Chapter Six

Prospects for Agro-Based Industries in Marathwada Region
6. PROSPECTS FOR AGRO-BASED INDUSTRIES IN MARATHWADA REGION

Maharashtra is one of the industrially developed states in the country. The Auranqabad division, traditionally known as Marathwada and comprising the seven districts of Auranqabad, Jalna, Parbhan, Beed, Nanded, Osmanabad and Latur is not only the most backward in Maharashtra, but unfortunately, it also seems to be one of the most undeveloped and lagging region in the country. Economic backwardness of Marathwada has no doubt due to its historical neglect by the erstwhile feudal state of Hyderabad. Disappointingly the neglect of this region continued even after its merger with the rest of Maharashtra in 1956. As a result, even after more than three decades of planning in the country, the economy of Marathwada continues to be characterized by mostly primitive subsistence farming with little growth in either the per capita income or quality of life.

The Marathwada region is devoid of any major natural resources, either forest-based or mineral origie. Agriculture is the mainstay of Marathwada. As much as three-fourth of the geographical area is under the plough and provides works to almost four-fifth of the labour force. Yet, in the absence of irrigation and adequate rainfall, nearly two-fifth of the land and population in the region falls in the drought-prone zones. Not surprisingly agriculture in Marathwada is confined to the cultivation of less water intensive food crops mostly inferior cereals like jowar and bajra.
With paucity of natural resources from farm, forests and mines, the advent of industries in Marathwada has been dismally slow. The problem is further compounded by low level of literacy and education, lack of entrepreneurship and skilled manpower, and inadequate physical, social and financial infrastructure. While Marathwada has been discriminated against by nature, what is perhaps more pathetic is that it has failed to receive during the last over three decades its fair share from the state in terms of investment in physical (trade, transportation, communication and power supply), social (education, health, housing and recreation) and financial (capital, credit) assets. Consequently, all the commonly accepted indicators of economic development (covering both the natural and man-made assets) vividly bring out that Marathwada is backward compared to not only Bombay and western Maharashtra. But also Vidarbha and Konkan the other two backward regions of the State. The economy of Marathwada remains trapped in a quagmire of economic backwardness.

As, Presently, agriculture of the region commands most of the resources—land, labour and even capital, it follows that the additional resources for the non-farm sectors must be drawn mostly from the agricultural sector. Evidently, agriculture in Marathwada must provide such increases in farm production through improvement in marginal productivity as to make significant contribution on to the resource needs of the other sectors of the economy. Hence, the framework for agricultural development of Marathwada, essentially follows this commanding principle.
Foodgrain dominates the cropping pattern in the region. Cultivation of commercial crops is limited and restricted to cotton mainly and to a lesser extent to oilseed, sugarcane and pulses.

Disappointingly, though dependent as Marathwada is on agriculture, scarcely 40 per cent of the gross cropped area is covered by irrigation. The rest has still been left to the mercy of the truant weather-gods. For, not only is the rainfall in the region inadequate, but, worse still, it is also erratic showing wide variation from year to year. As a result, the drought-prone areas constitute almost 40 per cent of the region, small wonder, agriculture is as yet in primitive stage in Marathwada and is characterised by subsistence farming.

The proposed agricultural transformation in Marathwada can be brought about by acting in a concerted manner in the following four directions, which are complementary and inter-related and not mutually exclusive.

(1) The irrigation potential of the region should be tapped by implementing on schedule the various irrigation projects already in progress approved and proposed so as to extend the gross irrigated area to 8.5 lakh hectares and 11.5 lakh hectares by 1990-91 and 2000-01 respectively from 5.6 lakhs during the triennium 1978-81.

(2) The cropping pattern should be altered to meet the anticipated shifts in demand for different foodgrains on the one hand and the resource needs of the industry sector on the other. With these two ends in view, it is suggested that the share of
the irrigated area under foodgrains may be reduced from 76.8 per cent in 1978-81 to 58.8 per cent in 1990-91 and further to 52.2 per cent by 2000-01, while the rest should be covered increasingly by the non-food commercial crops like cotton; pulses, oilseeds, sugarcane, fruits and vegetables. Even among foodgrains, the cropping pattern should shift steadily, cut surely, in favour of such superior cereals as rice and wheat from the inferior cereals like jowar and bajra.

(3) The agricultural yields must be raised through improving the marginal productivity of resources invested in the agricultural by adopting modern techniques, introducing farm machinery and augmenting the supply of essential inputs. A beginning also needs to be made to alter the present agrarian structure with a view to promoting the entry of not only co-operative, but more importantly, joint-stock farming in it, especially for commercial crops like cotton, oilseeds, pulses and sugarcane. The joint-stock farming may particularly be encouraged in drought-prone areas for development of capital formation in agriculture.

As agricultural yield in drought-prone areas fluctuated from year to year, crop insurance scheme should be introduced in these areas. Like the deposit insurance scheme for commercial banks, such crop insurance scheme should take the form of agricultural credit insurance, with premiums payable by commercial and co-operative banks rather than by farmers.
(4) The marketing services and institution should be strengthened and modernised to reduce price and storage risks. This will also help indirectly to boost farm production.

The agricultural transformation envisaged depends upon the rapid spread of irrigation on the one hand, shift in the cropping pattern towards commercial crops and superior cereals on the other. The shift in the cropping pattern is essentially a function of the relative returns to farmers from alternative crops. Naturally, apart from what the agricultural extension services may do, the relative prices of different crops will necessarily play an important role in bringing about such a shift. The desired shift therefore presupposes adequate price support from both the marketing agencies and resource-based industries.
6.1 APPROACH TO IDENTIFICATION OF INDUSTRIES

There are four basic approaches towards the identification of industrial opportunities. The choice of one, or all, will depend on specific circumstances.

1) "All Industry List" Approach

This approach involves the listing of all conceivable industries, which can prima-facie be set-up, and then reducing this long list to a small list after carefully analyzing the past, present and potential national market, raw materials required and their availability, existing and planned production etc., and based on such analysis selecting those which offer good scope. This approach is time consuming and probably practicable only in the case of those industries which look for national, rather than regional market. Such an approach is, however, unsuitable for a regional development planning.

2) "Industrial Location" Approach

This approach divides the industries into three categories; namely, (a) Resource-based industries;
(b) Market-oriented industries;
(c) "Foot-loose" industries.
(a) conceptually, resource-based industries are not only those dependent on the output of agriculture and other primary sector activities like animal husbandry, dairy, forestry, mining etc., but also those supplying the inputs to agriculture and other allied activities like form equipment, fertilizers, pesticides, animal feeds etc.
The criteria set forth by the Planning Commission for distinguishing agro-industries, which were later approved by the National Development Council, are those (i) which encourage greater input into agriculture (ii) which lead to better processing and conversion of agriculture commodities (iii) which ensure high returns on processed goods and/or (iv) which increase agriculture production.

Resource-based industries divided into two broad groups. The first group comprises industries based on output of the primary sector, like sugarcane, cotton, oilseeds, pulses as also food-crops such as rice, wheat, fruits and vegetables and livestock products such as milk, eggs, meat, hides and skins etc. The second group of resource-based industries are industries providing inputs for agriculture and allied activities such as agricultural equipment industries including trailers, crushers, ploughs and other agricultural implements, fertilizers and fertilizer mixtures, pesticides and pesticidal formulations, animal feeds etc.

Resource-based industries are determined to a large extent by freight rates. High freight rates on transportation would encourage industries to be located close to the source of raw materials. Such resource-based industries should include,

i) Industries based on local raw materials, which lose greatly in weight and/or bulk during processing or manufacturing, e.g. sugarcane processing;

ii) Industries based on processing perishable local raw materials, e.g. soft fruit and green vegetables;
iii) Industries based on raw materials which cannot be substituted in other areas; and
iv) Primary processing industries based on one or a small number of raw materials, e.g., processing of timber, livestock and minerals.

(b) The viability of industries supplying to the markets within the same region depends to a large extent upon the tariffs for both freight and passengers and the speed and ease of travel. Such 'market oriented' industries include:
i) Industries based on materials which increase in weight and or fragrant during processing or manufacturing, e.g., bottled drinks, rigid boxes and barrels.
ii) Industries producing goods which have a high degree of perishability, e.g., bread, cakes, ice-creams, local newspapers.
iii) Industries which require a personal contact between the producer and the consumer, e.g., tailor-made garments, maintenance and repair shops.
iv) Industries which supply a relatively small local market, e.g., animal drawn ploughs, harrower, etc.

(c) "Foot Loose" industries are essentially characterized by relatively low-weight and volume but high-value products, requiring small quantities of materials and large amounts of labour. These industries may involve either the entire production process, such as the mass production of wearing apparel, or only a part of the production process, such as assembling of a watch. Transport cost is not a determining factor for the location of foot-loose industries.
(3) "Local-Linkage" Approach

This approach looks for opportunities which are closely tied to agriculture and agricultural development and also non-agricultural activities like trading, manufacturing and transport services. The industries which can be linked to agriculture are seed processing, livestock based industries, etc. Those linked to non-agricultural activities include manufacture of firebricks, textiles, repairs and services, utensils, fish seed farms etc.

(4) "Local Market" Approach

The existing local market for products and services may be supplied by entrepreneurs, both inside and outside the region. Opportunities for substitution of products and services, already supplied by producers outside the region, could be identified, depending on the demand for the products in the region, extent of competition that can be rendered to the supplier, price and discounts necessary, quality, durability, performance, etc.
6.2 FACTORS DETERMINING LOCATION

Location factors are quite crucial in planning for industrial development of a region. The more important among these includes the following:

a) Transport cost

The major factor affecting the location of a unit is the transport cost of hauling raw materials to the unit and of finished products to the markets. These depend on the geographical distribution of resources and the location of the final demand. The mode of transport, weight of the material to be carried, speed and quality of service, distance to be covered, opportunity for bulk handling etc., affect the transport costs. If the transport costs of inputs are higher, the industry is generally resource oriented; if the transport costs on output are higher, the industry is prima-facie market-oriented; and if the two are equal the industry may be regarded as foot-loose and can probably be set up either near the resource or the market. In fact, even if the costs of transport on inputs and outputs do not differ substantially, the optimum location should be determined taking into account such other factors as labour costs, economies of scale etc.

b) Cost of labour

Labour cost is one of the major costs of processing. This is especially true of labour intensive industries. In the case of capital intensive industries, the availability of skilled labour, which is expensive, matters the most.
c) Power supply

The availability of adequate power supply is essential for manufacturing, since it increases the rate of production and productivity of each employee. Industries, where the cost of power is a major item in the cost of each unit of production, location would be influenced considerably by the adequacy and cost of power supplies.

d) Capital

With increasing automation and scale of production, capital is becoming an essential resource. If the cost of raising the capital and the interest rates become the major elements of cost in the final cost of product, the nature and size of financial infrastructure also proves to be an important location factor.

e) Role of Government

The incentives and facilities granted by the government play an important role in determining the location, facilities in the form of cheap land, access to major routeways, public utilities, social conditions like schools, housing grants and loans, pollution control etc. are important factors which often influence the location decisions of entrepreneurs.

f) Association and linkage

Similar industries have similar needs. The availability of industrial estates, having common equipment, services, trade associations, skilled labour, customer outlets, maintainance
services, transport services, etc., are fundamental cost saving factors, especially for those industries which have high processing costs compared to raw material costs. Vertical linkage - a chain of successive processes leading to a finished product and a horizontal linkage - the linking of several firms, all involved in the same stage of processing, for common services, are notable features of modern manufacturing. The consequence of such linkages is the increasing agglomeration of industries in a region.

a) Economies of scale

The size and distribution of the market for a particular product will affect the optimum capacity to be set up for manufacturing it. When a market is large considerable savings can be achieved through economics of scale by bulk purchase of materials, special rates for energy use, lack of duplication in processing, reduction in overheads etc. In such circumstances, the availability of a suitable site, large enough to accommodate a fully integrated plant, is a major factor determining the location.

b) Forthcoming changes

Lastly, factors such as likely changes in the sources of raw materials or fuel, changing technologies, new modes of transport will all lead to a change in the location pattern of manufacturing industry. Such likely changes in future need to be borne in mind, while selecting the location of a unit.
6.3 APPROACH TO INDUSTRIAL DEVELOPMENT

It is clearly recognized that the strategy for the development of Marathwada can be formulated solely on the corner-stone of industrialization.

The major problem is to see how the industrial activity in the different sectors for which expansion potential has been identified, can be initiated and strengthened so that it takes root in the region and forges effective links into the hinterland.

To assist in preparing a plan for the industrial development of the region, it also seeks to identify various industries, which prima-facie seem suitable for Marathwada on the basis of its present and prospective resources and the anticipated growth of the market within and outside the region. Of course, appropriate techno-economic feasibility and location studies must precede any decisions to set up such industrial units in Marathwada.

The manufacturing activity in the factory sector in the region is localized at the four major industrial centres, viz., Aurangabad, Nanded, Latur and Jalna, although the processing units are somewhat dispersed over a few townships in each district. In Aurangabad district, the modern manufacturing units which include a rerolling mill, a granular fertilizer plant, a distillery of potable spirits, etc. are located at the Aurangabad city while Jalna is an important centre for ginning factories, dal mills, bidi factories, etc. The industrial
activity in the Parbhani district is confined to ginning, oil-crushing and dal milling industry dispersed over some eleven centres in the district. Industrial activity in the Nanded district is confined to ginning and oil-crushing units. The Bhir district is the most backward district in industrial development with only a few ginning and oil-crushing units at Bhir, Parli and two other towns. The modern manufacturing in the Osmanabad district, viz., the oil mill with solvent extraction and hydrogenation plant is located in the district. The processing industry in the district is dispersed over a dozen centres in the form of ginning mills, dal mills, oil mills, sugar and Khandseri factories, etc.

The industrial growth of Marathwada in long run will necessarily depend upon the resource and infrastructure development, in the short run growth must rely on the incentives offered by the central and Maharashtra Government.

The new industrial activity in the region will have to be so organized that the various artisan skills existing in the region can be utilized in different processes and will get upgraded during the course of further expansion of the industry in the region.

If the industrial activity is to have the desired impact on the regional economy, it will have to be developed on a dispersed basis. The spatial distribution of industrial activity needs to be considered in the light of the infrastructural facilities necessary for the development of various industries.
Value addition to the crop products must take place at farmers' level or at the site of production so that maximum economical returns could be achieved. Application of post harvest technology and agro-processing at farmer's level or in the rural area needs to be implemented through creation of infrastructure for communication, marketing and processing.

The major industrial activity that should be promoted in the backward region i.e. Marathwada is the resource-related industry which will forge economic links into the rural areas of the region.

Processing of agricultural resources would be the major resource-based industry in the region like Marathwada. Most of such processing is bulk-losing and weight-losing in character; for example, cotton ginning and baling, saw milling and wood cutting, sugar and gur making, dal milling, oil milling, etc. As such, these can be with advantage organized near the source of raw material.

The expansion of industrial activity in the region is envisaged to introduce modernization and dynamism in the regional economy through a planned introduction of growth-propelling industry and development of resource-based industry from preliminary processing to the manufacture of final consumer products in a co-ordinated fashion. The development of these industries will institute such economic relations between the primary activity and the secondary activity, that will create and strengthen the mutual interdependence and feedback resulting in sustained expansion of both the sectors.

Hence, in recommending industries for Marathwada, the prime objective is to identify industries linked to Marathwada's own resources and its own rural and urban markets emerging from within the region over the next two decades.
6.4 GOVERNMENTAL EFFORTS FOR INDUSTRIAL DEVELOPMENT

After the formation of Maharashtra in 1960, the Government of Maharashtra have taken a number of measures to encourage and assist the development of industries in the backward regions. The package incentives for taking industry to the backward regions, are administered through the State Industrial and Investment Corporation of Maharashtra (SICOM). Direct assistance to small and medium sized industries is extended and financial assistance from the Industrial Finance Corporation and Industrial Development Bank is secured by the Maharashtra State Financial Corporation (MSFC). Allocation and distribution of indigenous and imported raw material to small industries is effected through The Maharashtra State Small Industries Development Corporation (MSSIDC). Subsidy on the use of electricity is extended to industrial units in the backward region. The State Government extends a price preference to industries in the backward areas in the purchase policy of the Government. As the lack of industrialization was conceived to be arising out of the lack of industrial infrastructure, the Government of Maharashtra, through the agency of Maharashtra Industrial Development Corporation (MIDC), has opened a number of industrial areas and developed industrial estates providing industrial amenities such as developed land, roads, electricity etc.

In Marathwada, the MIDC has so far developed industrial areas at Aurangabad, Jalna and Nanded. To mitigate the difficulties of small scale units in getting factory accommodation, co-operative industrial estate have been sanctioned at Aurangabad, Jalna, Hingoli, Nanded, Latur and Parli-Vaijnath.
6.5 REASONS FOR NON-GROWTH OF INDUSTRY

The lack of industrial development in Marathwada has to be analyzed in the context of the process of industrial development of the Indian economy as a whole. During the British regime, the Indian economy came into the fold of the international market in a big way. It served as a supplier of raw material to the British industry and as a captive market for the British manufacturers. This, to a certain extent, furthered the commercialization of agriculture and monetization of the Indian economy. The process of commercialization and monetization, however, did not bring in its wake the subsequent development of the economy since the industrial activity based on the cash crops of the economy was mainly located in the British metropolis. On the other hand, the influx of cheap machine-made goods and the progressive decline in the importance of feudal lords led to a general degeneration of traditional artisan industry in the country.

With the introduction of modern industry in India in the latter half of the 19th century, a dualistic economic relationship began to develop between the advanced metropolitan centre and the backward regions within the Indian economy. The development of railways, originally designed to serve the British industry by connecting radially the raw material producing areas in the interior parts of the country directly to Bombay and other major port towns, now began to serve the emergent Indian industrialist in concentrating the industrial activity
in the port towns which were the most developed centre in the economy. In Maharashtra, the manufacturing activity, notably the cotton textile industry, was getting progressively concentrated in the Bombay metropolis and the interior territories served as the suppliers of raw material and market for manufactured goods either imported through or produced in Bombay.

In the post independence also, the dualistic relationship is persisting. Bombay continues to capture the new industrial activity in the state, perhaps in the country, thus perpetuating the metropolitan relationship between Bombay and the backward regions like Marathwada.

Another reason why Marathwada has historically remained industrially backward is the lack of basic industrial infrastructure. The region has been very poorly serviced by the railway. Even though the construction of the Hyderabad Godavari Valley meter gauge railway at beginning of this century opened up the region, the railway has failed to provide the essential transport links within the region so as to integrate the regional economy. Again, because of the delays and losses involved in trans-shipment, the movement of commodities by railway remains cumbersome. Even today, one of the important causes of the under-utilization of the existing industrial capacity in the region is reported to be the problem of bringing of the raw materials or essential components involving transportation by railway.
Marathwada was also glaringly lacking in the development of roads both within the region as well as the road links connecting the region with outside areas.

The region was also lacking in modern communication facilities like telephone or telex facilities. The development of banking facilities was rudimentary.

Adequate supply of water for industrial use and for urban population is an important consideration in the establishment of industry. Most of the industrial areas in the region, except the one at Nanded, however, suffer from shortage of water supply.

Marathwada has been singularly backward in education for a number of decades. The proportion of literates was very small among males and negligible among females. The facilities for technical and professional education are still quite limited. Apart from the limited extent of the formal technical educational facilities, the scope for on-the-job training or apprenticeship is almost absent due to lack of development of large industry in the region. Consequently the level of skills in the region has remained low. The lack of development of a labour market which itself can be mainly attributed to lack of industrialization in the region, has acted as one of the hurdles in the path of industrialization in Marathwada. The few industrial units that have come up in the industrial areas in the region has to face acute difficulty in obtaining skilled labour and maintaining even the unskilled labour on job.
A few industrial units have come up in the industrial areas and industrial estates in Marathwada. The present character of modern industry in the region is such that the raw materials and the technical and the managerial skills are mainly imported from outside and the product is also largely sold outside the region. As such these industrial units, as they are not based either on the local resources or the local market, cannot establish roots in the region and do not integrated with the hinterland. As a result, the spread effects of these industrial units are limited in scope and character and the industrial areas remain isolated industrial pockets without meaningful economic relationship or interaction with the rest of the regional economy. The modern industrial units that have come up in the region have grown in a sporadic manner. The industrial areas are not planned as a cluster of related industrial activities, with a major foot-loose industry at the centre supporting a number of ancillary units. Absence of such planning has kept the industrial units isolated and the industrial multiplier at a very low level.

It is therefore not surprising that industry has not yet taken roots in Marathwada. No doubt, the State Industrial and Investment Corporation of Maharashtra (SICOM) has developed Aurangabad as a growth centre for industry. But with 60 per cent of the manufacturing establishments in the organized factory sector of the region concentrated in Aurangabad district alone, it would not be an exaggeration to say that Aurangabad has become a small oasis of industrial growth in the surrounding desert of Marathwada.
As for the industrial development, there is no doubt that the central as well as the State Governments have already devised different incentive schemes for promoting new industries in backward region like Marathwada. Unfortunately, these schemes have still not made much dent in the industrial development of such region. Marathwada has been no exception.

The factory sector in Marathwada is small in terms of size and scale of operation. In fact, the low value added ‘processing’ rather than the high value added ‘manufacturing’ activity dominates the factory sector in region. As even such processing is restricted largely to food grain milling, cotton ginning and oilseeds crushing. Nearly half the industrial establishment in the factory sector are engaged in such primary processing activities. The factory sector in the region was dominated by units established for preliminary processing of agricultural produce. Processing units includes ginning and pressing factories, dal mills, oil mills, flour mills, gur factories, sugar industries. Many of the processing units were operated as service units. A large number of units combined processing of two or more commodities in the same establishment as the processing work is seasonable in character.

While the industrial development thus hardly seems to have begun in Marathwada, what is even more depressing is that the environments is still unattractive to entrepreneurs and investors. With lack of local raw materials on the one hand, and absence of demand from within the region on the other, most of
the existing industries even though few in number show signs of stresses and sickness with poor capacity utilization and low returns on investment. Their problems are further compounded by shortage of skilled manpower and inadequate infrastructure development in the region. Unfortunately efforts to remedy these shortcomings are still not forth-coming. It is therefore not surprising that the current industrial scene in Marathwada is far from promising.

The panorama of the present state of Marathwada economy dismally, but unmistakably, reveals that the region lacks, by and large, both the natural as well as man-made assets needed for industrialization. Not surprisingly, the industries therein rely largely on outside sources for not only entrepreneurship, capital and raw materials, but also labour and manpower and have, as a result failed to forge favorable links with the peripheral areas.

The manufacturing activity in Marathwada, as it exists today, is small in size and located at a few centres in the region. It is dominated by the processing industry that offers employment which is seasonal and largely low paid in character.
6.6 LIST OF POTENTIAL INDUSTRIES FOR MAHARASHTRA

This list is selective rather than exhaustive and includes industries which prima-facie appear to have the potential for development in Marathwada over the next two decades, in the light of the projected growth scenario of the primary and tertiary sectors. It follows that appropriate techno-economic feasibility or pre-investment studies must normally precede the actual investment decisions in most of them.

A) Resource-based Industries

1. Cotton ginning and pressing
2. Cotton spinning and/or weaving
3. Textile dyeing and processing
4. Non-woven textiles
5. Cotton waste blankets
6. Chemical cotton
7. Sugar
8. Gur and Khandsary
9. Industrial and potable alcohol
10. Acetaldehyde
11. Acetic acid
12. Acetic anhydride
13. Butyl alcohol
14. Butyl acetate
15. Ethyl acetate
16. Crotonaldehyde
17. Ethyl ether
18. Cane wax
19. Paper
20. Newsprint
21. Animal feed from bagasse
22. Oilseeds processing
23. Edible oil refining
24. Vanaspati
25. Oilcake extraction
26. Compound Cattle feed
27. Cellulose acetate
28. Carboxymethyl cellulose
29. fatty acids
30. Alkyd resins
31. Rice mills
32. Wheat flour mills
33. Bakeries
34. Biscuit manufacturing
35. Dairies—milk, milk powder, butter and cheese
36) Frozen meat (goat)
37) Processed meat (goat, buffalo)
38) Tanners-hides and skins
39) Leather goods
40) Bone Meals
41) Gelatine
42) Wool spinning
43) Goat hair product
44) Beef brath
45) Hatcheries
46) Fertilizer mixtures
47) Chemical fertilizers
48) Pesticide formulations
49) Technical grade pesticides
50) Ploughs
51) Tractors
52) Trailers
53) Pump-sets
54) Tillage equipments
55) Sprayers
56) Sprinklers
57) Dusters
58) Thrashers
59) Sugarcane crusher
60) Seed-tractor, seed graders and Seed cleaner
61) Grain driers
62) Other farm machinery-hand tools, sickles, animal drawn machinery etc.
63) Cultivator parts
64) Foundries
65) Forging

B) Market-Oriented Industries

66) Cosmetic and Toiletries
67) Washing soap
68) Synthetic detergents
69) Ready-made garments
70) Hosiery goods.
71) Pressur-cooker
72) Low cost mixers
73) Steel structural, scaffoldings
74) Sanitaryware
75) Water meters
76) Lamp caps
77) Soft drinks
78) Hard gelatine capsul
79) Injection molded plastic goods-Household and industrial application
80) PVC pipe (rigid and flexible)
81) HDPE woven socks
82) Polypropylene Tabular Quenched (PPTQ) films
LDPE/HDPE film
84) Plastic items for textile industry.
85) Plastic item for chemical and pharmaceutical industry.
86) Plastic items for electronic industry
87) Plastic items for food processing industry
88) Glass bottle
89) Tin containers
90) Rerolling mill
91) Auto-ancillaries
92) Textile ancillaries
93) Sugar ancillaries
94) Machine shop
95) Acid slurry
96) Paints

C. Foot-loose industries

97) Sophisticated machine tools (NC/CNC machines, grinding machines, electrodischarge machine)
98) Components for machine tools
99) Telecommunication components and accessories testing in vestments, power plants, telephone instruments
100) Computer peripherals-casings, printed circuit boards, key-boards, display screens, printers etc.
101) Portable generator sets
102) Engineers files and rasps
103) Cutting tools
104) Precision measuring instruments
105) Jigs, fixtures, moulds and press tools
106) Still castings
107) Malleable iron castings
108) Steel forgings
109) Industrial sewing machines
110) Offset printing machines (Sheet-fed and weld-fed machines)
111) Food processing machinery
112) Plastic processing machinery
113) Packaging machinery
114) Leather and footwear machinery
115) Leather chemicals
116) Pyridine and p celines
117) Citric acid
118) Vitamin A
119) Non-metallic zip fasteners
120) Glazed tiles
121) Auxiliary and ancillary items for IPCL (Baroda) chemicals, fabricated items, instruments, electrical apparatus, valves, filters, drives, safety items, packaging products as identified by IPCL.

Source: Planning for Development of Marathwada, Sponsored by Marathwada Development Corporation Ltd., Aurangabad, conducted by Tata Economic Consultancy Services, Bombay.
6.7 SUGGESTED DESIGN FOR AGRO-BASED INDUSTRIES

The agro-based industries hold promise for the future industrial prosperity of Marathwada but their development will depend considerably upon the availability of raw materials at prices which give an adequate return to both the cultivator as well as the processing unit.

The availability of sufficient surplus of agricultural and allied products, especially commercial crops like cotton, sugarcane, oilseeds and pulses would ensure a rapid and sustained growth of industries based on these resources.

Development of agro-based industries is an integral part of overall rural development. This includes processing of agricultural produce. Processing of raw material is necessary to make it more useful for human consumption and for other uses. It provides value added and hence results into creation of more wealth in the rural area and in the region. It also provides income and employment opportunities to rural people.

With agricultural development in the region there would be substantial increase in the production of the important agricultural commodities. This would create large scope for expansion of the processing industries and industries based on the products and the by-products of the processing industries.

We attempt to identify the opportunities for industrial development in Marathwada, as they currently exist and as they emerge in future.
1) Cotton-based industries

Cotton poised to be the most important agricultural resource of Marathwada. The total production of cotton in Marathwada during the year 1960-61 was 78700 bales (lint) and further in 1970-71 it was 83500 bales (lint). In 1980-81 it was 368600 bales (lint) and in 1989-90 it was 622300 bales (lint). During the last 30 years the production of cotton in the region increased at an annual compound growth rate of 9.635 per cent.

The per hectare yield of cotton during the year 1960-61 was 109 kg lint per hectare and further in 1970-71 it was 22 kg lint per hectare. In 1980-81 it was 87 kg per hectare while in 1989-90 was 150 kg lint per hectare. Even with ups and downs in per hectare yield, during last 30 years per hectare yield of cotton has increased at an annual compound growth rate of 1.878 per cent.

There were 117 ginning units in 1970 in Marathwada region which has increased to 153 during the year 1990. Similarly there are 11 ginning and pressing units in the region. If the present ginning and pressing capacity in the region is fully utilized the present establishments are adequate one. However, if anticipated growth rate in production is considered additional 18 ginning-cum-pressing units can be set up in the region.

The locations suggested for these units are Paithan, Sailu, Ambad, Vaijapur, Parbhani, Hingoli, Basmath, Gangakhed, Jintur, Deglur, Dharmabad, Mukhed, Hadgaon, Umri, Bhir, Parli, Tuljapur and Kallam.
In addition to ginning and pressing units in the region, spinning mills can be establish at locations Jalna, Parbhani, Hingoli, Basmath, Deogur, Dharmabad, Mukhed, Beed, Latur and Osmanabad.

One pre-weaving processing and post-weaving finishing plant can be set up at Jalna.

Further there is scope for the establishment of 10 cotton seed crushing units at Jalna, Vaijapur, Paithan, Hingoli, Gangakhed, Jintue, Dharmabad, Hadgaon, Nanded and Osmanabad.

By-products of cotton seed crushing units can be utilized in a variety of ways. Cotton seed linters can be used for manufacturing felts for upholstery, mattresses, blankets, etc. Cotton seed hulls can be used as animal feed and fertiliser. Cotton seed meats yield refined oil and the gosses are used in the soap industry, making of glycerine, and fatty acids used in the manufacture of rubber, plastics, insecticides and in leather, paper and textile industry.

Cotton waste can be used in the spinning of coarser yarns which can be used for weaving newar, blankets and durries. A number of small scale units can be set up in the region for the spinning of waste cotton.

Production of paper and paper board from cotton rags and waste cotton is also possible in the region.

It is clear that cotton can provide an invaluable base for industrial development of Marathwada. However, it is necessary to prepare an integrated plan for both cotton cultivation and manufacture of cotton products.
2) Oilseeds-based Industries

The production of total oilseeds in Marathwada during the year 1980-81 was 20,1500 tonnes and further in 1989-90 it was 62,6600 tonnes. During the last 12 years the production of total oilseeds in the region increased at an annual compound growth rate of 8.553 per cent.

The per hectare yield of total oilseeds during the year 1980-81 was 336 kg per hectare and further in 1989-90 it was 595 kg per hectare. During the last 12 years per hectare yield of oilseeds has increased at an annual compound growth rate of 2.299 per cent.

Important components of total oilseeds are Groundnut, Sunflower and Safflower.

The total production of groundnut in Marathwada during the year 1960-61 was 22,8400 tonnes and further in 1970-71 it was 11,2200 tonnes. In 1980-81 it was 41,9000 tonnes and in 1989-90 it was 67,000 tonnes. During the last 30 years the production of groundnut in the region declined at an annual compound growth rate of 6.163 per cent.

The per hectare yield of groundnut during the year 1960-61 was 741 kg per hectare and further in 1970-71 it was 549 kg per hectare. In 1989-90 it was 380 kg per hectare while in 1989-90 it was 667 kg per hectare. During the last 30 years per hectare yield of groundnut remained mostly unchanged (annual compound growth rate is -0.939, Non-significant).
The production of sunflower in the Marathwada during the year 1980-81 was 18900 tonnes and further in 1989-90 it was 167500 tonnes. During the last 10 years the production of sunflower has increased at an annual compound growth rate of 24.265 per cent.

The per hectare yield of sunflower in the region during the year 1980-81 was 604 kg per hectare and further in 1989-90 it was 682 kg per hectare. During the last 10 years the yield has declined at an annual compound growth rate of 2.247 per cent.

The production of safflower in Marathwada during the year 1980-81 was 137100 tonnes and further in 1989-90 it was 200500 tonnes. During the last 10 years the production has increased at an annual compound growth rate of 1.929 per cent.

The per hectare yield of safflower in the region during 1980-81 was 509 kg per hectare and further in 1989-90 it was 619 kg per hectare. During the last 10 years the yield of safflower in the region was declined at an annual compound growth rate of 1.300 per cent.

The oilseeds crushing industry in Marathwada essentially comprises expeller oil mills and oil ghanies. As the industry is widely dispersed and spread over the small-scale and household industry sectors, its precise capacity is difficult to determine. Even the data on the exact number of units in the industry are hard to come by. It is, however, understood that there are about 150 to 180 oil mills and more than 1000 ghanis.
in Marathwada. In addition, the Marathwada State Oilseeds Commercial & Industrial Corporation Limited, a State Government undertaking, has set up a big cotton seed processing complex, comprising two oil mills at Hingoli and Gangakhed, as well as a solvent extraction plant and refinery at Parbhani with the aid of World Bank. The Maharashtra State Co-operative Marketing Federation has also a cotton seed processing unit at Jalna. Another unit in Dharmabad is also coming up in the co-operative sector. These four complexes have an adequate capacity to process existing level of production.

Considering the fact that Marathwada has a good potential to augment its oilseeds production and has also a large local market, the scope for not only the fuller utilization of the existing capacity but its expansion also, is quite immense. The oilseed processing capacity during A.D.2000-01 can jump almost five fold of the existing level.

For fuller utilization of groundnut production 13 oil mills and solvent extraction plant and refinery can be set up at Bhir, Parli, Manjlegaon, Ambejogai, Dharur, Ahemadpur, Umerga, Osmanabad, Udgir, Nilanga, Ausa, Kallam and Gangakhed.

Two oilcake cattle feed manufacturing units can be establish at Sailu and Latur.

The by-products of the oil-processing units can be used for manufacturing of soap and for manufacturing cattle feed. The soap-stock which is a by-product of the edible oil refinery will be available in the region. Soap industry can be organised on different scales from cottage establishment to the large scale modern soap manufacturing factory.
3) Sugarcane-based Industries

The production of sugarcane in Marathwada region during the year 1960-61 was 94300 tonnes gur and further in 1970-71 it was 171200 tonnes gur. In 1980-81 it was 269700 tonnes gur and in 1989-90 it was 757600 tonnes gur. During the last 30 years the production has increased at an annual compound growth rate of 6.124 per cent.

The per hectare yield of sugarcane during the year 1960-61 was 4000 kg gur per hectare and further in 1970-71 it was 6500 kg gur per hectare. In 1980-81 it was 7100 kg gur per hectare and in 1989-90 it was 7800 kg gur per hectare. During the last 30 years the yield has increased at an annual compound growth rate of 1.731 per cent.

At present there are 22 sugar factories working in Marathwada and all of them are in co-operative sector. These factories are capable of crushing the available cane in the region.

With the expansion of irrigation facilities, the area under sugarcane and its production in the region is steadily increasing. If the anticipated increased production takes place about 10 new sugar factories could come up in the region by A.D.2000-01.

In addition to sugar factories, more gur making and Khandsari units could also be set up for processing an additional sugarcane in small-scale sector.
The two important by-products of sugar factories are bagasses and molasses. Bagasse-based manufacture such as insulation boards, hard boards or newsprint is possible. The molasses is mainly used for manufacture of alcohol. Besides alcohol, molasses can also be utilized either as a cattle feed in add mixture with urea, or for the production of food yeast and essential amino acids needed for better food for the people.

Tentative locations for setting up of sugar factories are Khultabad, Jafferabad, Ambad, Soegaon, Jalna, Jintur, Bhokar, Manjleqaon, Udgir, Umerqa.

The establishment of sugar factories will help to boost the different related industrial activities which help to increase employment and general living standard of people in the region.

4) Pulses-based Industries

The total production of total pulses in the region during the year 1960-61 was 228700 tonnes and further in 1970-71 it was 191700 tonnes. In 1980-81 production of total pulses was 274500 tonnes and in 1989-90 it was 550400 tonnes. While considering the ups and downs in the production, the production has increased at an annual compound growth rate of 1.964 per cent during the last 30 years.

The per hectare yield of total pulses during the year 1960-61 was 286 kg per hectare and further in 1970-71 it was 196 kg per hectare. In 1980-81 the per hectare yield was 255 kg and in 1989-90 it was 461 kg per hectare. During the last 30 years the yield has increased at an annual compound growth rate of 1.538 per cent.
At present there are 49 dal mills located in different districts of region and capable of processing existing production of pulses. More dal mills need to be established under small-scale industries to process the estimated increase in production of pulses. During A.D.2000-01 two modern dal mills can be establish in each district. Thus in all 14 dal mills can be establish in the region.

5) Fertilizer-mixing Industries

The development of agriculture and the extension of irrigation will result in increased demand for new agricultural inputs, the most important of which is fertilizers. Recently, basic fertilizers were 'bulk blended' or 'powder mixed'. Currently, these have been replaced by 'granular' mixed fertilizers. Granular fertilizers have many advantages over powder mixtures such as the ease of handling and application and better performance. It is also less liable to adulteration. Establishment of local fertilizer-mixing unit will facilitate the mixing of fertilizers in appropriate proportions for distribution to the farmers in this region.

6) Fruit and Vegetable processing Industries

A large number of tropical fruits and vegetables are grown in the region with the extension of irrigation. There would be definite scope for increasing the production of fruit and vegetables during the next decade. A variety of fruits including banana, mosambi, mangoes, oranges, guavas, papaya, grapes etc. are being grown in the region. A variety of vegetables could be in the different parts of the region. A fruit and vegetables
processing unit would create bulk demand and promote extension of horticulture in the hinterland. The processing unit could also serve as an extension centre for technical advice. This unit should produce a variety of fruit and vegetable products including juices, squashes, chutneys, ketchups, pickles etc. However, fruits and vegetables processing units can be set up in the different districts of the region.

7) Milk products

A complete dairy farm including a milk processing plant should be established in the different districts of this region. This unit will function as a nucleus from where the future dairy development programme for the region will be projected. It will develop routes for collection of milk and run extension services required for dairy development. Thus, this unit should produce milk powder, qhee, butter, cheese etc. for which there is a ready demand in the country.

8) Leather Industries

Marathwada has a large livestock population, so that hides and skins are important resources available in the region. Hides and skins of cattle, buffalo, cattle calf, buff-calf, sheep and goats are available for processing in the region. The industry based on livestock resources can be set up in the different parts of the region.
9) Mineral-based Industries

The region is poor in mineral resources. Only some limestone deposits occur in Kinwat taluka. The magnesia content is within permissible range for its use in the manufacture of cement. It would be feasible to establish a cement plant near Kinwat taluks of Nanded District.

10) Engineering Industries

Improved agricultural implements like the iron plough, seed drill, the harrows and hoes are of vital importance for efficient ploughing, sowing and intercultural operations. Introduction of improved agricultural implements would be easier if manufactured at the local level according to local requirements. In view of the new and the replacement demand for iron ploughs, agricultural engineering workshops can be set up at a number of medium and large towns in the region.

11) Rice Mills

Rice is processed into puffed rice (kurumura making) and beaten rice (poha making). Small-scale units engaged in processing of rice can be established in different parts of the region.

12) Masala-making Industries

Since chilli powder is commonly used in daily diet, ready-made powder/masala is prepared from chillies by mechanical pounding or grinding. This type of masala-making industry can be set-up in the region.
13) Household Industries

The dynamic impulse of economic development can be taken to rural areas only through rationalisation of agriculture and upgrading of the village artisan. A large number of village artisans will continue to operate at the village level but improvement in techniques of production and organisation is necessary. The handloom weavers can be replaced by powerloom weavers for upgrading the weaving industry in the household sector. Similarly, efforts will have to be made for converting ordinary ghani into improved ghani. Hand-made soap industry using neem (margosa) seeds and other non-edible seeds which can be collected locally can be organised in conjunction with the village ghani. The skills of the blacksmith and the carpenter can be improved and utilized for manufacture of improved agricultural implements and bullock-carts at the local level. The expansion of construction activity in the region is expected to increase demand for building material including bricks, roofing and flooring tiles, etc. Porcelain and ceramic products can also be produced depending upon availability of suitable clays. These household industries can help in the rural industrialisation of Marathwada region.

14) Forest-based Industries

There is sizeable area of forest in the region. Forest based industries such as saw mills, wooden furniture making, wooden toys making etc. can be possible to establish in the forest area of the region.
15) Wheat-based Industries

Wheat is produced in different parts of the region. Wheat is utilized for processing into bakery products. Wheat-based industries can be set up in the region to help manufacture wheat products like bread, biscuits etc. These industries have good potential for establishing industries in Marathwada region.

The various resource-based industries suggested in this chapter essentially presuppose that deliberate efforts will be made in Marathwada to transform the agricultural position prevailing today. Since Marathwada lacks other natural resources such as minerals, forests, fisheries, etc., concentration on the development of agriculture and livestock resources to the fullest extent possible is essential to give the necessary boost to resource-based industries in the region.