</b>	<b>43%</b>	<b>4%</b>	<b>0%</b>	<b>100%</b>

It may be noted that the annual marketable surplus of spices is around 1.3 lakh tonnes per annum.

### Seasonality

The principal fruits and vegetables are available for a long period throughout the year and this is a key accelerator for the terminal market. The harvesting seasons of the major fruits and vegetables in Tamilnadu are as follows:

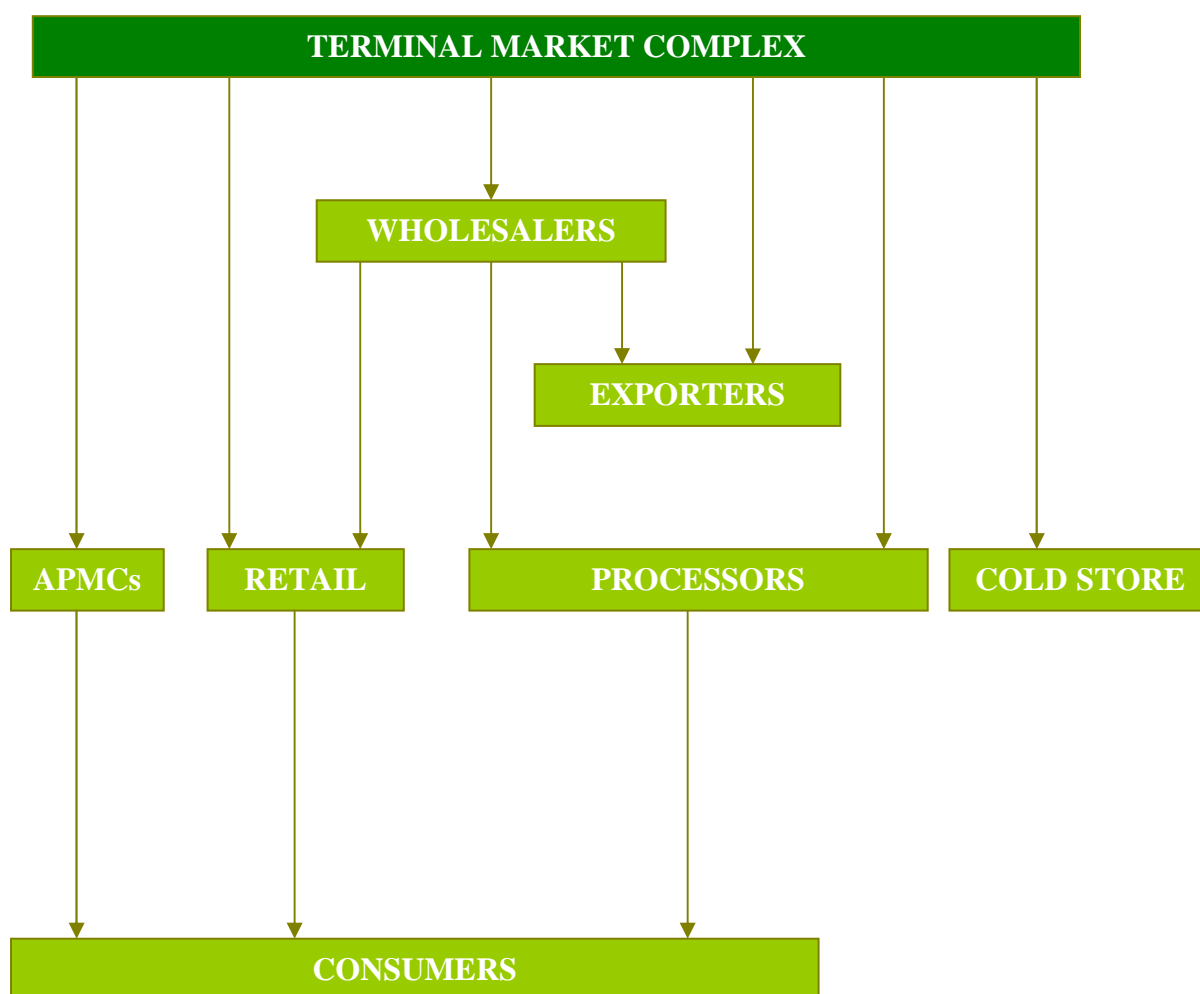
**Harvesting Seasons in Tamilnadu**

Produce	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Availability
<b>Fruits</b>													<b>Months</b>
Banana													12
Mango													5
Lime/Lemon													12
Orange													5
Guava													11
Grapes													5
Sapota													12
Papaya													12
Watermelon													4
<b>Vegetables</b>													
Potato													12
Tomato													12
Cauliflower													12
Onion													12
Cabbage													12
Brinjal													12
Okra													12

## V. FORWARD LINKAGES

### MAPPING OF MAJOR MARKETS

The forward linkages envisaged for the proposed Modern Terminal Market comprise of retailers, wholesalers, exporters, and processing units. They are not only assured of good quality of graded fruits, vegetables, spices, pulses, cereals, and flowers but also provided facilities for ripening, cold storage, transportation, and auctioning through a well-coordinated, transparent, and efficient system. The forward linkages will be as follows:



Coimbatore Region is endowed with horticultural resources, particularly banana, mango, sapota, guava, pineapple, tomato, brinjal, lady's finger, drumstick, yam, turmeric, tamarind, chilli, and coriander. As the production far outstrips the local demand, the region generates substantial marketable surplus of fruits, vegetables, spices, pulses, cereals, and flowers, which has to be collected and transported out of the region to ensure good prices to the farmers. Forward linkages assume special significance in this context.

Mango, banana, sapota, guava, and pineapple and other fruits and vegetables are seasonal in production but are in greater demand outside the region and the state. Therefore, Forward Linkages Team may be constituted at the Terminal Market to identify potential demand pockets and organized markets where the prices are attractive and also to arrange for the dispatch of goods. This professional team will scan these demand pockets and markets on a day-to-day basis to gather the prevalent daily rates and to explore the possibility of dispatching the produce. Once the markets are identified the produces will be sent directly from the collection center to the identified market. This will prevent the unnecessary movement of produce to the Terminal Market and also reduce the transportation cost.

### **Retail Outlets in Other APMCs**

Similarly, in important markets outside the region where mango, banana, sapota, guava, and pineapple are in good demand the Perundurai Terminal Market Management can open sale outlets by obtaining licence from the concerned APMC and start transacting. This will enable the market management to sell directly to traders without engaging a commission agent. The produce assembled at collection center could be dispatched to distant markets as per the recommendations of the Forward Linkages Team at Perundurai.

### **Supply to Organised Retail**

The organized retail market in India is around Rs.55,000 crore of which the food and grocery segment accounts for Rs.5,800 crore. The major food items sold in organized retail stores are fresh fruits, vegetables, jams, pasta, sauces, biscuits, confectionery, honey, juices, wines, breakfast cereals, dietary foods, health supplements, canned sea food, tomato paste, ingredients for foods, canned fruits and vegetables, bakery ingredients, dairy products, etc.

The Perundurai Terminal Market Management can explore marketing the produces to reputed retail chains like Spencers, Food World, Reliance Fresh, Nilgiris, Grace, Pazhamudir Cholai, Pazhamudir Nilyam, Subhiksha, Margin Free, and such other. Besides there are numerous retail outlets selling fruits and vegetables in department stores, supermarkets, convenience stores, discount stores, etc. As these retail chains and outlets require fruits and vegetables in bulk quantities, Perundurai Terminal Market Management can explore tie-ups with them for supply on regular basis. Fruits and vegetables can be supplied to these outlets from the collection centers.

### **Tie Up with Processing Firms**

The Perundurai Terminal Market Management can explore tie up with processing firms in and outside the region for supply of graded and good quality fruits and vegetables for their processing requirements. Banana, mango, sapota, guava, pineapple, tomato, drumstick, turmeric, tamarind, and chilli hold good potential for processing.

### **Exports**

A number of fruits, vegetables, and flowers are exported from the region. The Perundurai Terminal Market Management must extend full support for export activities to all the farmers and institutions engaged in export activities.



## **Cold Storages**

According to information from Agmarknet, there are 136 cold storages in the state with total storage capacity of 2.27 lakh tonnes. In the Command Area, there are only 18 cold storages catering to fruits and vegetables; 12 in Coimbatore, 5 in Salem, and one in Erode. While the annual marketable surplus of fruits, vegetables, and spices in the region is 15.6 lakh tonnes, the total cold storage capacity in the region is just 0.60 lakh tonnes. Thus, the cold storages envisaged in the project can expect good business from the local farming and trading community.

## **Branding**

So far fruits and vegetables produced in the region are not branded. The Perundurai Terminal Market Management can introduce the local speciality items like mango, banana, and drumstick as branded varieties to position them as niche items and reap good prices. Branding must be based on specific attributes of the region like Coimbatore Jasmine. For instance, Salem, famous for its Malgoa variety of mango, is known as the Mango City. Coimbatore famous for its jasmine flowers is known as the Jasmine Capital. The Nilgiris is famous for roses, Namakkal is famous for small mountain banana, and Erode is famous for Kuriniji flowers. It is obvious that consumers would expect that the fruits and vegetables that they purchase through the terminal market should be different from the local market standards and they might be willing to pay premium for that. Branding helps in premium pricing, better remuneration to farmers, and sustaining production in the region.

## **VI. PROPOSED TERMINAL MARKET COMPLEX**

### **PROPOSED LOCATION**

The project is proposed to be setup at State Industries Promotion Corporation of Tamilnadu (SIPCOT) Perundurai Industrial Growth Centre, Perundurai and Ingur Villages, Perundurai Taluk, Erode District. The site is considered well suited for the proposed Modern Terminal Market Complex in view of the following reasons:

- Centrally located to the command area of the TMC
- Government sponsored Industrial Estate
- Land cost is considerably cheaper than outside market rate (Rs.60 -100 lakh)
- Proximity to Erode and Coimbatore renders easy availability of qualified and skilled manpower, packaging materials, consumables, and support services like transportation, repair, and other facilities.
- Good physical and social infrastructure in terms of transportation, communication, hospitality, education, and banking
- Power infrastructure is well developed within the Growth Centre and therefore obtaining the power connection would not take much time.
- Adequate supply of water by SIPCOT
- Well-developed sewage and effluent drainage in the Growth Centre.

### **ACCESSIBILITY**

The proposed site is located on the National Highway 47. It is at a distance of 22 km from Erode Railway Station, 75 km from Coimbatore Airport, and 300 km from Kochi Port.

## **VII. PROJECT FEASIBILITY REPORT**

### **BROAD MANDATORY INFRASTRUCTURE REQUIREMENT**

The private enterprise (PE) can develop the Terminal Market as per their business plan; however, it is mandatory to create the following essential infrastructure and basic amenities:

#### **Essential Infrastructure**

- Electronic auction facility
- Cold storages
- Ripening chamber
- Sorting, grading, washing, and packing lines
- Labelling of produces
- Quality testing facility
- Material handling equipment including pallets and crates
- Reefer vans
- Banking services
- Storage area for plastic crates
- Weigh bridge
- Electronic display boards

#### **Basic Amenities**

- Parking for vehicles
- Basic lodging service
- Vehicle fuelling
- Toilets and nursing mother rooms
- Waiting rooms
- Potable water
- Information desks
- Policing & general security
- Fire fighting services
- Emergency services
- Facilities for the differently abled and other special needs people
- Cleaning, lighting, and air-conditioning in public areas

## Collection Centres

The proposed project will have 20 collection centres and each centre will have a handling capacity of 75 tonnes/day.

**Proposed Collection Centres**

No.	Collection Centre	District
1	Coimbatore	Coimbatore
2	Pollachi	Coimbatore
3	Annur	Coimbatore
4	Perur	Coimbatore
5	Mettupalayam	Coimbatore
6	Erode	Erode
7	Modakurichi	Erode
8	Sathyamangalam	Erode
9	Gobichettipalayam	Erode
10	Ooty	Nilgiris
11	Kangeyam	Tiruppur
12	Tiruppur	Tiruppur
13	Palladam	Tiruppur
14	Udumalpet	Tiruppur
15	Dharapuram	Tiruppur
16	Salem	Salem
17	Attur	Salem
18	Namakkal	Namakkal
19	Tiruchengode	Namakkal
20	Karur	Karur

## Pack Houses

A pack house consists of facilities for washing, drying, sorting, grading, and packing. The proposed project will have a pack house of 500 tonnes/day capacity.

## Ripening Chamber

The proposed project will have a Ripening Chamber of 150 tonnes capacity.

## Cold Storage

The proposed project will have a Cold Storage of 10,000 tonnes capacity.

## Reefer Vans

Fifteen Reefer Vans of 5 tonnes capacity each are considered for the project.

## Proposed Project Capacity

The capacity of the project is reckoned as follows:

Facility	Numbers	Tonnes/Day	Total Capacity: Tonnes
Collection Centres	20	75	1500
Pack House	1	500	500
Ripening Chamber	6	150	900
Cold Storage	1	-	10000
Reefer Vans	15	-	-

## Land

The requirement of land is considered as follows:

Land	Acres
Land at Perundurai	40
Land for Collection Centres	20
<b>Total</b>	<b>60</b>

The land for the TMC will be taken on 99 years lease from SIPCOT. The cost is Rs.20 lakh/acre. Land for the collection centres is proposed to be acquired on long term lease/ outright purchase.

## Building and Civil Works

The following civil works are required for the project:

Central Hub	Numbers	Sq ft	Total Built-Up Area
Administrative & Commercial Offices	30	500	15000
Mega Shops and Godowns	50	1000	50000
Pack House: Office	1	1000	1000
Pack House: Receiving Hall	1	5000	5000
Grading and Packing Hall	1	5000	5000
Fruits & Vegetables Display Areas			4000
Central Auction Halls	2	3500	7000
Fruits Stocking Areas			35000
Vegetable Stocking Areas			50000
Ripening Chambers	6	500	3000
Cold Storage (Basement only)			50000
Refrigeration Plant			3000
Warehouse			10000
Quality Testing Centre	1	1000	1000
Cleaning Shed			5000
Docks			5000
Corridors			20000
Lodging Block	25	500	12500
Restaurant	1	2000	2000
Common Dining Hall	1	2000	2000
Fuel Station	1	5000	5000
Toilet Blocks	3	1000	3000
Garbage Collection Sheds	2	2000	4000
Underground Sumps: Litres	2	100000	200000
Overhead Tank: Litres	1	100000	100000
Utilities Block			5000
Compound Wall: RFT			36000
Internal Roads, Yards, Drains			
Effluent Treatment Plant			
Tube Wells			
Landscaping			
Security Kiosks			
External Sewage & Water Recycling			
Collection Centres	20	500	10000

## Plant and Machinery

The list of equipments required for the project are the following:

Section	Plant & Machinery	Numbers	Size
Material Handling	Hydraulic Truck	5	3 Tonne
	Fork Lift	15	2 Tonne
	Weighing Scale	25	300 Kg
	Box Strapping Machine	50	
	Hydraulic Pallet Lifting Machine	5	3 Tonne
Grading/Sorting Line & Machine	Electronic Grading & Sorting Line	2	2.5 Tonne/Hour
	Portable Quality Station	1	
	Vegetable Sorting & Shrink Wrap Unit	1	1 Tonne/Hour
Chamber Machinery	Ethylene Gas Generator & Ripening Machine	6	25 Tonne
	Pre-Cooling Equipments	10	10 Tonne
	Multi Product Cold Storage	1	10000 Tonne
	Air-Conditioning Equipment	50	2 Tonne
	Pallets	5000	
Conveyor System	Underground Horizontal and Inclined Conveyors		
	With Drive Pulley, Slider Paltes, Gear Box, etc	15	160 Tonne
Ancillary Equipment	Water Treatment Plant	1	30000 Litre
	Water Lifting Motors	10	
Collection Centres Equipment	Cool Stores	20	
	Weighing Equipments	20	
	Grading Tables, etc	20	
	Packaging Materials: CFB Boxes/ Gunny Bags	20	
	Tube Well	20	
Reefer Van	DG Set (25-30 kVA)	20	
	Trucks	15	TATA 1109
	Precooler & Refrigeration Unit	15	5 Tonnes/Batch
	Container	15	20 Ft Insulated
	Genset	15	
Small Material Handling Equipment	Chain Pulling		
	Wire Rope		
	Chain Electric		
	Travelling Trolley		
	Worm Gear		
	Gantry Crane		
	Tripod		
	Crab Winch		
	Jib Crane		

## Power

The requirement of electrical power load is estimated at 1500 kVA.

## Manpower Requirement

The requirement of manpower for the project is as follows:

Category	Numbers
<b>Terminal market</b>	
Chief Executive Officer	1
Manager: Purchase	1
Manager: Marketing	1
Manager: Accounts	1
Accounts & Administration	3
Forward Linkage Officers	20
<b>Collection Centres</b>	
Operators	20
Backward Linkage Officer	20
Accounts cum Dispatch Officer	20
Security	20
<b>Pack House</b>	
Production Manager	1
Supervisor	1
Stores and Dispatch Officer	1
Assistants	2
Maintenance Mechanic	1
Security	1
<b>Ripening Plant</b>	
Operators	2
Accounts-cum-Dispatch Officer	1
Security	1
<b>Cold Storage</b>	
Manager	1
Plant Operators	2
Accounts-cum-Dispatch Officer	1
Electricians and DG Set Operators	1
Helpers	2
Security	2
Drivers	12
<b>Total</b>	<b>139</b>

It is assumed that loading and unloading of commodities will be carried out at the cost and risk of customers.

## Effluent Treatment and Pollution Control

Water that is used for washing and cleaning is the only effluent coming from the pack house; it can be treated and used for irrigation purposes. A small primary treatment plant may be installed near the Pack House for this purpose. Cold storage does not produce any objectionable effluent or harmful pollutants. Hence no effluent treatment or pollution control devices are necessary.

## OPTIONAL CAPITAL INFRASTRUCTURE

The private partner may also invest in capital infrastructure such as processing facilities, shopping complex, hotel, restaurant, guesthouse, catering services, safe deposit lockers, vehicles for rental, business centre. However, investment in such infrastructure is not mandatory but optional. The focus of the project should be on creating the mandatory infrastructure facilities.

## INVESTMENT DIMENSIONS

### Estimated Project Cost

The estimated cost of the project is summarized in the following Table.

**Estimated Project Cost**

<b>Cost Component</b>	<b>Rs. Lakh</b>
Land	915.00
Buildings & Civil Works	3001.50
Plant and Equipment	4327.25
Miscellaneous Fixed Assets	1676.36
Furniture & Fixtures	100.00
Contingencies	660.38
Preliminary Expenses	97.00
Pre-operative Expenses	349.98
Margin Money for Working Capital	22.53
<b>Total</b>	<b>11150.00</b>

### Land

The cost of land is estimated at Rs.915.00 lakh as under.

**Estimated Cost of Land**

	<b>Acres</b>	<b>Rate (Rs./acre)</b>	<b>Cost</b>
Land at Perundurai	40	20.00	800.00
Land for Collection Centres	20	5.00	100.00
Land Registration	60	0.25	15.00
<b>Total</b>	<b>60</b>		<b>915.00</b>

### Building and Civil Works

The cost of construction includes land development, building, foundation for compressor and pumps, tanks, grading/packing shed, etc. The cost of building and civil works is estimated at Rs.3001.50 lakh.

### Plant and Machinery

The cost of plant and machinery includes electrical installation charges, excise duty, sales tax, etc. The cost of plant and equipment is estimated at Rs.4327.25lakh.

### Miscellaneous Fixed Assets

The cost of Miscellaneous Fixed Asset works out to Rs.1676.36lakh.



### **Furniture & Fixtures**

The cost of furniture & fixtures works out to Rs.100.00 lakh.

### **Contingencies**

Contingency provision at 7.50 % of is considered on the cost of buildings, land development, and plant and equipment to take care of any future cost escalation / contingencies. The amount works out to Rs.660.38 Lakh.

### **Preliminary and Preoperative Expenses**

Preliminary expenses includes Project report, deposits, market development expenses and pre-operative expenses includes interest during construction period, trial run expenses, salary during construction period, travel and other expenses, etc. Preliminary and Preoperative expenses are estimated at Rs.97.00 lakh and Rs.349.98 lakh respectively.

### **Margin Money for Working Capital**

Margin money for working capital is estimated at Rs.22.53 lakh.

### **Proposed Means of Finance**

The proposed means of finance is presented in the following Table:

<b>Source of Fund</b>	<b>Rs. Lakh</b>
Share Capital	2899.00
Subsidy Under NHM	4000.00
Term Loan	4251.00
<b>Total</b>	<b>11150.00</b>

### **Promoters' Contribution**

The promoters' contribution is envisaged at Rs.2899.00 Lakh, which will be required to be brought in the initial year of implementation.

### **Subsidy Under NHM**

The project is eligible for subsidy of Rs.4000.00 lakh under NHM.

### **Long Term Loan**

The project is proposed to be financed by means of term loan from bank/financial institution. The term loan component in the proposed model is envisaged at Rs.4251.00 lakh. The loan repayment period has been assumed as 10 years including a moratorium of 1 year from the date of commissioning (36 quarterly installments). Interest rate is assumed at 13.00% per annum.

### **Interest on Working Capital**

The interest on working capital borrowings is considered at 13.00 percent per annum.

## **VIII. RECOMMENDED MINIMUM PROJECT COST & VIABILITY**

### **RECOMMENDED MINIMUM PROJECT COST**

Taking into account the mandatory infrastructure requirements the minimum project cost is recommended at Rs.11150.00 lakh.

### **VIABILITY ASPECTS**

#### **Break Even Point**

The breakeven point works out to 53 percent based on the financial workings in 2015-16 (fourth year of operation).

#### **NPV and Internal Rate of Return**

The NPV at 8 percent discount rate works out to Rs.1863.00 lakh and the IRR works out to 12 % based on 10-year life period.

#### **Debt Service Coverage Ratio**

The average DSCR for a repayment period of 10 years works out to 2.86.

#### **Performance Ratios**

The performance ratios such as gross profit to sales, and PAT to sales, etc are quite satisfactory. Financial analysis suggests that the project is economically viable and would be in a position to meet the repayment and other obligations. Overall, the project is found to be technically feasible, commercially viable, and financially sustainable.

#### **Project Implementation Schedule**

The proposed schedule of implementation of the project is as follows:

<b>Activity</b>	<b>Scheduled Date of Completion</b>
Formation of SPV	January 2010
Identification of Land for Collection Centres	Land Identified
Land Transfer/Registration	February 2010
Selection of PE	January 2010
Submission of DPR	April 2010
Approval of DPR by GoI	June 2010
Term Loan Arrangement	August 2010
Formation of Farmer Associations	July-December 2010
Land Development	December 2010
Civil Works	December 2010-November 2011
Plant and Machinery Order	September 2010
Plant and Machinery Delivery	October 2010 onwards
Erection & Commissioning	December 2011-January 2012
Trial Runs	March 2012
Commercial Production	April 2012