Chapter 8
Findings, Policy Implications And Suggestions
Contents of this chapter are based on primary data collected from the farmers, retailers and commission agents. Separate questionnaire was designed for the collection of data/information. The collected data/information is tabulated, analyzed and presented in the following pages.

8.1 VALIDATION OF HYPOTHESIS

On the basis of analysis presented in the earlier chapters an attempt has been made to test the hypothesis designed for the study listed below:

Hypothesis-1:

Maharashtra has made remarkable progress in agri development

From the observation of Table No. 5.1, all the districts except Ahmednagar for recorded positive growth rates in agriculture outputs during 1992-2003 and 2003-2008. Similarly Table No. 5.2 reveals that 15 districts have recorded moderate and high growth rates in agriculture outputs during period I and II. It is clearly evident that this hypothesis has been proved.

Hypothesis-2:

Globalization has been proved as a stimulating factor for export of agriculture product:

From the figures available and recorded under the paragraph 1.1.2 on Exports of Onion, Coffee, Rubber, Spices, Edible Oil and Sugar are evident that export of agriculture product are increased sizably. It is due to the globalization and this hypothesis has been proved.
Hypothesis-3:
Farmers of Nanded district having average cultivation knowledge:

From the calculations based on the Table No. 7.6, calculated value of Chi-Square is worked out as 16.71 whereas Table Value at 5% degree of freedom is 12.6. Calculated value of Chi-Square is more than the table value. Therefore the hypothesis is rejected. It can be said that the farmers of Nanded district are having above the average level cultivation knowledge.

Hypothesis-4:
Farmers of Nanded district are mainly depending on own source of finance:

From the calculations based on the Table No. 7.11, calculated value of Chi-Square is worked out as 37.48 whereas Table Value at 5% degree of freedom is 12.6. Calculated value of Chi-Square is more than the table value. Therefore the hypothesis is rejected. It is inferred that the farmers of Nanded district are depending on own as well as outside agri finance.

Hypothesis-5:
Banks are charging high rate of interest on agri finance:

From the calculations based on the Table No. 7.12, calculated value of Chi-Square is worked out as 152.69 whereas Table Value at 5% degree of freedom is 9.49. Calculated value of Chi-Square is more than the table value. Therefore the hypothesis is rejected. It can be concluded that the Banks in Nanded district are not charging high rate of interest on agri finance.

Hypothesis-6:
Farmers of Nanded district are encountering the main cultivation problems i.e. high fertilizer prices, manpower problem, high wage rate, inadequate irrigation facility, untimely and inadequate of loans:
From the calculations based on the Table No. 7.15, following results are available.

**High Fertilizer Prices:**

Calculated value of Chi-Square is worked out as 4.28 whereas Table Value at 5% degree of freedom is 5.99. Calculated value of Chi-Square is less than the table value. Therefore the hypothesis is accepted. It can be concluded that the farmers of Nanded district are facing the problem of High Fertilizer Prices.

**Inadequate Manpower:**

Calculated value of Chi-Square is worked out as 0.24 whereas Table Value at 5% degree of freedom is 5.99. Calculated value of Chi-Square is less than the table value. Therefore the hypothesis is accepted. It can be said that the farmers of Nanded district are facing the problem of Inadequate Manpower.

**High Wage Rate:**

Calculated value of Chi-Square is worked out as 11.57 whereas Table Value at 5% degree of freedom is 5.99. Table value is less than calculated value of Chi-Square. Therefore the hypothesis is accepted. It is proof to say that the farmers of Nanded district are facing the problem of high wage rate.

**Inadequate Irrigation:**

Calculated value of Chi-Square is worked out as 0.67 whereas Table Value at 5% degree of freedom is 5.99. Calculated value of Chi-Square is less than the table value. Therefore this hypothesis is rejected. It can be claimed that the farmers of Nanded district are not facing the problem of irrigation.
Untimely & Inadequate of Loans:

Calculated value of Chi-Square is worked out as 4.97 whereas Table Value at 5% degree of freedom is 5.99. Calculated value of Chi-Square is less than the table value. Therefore the hypothesis is accepted. It can be concluded that the farmers of Nanded district are getting timely and adequate loans.

Hypothesis-7:

Farmers of Nanded district are encountering the main marketing problems of agro products i.e. transportation, availability of markets, market informations, price fluctuations, price rates and receipt of payment:

From the calculations based on the Table No. 7.16, following results are available.

Availability of Transportation:

Calculated value of Chi-Square is worked out as 2.81 whereas Table Value at 5% degree of freedom is 5.99. Calculated value of Chi-Square is less than the table value. Therefore the hypothesis is accepted. It can be said that the farmers of Nanded district are availing adequate transport facility.

Availability of Markets:

Calculated value of Chi-Square is worked out as 4.94 whereas Table Value at 5% degree of freedom is 5.99. Calculated value of Chi-Square is less than the table value. Therefore the hypothesis is accepted. It can be said that the farmers of Nanded district are satisfied about the availability of markets.
**Market Informations:**

Calculated value of Chi-Square is worked out as 108.36 whereas Table Value at 5% degree of freedom is 5.99. Table value is less than calculated value of Chi-Square. Therefore the hypothesis is accepted. It can be said that the farmers of Nanded district are regularly getting the market information i.e. selling price.

**Price Fluctuations:**

Calculated value of Chi-Square is worked out as 6.19 whereas Table Value at 5% degree of freedom is 5.99. Calculated value of Chi-Square is nearer to the table value. Therefore the hypothesis is near about accepted. It can be said that very few farmers of Nanded district are facing the problem of price fluctuations.

**Price Rates:**

Calculated value of Chi-Square is worked out as 13.17 whereas Table Value at 5% degree of freedom is 5.99. Calculated value of Chi-Square is more than the table value. Therefore the hypothesis is rejected. It can be said that the farmers of Nanded district are getting proper prices of their agro products.

**Receipt of Payment:**

Calculated value of Chi-Square is worked out as 2.91 whereas Table Value at 5% degree of freedom is 5.99. Calculated value of Chi-Square is less than the table value. Therefore the hypothesis is accepted. It can be inferred that the farmers of Nanded district are getting the receipt of agro produce payment instantly/timely.
8.2 FINDINGS

8.2.1 General:

1. Agriculture is one of the strongholds of the Indian economy and it accounts for 18.5% of the gross domestic product (GDP). In 2007-08, India achieved a record food grain production of 227 million tonnes, recording a growth of 10 to 12 million tonnes in excess of the previous fiscal year. With an added two to three million tonnes during the Rabi season.

2. India is the largest producer of coconuts, mangoes, bananas, milk and dairy products, cashew nuts, pulses, ginger, turmeric and black pepper. It is also the second largest producer of rice, wheat, sugar, cotton, fruits and vegetables.

3. India's exports of agricultural and processed food products recorded a 38% increase in the 2007-08 fiscal year bolstered by an increase in shipments of coarse cereals like maize, jowar and barley. Export figures for agricultural products touched US$ 6.59 billion in 2007-08, against US$ 4.79 billion in the previous fiscal year.

4. Acreage under horticulture—which includes fruits, vegetables, spices, floriculture, and plantations was around 20 million hectares in 2006—07. India is the second largest producer of both fruits and vegetables in the world and the National Horticulture Mission (NHM) aims at doubling horticulture production by 2012.

5. Government has been taking various progressive measures to accelerate the growth of this sector. Some of the recent initiatives taken by the government include:
   - In the 2008-09 budget, the government has given a US$ 12.23 billion waiver of farm loans.
   - Giving a nod to the National Policy on Biofuels under which India will aim to raise blending of biofuels with petrol and diesel to 20 per cent by 2017.
This will provide a major boost to the bio-diesel sector. It has also approved the setting up of National Bio-fuel Coordination Committee and Bio-Fuel Steering Committee.

- Allowing private sector companies engaged in business of warehousing and transport of food grains in procurement operations on behalf of the Food Corporation of India (FCI).

- Construction of seven Modern Terminal Markets with modern infrastructure facilities that will help farmers realise maximum returns for their produce, remove middlemen and ensure lower prices for end-consumer.

- The government has already approved 60 Agricultural Export Zones (AEZs). Besides, four zones have been identified to provide US$ 12.1 million worth of funds under a scheme called Assistance to States for Infrastructure Development of Exports.

The Government had provided an additional US$ 6.17 billion for new farm initiatives launched by states to double the growth rate in agriculture to 4% over the 11th Plan period.

6. The liberalisation of the domestic economy and the increasing integration of India with the global economy have helped step up GDP growth rates, which picked up from 5.6% in 1990-91 to a peak level of 77.8% in 1996-97. Growth rates have slowed down since the country has still be able to achieve 5-6% growth rate in three of the last six years. Though growth rates has slumped to the lowest level 4.3% in 2002-03 mainly because of the worst droughts in two decades the growth rates are expected to go up close to 70% in 2003-04. A Global comparison shows that India is now the fastest growing economy just after China. This is major improvement given that India's growth rate in the 1970's was very low at 3% and GDP growth in countries like Brazil, Indonesia, Korea, and Mexico was more than twice that of India. Though India's average annual growth rate almost
doubled in the eighties to 5.9% it was still lower than the growth rate in China, Korea and Indonesia. The pickup in GDP growth has helped improve India’s global position. Consequently India’s position in the global economy has improved to 4th place in 2001 from the 8th position in 1991, when GDP is calculated on a purchasing power parity basis.

7. The burning problem Indian agriculture faces today and the number one cause of farmer suicides is debt. Forcing farmers into a debt trap are soaring input costs, the plummeting price of produce and a lack of proper credit facilities makes farmers turn to private moneylenders who charge exorbitant rates of interest. In order to repay these debts, farmers borrow again and get caught in a debt trap.

8. As per the land utilisation statistics for 2008-09, out of the total 307.6 lakh ha. geographical area of the State, the net area sown was 174.2 lakh ha. (56.6 per cent). During 2004-05 to 2008-09 land put to non-agricultural uses increased by 2.9 per cent.

9. The share of agriculture in the Net Domestic Product of Maharashtra declined steeply from 36% in 1961-62 to 18.7% in 1992-93. The comparable shares for Indian agriculture were 47% and 27%. Yet, in terms of the proportion of labour force engaged in agriculture which was 60% in 1991, Maharashtra’s economy continues to be predominantly agrarian.

10. During first three years of XI FYP, the annual average growth of ‘Agriculture and allied activities’ sector was 4.1%, which contributes to about 10% in the GSDP. The accelerated growth rate in this sector will not only push the growth in the overall GSDP, but will also bring around 50% of the population under the ‘growth umbrella’ that will make the growth more inclusive.

11. The agricultural production in 2010-11 is considered reasonably bright due to more than normal rainfall in the State. During the current year, the production of food-grains is expected to register a growth of 22.9 per cent.
with production of 154.63 lakh MT as against 125.85 lakh MT during 2009-10.

12. During Kharif season of 2010-11, the sowing was completed on 150.04 lakh ha., which was 7.4 per cent more than the previous year. The area under Kharif cereals was almost same as that in the previous year. The area under pulses was increased by 32.5 per cent, whereas, under oilseeds it decreased by 12.5 per cent. The area under cotton and sugarcane was more by 17.1 per cent and 27.5 per cent respectively. Overall the total area under Kharif food grains increased by about 10.5 per cent resulting in increase in production of food grains by about 32.7 per cent. The production of cereals and pulses is expected to increase by 27.4 per cent and 58.0 per cent respectively. The production of total oilseeds, cotton and sugarcane is also expected to increase by about 80.2 per cent, 74.9 per cent and 23.7 per cent respectively.

13. The area under rabi crops was expected to decrease by 3.5 % during 2010-11 than that during 2009-10. However, the production of cereals, pulses and oilseeds are expected to increase by 9 per cent, 17.1 per cent and 10.9 per cent respectively.

14. During 2010-11, the area under cereals and oilseeds was expected to increase by 15 per cent and 41.5 per cent respectively over the year i.e. 2009-10.

15. The index number of agricultural production for the State (Base: Triennial average 1979-82=100) for 2009-10 was 175.8, which was more by 8.6 per cent than that in 2008-09. The group wise index no. for 2009-10 was 111.3 for cereals, 243.4 for pulses, 137.5 for food grains, 64.6 for oil seeds, 349.0 for fiber, 222.4 for miscellaneous and 218.4 for total nonfood grains.

16. The gross and net irrigated area in the State during 2008-09 was 39.70 lakh ha. and 32.55 lakh ha. respectively. The percentage of gross irrigated
area to gross cropped area was 17.7 in 2008-09. Out of the net irrigated area, the area irrigated under wells was 21.15 lakh ha. (65%).

17. The total irrigation potential utilized in the State during 2009-10 was 30.5 lakh ha., of which, 17.71 lakh ha. was from major irrigation projects, 3.67 lakh ha. was from medium irrigation projects and remaining 9.12 lakh ha. was from minor irrigation projects (State sector and Local sector).

18. The total live storage as on 15th October, 2010 in the major, medium and minor irrigation (State sector) reservoirs in the State taken together was 31,950 Million Cubic Meters (MCM), which was about 88 per cent of the storage capacity, as against 80 per cent in 2008 and 66 per cent in 2009.

19. Sprinkler and drip irrigation systems economise use of water for irrigation, which in turn enables to bring 25 to 40 per cent additional area under irrigation. The State Government encourages cultivators to adopt these irrigation systems by giving them 50 per cent subsidy for purchase of sprinkler and drip irrigation equipment. Upto the end of March, 2010, the total area brought under sprinkler and drip irrigation in the State was 2.71 lakh ha. and 5.41 lakh ha. respectively.

20. Maharashtra State Horticulture & Medicinal Plants Board (MSHMPB) was established in 2005 to implement the scheme of National Horticulture Mission and National Medicinal Plants Board (NMPB). The MSHMPB received grants of ` 739.78 crore under NHM and ` 4.54 crore for NMPB during 2010-11 (upto December, 2010). The expenditure incurred was ` 674.96 crore and ` 4.36 crore under NHM and NMPB respectively by the end of October, 2010.

21. The achievements under NHM since inception include establishment of 88 new nurseries, plantation of fruits, flowers, spices etc. on 2.20 lakh ha., rejuvenation of old fruit crop plantation on about 0.85 lakh ha., construction of 4,203 community tanks, organic farming on 0.15 lakh ha., 1,573 pack houses and infrastructure for post-harvest management, etc.
Under the schemes of National Mission on Medicinal Plant, the plantation is completed on 703 ha. and the benefits are given to 1,068 beneficiaries.

22. Maharashtra State Seed Corporation (MSSC) and National Seed Corporation (NSC) are the major Public Sector Organizations in production and distribution of quality seeds. Nearly 265 private seed producers also sell their seeds of field and vegetable crops. The Government of India has fixed seed replacement targets of 33 per cent for self-pollinated crops (like paddy, wheat, tur, moong, etc.), 50 per cent for cross pollinated crops (like maize, jowar, bajra, sunflower, etc.) and 100 per cent for hybrid crops (like hybrid jowar, bajra, cotton, paddy, etc.).

23. The use of chemical fertilizers for the year 2010-11 was 71.58 lakh MT, as against 60.93 lakh MT in 2009-10. Per hectare consumption of chemical fertilizers in the State during 2010-11 was expected to be 170.7 kg, which was 153.4 kg in the previous year. During 2009-10, the distribution of fertilizers was effected through 36,024 fertilizer distribution outlets, of which, 88.1% were in private sector, 11.3% were in Co-operative sector, and 0.6% in public sector.

24. The use of pesticide in the State has gone up from 3,637 MT in 2008-09 to 4,639 MT in 2009-10. For the year 2010-11, the pesticide consumption is estimated at 4,315 MT. The increase in consumption of pesticide was basically due to increased use of fungicides by 26% and weedicides by 40%.

25. The Maharashtra State Agricultural Marketing Board (MSAMB) is mainly entrusted with activities such as keeping necessary coordination in working of market committees, development & promotional activities of Agriculture Produce Marketing Committee (APMC), establishment of agro-export zones, horticultural training centres and grading & packing facilities etc. The total value of arrivals in all the market committees in the State
was Rs. 17,018 crore and Rs. 33,939 crore during 2007-08 and 2008-09 respectively.

26. During 2009-10, short-term credit limit sanctioned for Seasonal Agriculture Operations (SAO) by NABARD to Maharashtra State Co-operative Bank (MSCB) and Regional Rural Banks (RRBs) was Rs. 1,766 crore as compared to Rs. 1,365 crore during the previous year. For supporting SAOs during 2010-11 (upto November, 2010), NABARD had sanctioned credit limit of Rs. 1,713 crore to MSCB and RRBs, which is 10.8 per cent higher than the corresponding period of the previous year.

27. The National Agricultural Insurance Scheme (NAIS) is implemented in the State since rabi season 1999-2000. Under this scheme 16 kharif and 10 rabi crops are covered.

28. The share of Animal Husbandry in GSDP of Agriculture & allied activites sector during 2009-10 was 7.8 per cent. As per Live Stock Census 2007, the total livestock in the State was about 360 lakh and livestock per lakh population was 37,152 while, at All-India level, the total livestock was about 5,297 lakh and livestock per lakh population was 46,385. The State’s share in livestock and poultry population of India was 6.8 per cent and 9.9 per cent respectively.

29. The State ranks sixth in India in milk production. During 2009-10, the production of milk was 7.7 million MT and the per capita daily availability was 190 gms at the State level while the production of milk was 112 million MT (prov.) and the per capita daily availability was 264 gms at All-India level. During 2010-11, the milk production was expected at 7.8 million MT.

30. Agriculture is the main get up of the Nanded District. It provides employment to about 85% of the total work force in the district. Predominantly kharif crops are grown and thus Rabi crops are also cultivated. The total cropped area is about 7,81,000 hectares with an area
of 7,52,000 hectares under kharif and 29,000 hectares under Rabi crop. The principal kharif crops are jowar and cotton. Other kharif crops being paddy, tur, mung, urid, etc. The principal Rabi crops are Jowar & Wheat. Sugarcane and Bananas are grown throughout the year. Based on the available agricultural resource it is seen that there exists scope for setting up of industries for manufacturing Jowar based, Cotton based, Sugarcane based industries in the district.

31. The total cropped area in the Nanded region was 60.95 lakh hectares which was 94.61% of the geographical area. The net area sown was 47.20 lakh hectares which was about 73.20% of the geographical area. Regarding Nanded district the total cropped area is 12.85 lakh hectares. The net area sown was 8.48 lakh hectares which was about 77.31% of the geographical area.

32. Canal irrigation has been first introduced in the year 1962-63 in the district. The Purna project covers 76 villages of Nanded district. The Upper Penganga project is yet to be completed. The Manar project covers 29 villages of the district. The recent statistics reveal that gross cropped irrigated area in the region was about 6 lakh ha which comes to about 12.5 percent of the gross cropped area. The highest irrigated area was in Parbhani district which was 2.79 lakh ha, followed by Nanded district 2.73 lakh ha. The district has 3 major irrigation projects. They are (a) Purna Project - covering an area of 20,000 hectares, (b) Manar Project - covering an area of 23,310 hectares, and (c) Vishnupuri Project - covering an area of 28,340 hectares. In addition, there are 10 medium projects, 394 minor irrigation projects and 6620 bore-wells used for irrigation.

33. The total number of regulated markets in the Marathwada region was 59 and their sub-yards were 133. The districtwise distribution of the regulated markets in Marathwada region indicates that, the highest number of regulated markets were in Nanded district (13) and the lowest in
Aurangabad and Jalna district (5 each). Regarding the number of market sub-yards, it was observed that, Nanded district had the highest number and it was 34, while the lowest number of market sub-yards was in Osmanabad district i.e. 6.

34. Dairy farming is an important activity amongst the total population of Nanded District. There are about 787 Milk Co-op. Societies in the district. During 97-98 under the Government Milk Procurement Scheme the total milk procurement in the district was 99,78,000 litres. In the district there are about 24 slaughter-houses and during 1997-98 about 93,639 cattle and 76,062 sheep/goats were slaughtered. There exist Meat processing units in Nanded district in the private sector.

35. In Nanded district Fresh water fishing is done in the rivers and tanks and reservoirs. River water fishing is carried out in Godavari river. The river length in the district is about 700 kms. There are 8 Medium Reservoirs and 69 minor reservoirs, 1371 Zilla Parishad Tanks and 128 Gram Panchayat Tanks in the district. The district has 79 Fishermen Co-op. Societies.

8.2.2 CHANGING CROPPING PATTERN

A) IN MAHARASHTRA

1. Aggregate growth in crop sector at the state level though highly impressive in the period I, inter-district range of growth rates was fairly wide. The lowest growth rate was registered by Raigad district (i.e., 2.69%) from the Konkan division and the highest i.e., 8.92% by Pune district in the Pune division. With deceleration in overall growth performance in the second period the inter-district range of growth rates not only moved down ward but widened further within the districts.

2. Aurangabad division representing Marathwada region in the state was the division leading in aggregate growth of all crops (growth rate:
6.57%) in the period I. It was closely followed by Nasik, Rune and Kolhapur divisions in the descending order with 2nd, 3rd and 4th ranks.

3. In the latter period Amravati division remained at the top with further, though marginal, improvement in its growth rate from 4.08% to 4.38%. It was followed by Aurangabad (g.r. 2.91%) and Nagpur divisions (g.r. 2.73%) with second and third ranks. Kolhapur, Nasik and Konkan divisions were at 4th, 5th and 5th position with 2.31%, 2.24% and 1.81% as their growth rates. Finally Pune division was at the other extreme with lowest growth rate 1.02%.

4. Amravati division aggregate growth decelerated in all the other divisions though the extent of deceleration was not uniform over the divisions. Fall was highest for Pune division (i.e., by 4.5%) and the lowest for Nagpur division (i.e. by 1 %). Deceleration in growth was statistically significant for Nasik, Pune and Kolhapur divisions but not for the other three, namely Aurangabad, Nagpur and Konkan.

5. Cereal crops dominated the growth performance of the crop sector in the early period of the GR period with all the districts falling in the top three classes of growth, namely (i) very high (exceeding 10%), (ii) high (4.01% to 10%) and (iii) moderate (2.01% to 5%).

6. It has been observed that among the seven divisions Aurangabad ranked first, Amravati had second position and Nasik followed it with the third rank. Kolhapur ranked fourth with all the three districts experiencing high growth and Pune had fifth position with two and one district belonging to high and moderate growth class respectively. Nagpur occupied sixth position and Konkan division was at the bottom with all three districts falling in the moderate growth class.

Between the two periods there was substantial reshuffling in the relative positions of the divisions. Aurangabad moved down from the top
rank to the lowest of seventh. Nagpur and Amravati were next to Aurangabad in poor performance. At the other end, cereals output growth was much better in Kolhapur division than in any other. Nasik, Pune and Konkan followed it with almost comparable performance.

7. The performance of Marathwada (Aurangabad division) and Vidarbha region (Amravati & Nagpur divisions) in raising the cereals output was very poor in the second period. It was comparatively better in Western Maharashtra (mainly Kolhapur & Pune divisions) followed by Nasik and Konkan divisions.

8. The phenomenon of deceleration in output and productivity growth for cereals after 1980-81 had been universal over the regions and the regional pattern of growth underwent a drastic change.

9. All the 22 districts had moderate to high growth in pulses output in period I with an exception of only one, namely, Chandrapur from Nagpur division.

10. Scenario of output growth across the districts changed greatly in the second period with significant acceleration in growth rates in eight districts vis-a-vis deceleration in ten districts. Two each continued growth at the moderate and high levels in the second period. Consequently, inter-district range of output growth rates widened to -1.20% for Solapur district to 13.55% for Akola district.

In period I, Pune, Aurangabad, Nasik and Kolhapur were the leading divisions with high growth in all or majority of the districts belonging to them. Amravati division followed them with high growth in 2 out of 4 districts. Nagpur had the lowest rank with moderate growth rate in three districts and negative in one district.

11. Relative positions of the districts almost reversed in the second period. Amravati and Nagpur divisions surpassed all other with high and very high
growth rates in the districts belonging to them. Aurangabad ranked third with majority of districts falling in moderate growth class.

12. Remarkable boost to growth in output of pulses in the Vidarbha region (i.e. Amravati and Nagpur divisions) after 2003-04. Growth continued at reduced, yet moderate pace in the Marathwada region (i.e. Aurangabad division). It received significant setback in the remaining three divisions of the Western Maharashtra.

13. Production of oilseeds declined absolutely in the state between the year 1992 and 2003. Obviously growth rates remained negative in six districts were at low and moderate level in four and six districts respectively and high in the remaining six districts. The inter-district range was -6.6% for Osmanabad district to 4.93% for Nasik district.

The second period, however, experienced dramatic change, in growth environment for oilseeds with across the board acceleration in growth rates. This is evident from the inter district range of growth rates which moved up to 4.66% for Nasik district to 21% for Parbhani district. Out of 22 districts, 12 districts registered growth rates exceeding 10%. For the remaining nine growth rates were between 5% to 10%

Performance of Nagpur division was the best among all the divisions in the period I. Pune, Nasik and Aurangabad followed it in the descending order of performance. Amravati and Kolhapur divisions were at the bottom of the ladder with low and very low growth performance respectively.

14. Relative position of the divisions however changed in the next period with differential degree of acceleration in output growth. Aurangabad division moved up to the top position with growth rates in four districts crossing 10% and for one district lying between 5 to 10%. Pune, Kolhapur, Amravati and Nagpur followed it with successive ranks.
15. Revitalization of the oilseeds economy was the major achievement of the state's crop sector in 1992's. The lead was provided by the Aurangabad division i.e. Marathwada region followed by the Western Maharashtra (Pune, Kolhapur and Nasik division) and Vidarbha region (Amravati and Nagpur division).

16. Out of 14 districts in the above mentioned four divisions leading in sugarcane production eleven had registered high to very high growth rates and only three had moderate i.e., less than 5 per cent but more than 2% growth in output in the period –I.

17. Growth performance was more uneven across the districts and the divisions in the second period, in addition to the overall deterioration experienced in them.

18. Out of 18 districts leading in cotton production seven registered negative growth in the early period, five contributed positively but with low growth rate (i.e. < 2%) and the remaining six registered growth in output at the moderate rate i.e., between 2% to 5%.

19. Distribution of districts across the growth categories remained almost invariant in the two sub-periods, despite significant downward and upward movement of the districts over the growth classes.

20. The regional pattern of growth performance changed distinctly between the two periods of the GR period. Pune division which ranged first in the sub-period I performed worst as cotton was almost eliminated from this division in 2003. At the other end improvement in performance was highest for Nagpur division and it moved to rank one. Amravati and Aurangabad followed it with 2nd and 3rd ranks.

21. Aurangabad division played a leading role in the agricultural growth process of the state during the GR period. In the early period cereals,
pulses, cotton and sugarcane were the prominent crops contributing to growth while in the latter period sugarcane and oilseeds followed by cotton were in the forefront. Thus, the pattern of growth in the recent period reinforced heavy emphasis on the commercial crops like sugarcane, oilseeds and cotton.

22. Amravati division displayed a unique characteristic of sustained growth across crops in the GR period with acceleration in growth in the later period. Growth was dominated by cereals, pulses and cotton in the early period and additionally by oilseeds in the second period. Among them growth momentum to output of pulses was highest in the eighties. Thus, even in absence of any emphasis on sugarcane production, Amravati division could achieve highest rate of growth in the second period.

23. Growth performance of Nasik division was the second-best in the initial period of the GR period and deceleration to moderate growth in the latter part. Growth in sugarcane output played the leading role in the entire period while cereals, pulses and oilseeds followed it.

24. Like Nasik division Pune too performed equally impressively in the early period of the GR period with emphasis on sugarcane, cereals, pulses and oilseeds too. Pace of growth decelerated for all the crops with the exception being of oilseeds alone, in which case its performance was next to Aurangabad division.

25. In Kolhapur division, a high and stable productivity region of Maharashtra, sugarcane crop overwhelmingly dominated the growth process in the first period followed by cereals. In the second period though pace of growth decelerated for sugarcane and cereals, it picked up for oilseeds and other commercial crops like tobacco. Yet, the contribution of sugarcane and cereals to growth in the overall crop output continued to be important and it continued its middle position with rank four among all the divisions.
Sustained moderate growth with higher stability was the main characteristics of growth in this region.

26. Overall pace of growth remained at moderate to low level in Nagpur division through the entire GR period. In the early period cereals and oilseeds followed by cotton played the leading role while main contributors in the second period were cotton, pulses and oilseeds. Similar to Amravati divisions, role of sugarcane crop was negligible in this part of Vidarbha too.

27. Konkan division remained at the bottom of the growth ladder with relatively moderate growth in cereals output in period I and some deceleration thereafter. Role of all other crops was by and large negligible in it.

B) IN NANDED DISTRICT

1. It is observed that the area under Rice production sharply decreased by 66.80% and due to this the production dropped by 72.54% and the yield also reduced by 15.87%.

2. It is found that the area under Wheat production reduced by 34.86% as well as the production declined by 33.82% and the yield also declined marginally by 1.49%.

3. It is seen that the area under Jowar production decreased by 31.94% as well as the production sizably dropped by 59.08% and the yield also went down by 39.86%.

4. In case of Bajra crop, the area under production gone down steeply by 71.42% as well as the production sharply dropped by 80.00% and decline in the yield is recorded as 29.57%.
5. As regards to **Maize** crop, the area under production reduced by 53.20% and due to this the production dropped has by 56.85% whereas the yield declined by 7.52%.

6. It is noteworthy to observe that the area under **Chickpea/Chana** production increased by 33.43%, in turn the production increased by 38.76% and the yield also gone up by 4.41%.

7. It is notable that the area under **Arhar (Tur)** production increased by 5.82% only but due to sharp decline in yield by 52.47% and the production is steeply dropped by 50.00%.

8. It has been observed that the area under **Black Gram or Urad** production decreased by 44.78% as well as the production also sizably dropped by 73.88% and yield also declined by 52.70%.

9. Similarly, in case of **Moong**, the area under production recorded a decrease of 27.27% which results sharp reduction in the production by 64.62% and the yield whereas declined by 51.35%.

10. It is invariably found that the area under **Groundnut** production went down sharply by 86.84% and thereby the production is sizably dropped by 95.28% and the yield also goes down by 64.02%.

11. It is found that area under **Seasamum** production sizably decreased by 65.38% as well as the production and the yield also dropped by 72.72% and 21.42% respectively.

12. The similar case has been observed that area under **Rapeseed & Mustard** production steeply decreased by 77.77% as well as the production is dropped by 50.00% on the contrary the yield conspicuously gone up by 127.27%.
13. As regards to the area under production of Linseed crop sharp declined by 75.00% is observed whereas the yield very steeply increased by 300.00% irrespective of the constant production.

14. In case of the area under Castor Seed production underwent by 71.42% due to which the production is sharply dropped by 75.00% and the yield reduced moderately by 13.04%.

15. It is found that the area under Safflower production conspicuously decreased by 99.06% which account similar decline in the production by 98.91% whereas the yield gone up by 16.41%.

16. As regards to Niger Seed production, it is observed that the area under production decreased by 40.91% naturally the production is dropped by 33.33% but the yield is increased by 7.14%.

17. In respect of Sunflower, the area under production is decreased by 34.73% and the production is dropped by 46.72% and the yield also declined marginally by 17.80%.

18. It is noteworthy to note that the area under Soybean production went up very steeply by 311.08% but production recorded moderate increase as 137.47% conversely the yield is declined by 42.02%.

19. In case of Cotton (Lint), a positive scene is visualized that increase in the area under production by 25.48%, sizeable increase in production by 51.07% and the yield also increased by 20.33%.

20. It is found that the area under Sugarcane production sizably went up by 164.82% as well as the production is also gone up by 110.16% but the yield is considerably declined by 20.62%.
8.2.3 Problems Faced by Farmers/Retailers and Commission Agents:

During the survey for the study, respondents belongs to various categories have reported their problems. Few of them have been reviewed in the following paragraphs:

1. **Problems of Crop Disease**

While cultivation of land and growing the various crops, these are often affected by the ravages of pests and diseases, thereby, lowering agricultural yield potential. Diseases also cause subsequent post-harvest transit and storage losses.

2. **Land Fertility Problem**

The soil of Nanded district have good physical properties with fast drainage even after the heavy rainfall but with adverse chemical attributes such as low soil pH, low contents of available phosphorus and low action exchange capacity and low levels of organic matter.

3. **Irrigation Problem**

Irrigation is another problem of agriculture in Nanded district. In month of May, a very horrible situation arises for drinking water supply. Then it is highly impossible to provide the water to agriculture sector. The water management is the basic problem of Nanded district.

4. **Seeds Problem**

Seed is the basic input of Agricultural Production. Farmers face the problem of high seed rates for quality seeds.

5. **Power Cut Problem:**

In Nanded district, rural electricity load shedding is 12 hrs., which is further increased in the month of April and May. Due to this situation it becomes a very difficult for the farmers to irrigate their crop land during summer season. Ultimately, this is affecting agricultural productivity of the district.
6. Man Power Problem

In Nanded district workers are migrating towards the city for the employment. Therefore, workers are not available as per the demand for agricultural activities. The daily wages rate of male worker is Rs. 200-250 in day and at night Rs. 300-350. The wage rate of Female workers is Rs. 150-200. And yearly wage rates are between Rs. 10000-24000 p.a., depending upon the area land.

7. Warehouse & Cold storage

For the storage of agri produce non-cold & cold storage is needed. There are few numbers government warehouses but private warehouses are more in numbers whereas Nanded district is popular for chili crop but there is only one cold storage. This situation compels the farmers either to pay high rate for the storage or sell their agri produce at the prices offered by purchasers which in turn results heavy losses for the farmers.

8. Transportation Problem

Transportation facilities to accelerate the development of agriculture sector wherein agriculture produce reach market at right within time without having any loss on the part of crop producers. In Nanded district different type of transportation means are used by farmers. Frequently the agricultural produce does not reach at market place due to non-availability of transportation means. So it becomes inevitable for farmers to sell their agri produce at local markets at the rate offered by local traders.

9. Exploitation by Commission Agent

Farmers used to sell all type of agri produces are sold to commission agent. The commission agents charge their commission 10% averagely on purchasing the agri produce. This problem is very complex because neither Government nor APMC have any control on commission agents. Also the agri produces are sold on the basis of auction method. But under this method, agri producers have to suffer from losses due to not getting the adequate price.
10. **Hurdles of the Schemes Beneficiaries**

Different types of schemes are provided by State and Central Government to the farmers for pre and post harvesting activities, but the information of these schemes does not reach to the farmers. The basic problem is that to generate the awareness about the state and central government schemes.

8.3 **ISSUES BEFORE THE INDIAN AGRICULTURE**

8.3.1 The biggest input for farmers is seeds. Before liberalisation, farmers across the country had access to seeds from state government institutions. For example, AP's APSSDC3 produced its own seeds, was responsible for their quality and price, and had a statutory duty to ensure seeds were supplied to all regions in the state, no matter how remote. The seed market was well regulated, and this ensured quality in privately sold seeds too. With liberalization, India's seed market was opened up to global agribusinesses. Also, following the deregulation guidelines of the IMF, 14 out of the 24 units of the APSSDC's seed processing units were closed down in 2003, with similar closures in other states. This hit farmer doubly hard: in an unregulated market, seed prices shot up, and fake seeds made an appearance in a big way. Output is not commensurate with the heavy investment in the seeds, and farmers are pushed into debt. The abundant availability of spurious seeds is another problem which leads to crop failures. Either tempted by their lower price, or unable to discern the difference, farmers invest heavily in these seeds, and again, low output pushes them into debt.

8.3.2 One measure of the liberalisation policy which had an immediate adverse effect on farmers was the devaluation of the Indian Rupee in 1991 by 25% (an explicit condition of the IMF loan). Indian crops became very cheap and attractive in the global market, and led to an export drive. Farmers were encouraged to shift from growing a mixture of traditional crops to
export oriented 'cash crops' like chilli, cotton and tobacco. These need far more inputs of pesticide, fertilizer and water than traditional crops. Farmers in Maharashtra who spent Rs. 90 an acre (AUD 2.5) now spend between Rs. 1000 and 3000 (AUD 28.5 – 85) representing a hike of 1000% to 3333%. Fertilizer prices have increased 300%. Electricity tariffs have also been increased: in Andhra Pradesh tariff was increased 5 times between 1998 and 2003. Pre-liberalisation, subsidised electricity was a success, allowing farmers to keep costs of production low. These costs increased dramatically when farmers turned to cultivation of cash crops, needing more water, hence more water pumps and higher consumption of electricity. It is noteworthy that only 39% of India's cultivable land is irrigated makes cultivation of cash crops largely unviable, but export oriented liberalisation policies and seed companies looking for profits continue to push farmers in that direction.

8.3.3 With a view to open India's markets, the liberalization reforms also withdrew tariffs and duties on imports. By 2001, India completely removed restrictions on imports of almost 1,500 items including food items. As a result, cheap imports flooded the market, pushing prices of crops like cotton and pepper down. Import tariffs on cotton now stand between 0 – 10%, encouraging imports into the country. This excess supply of cotton in the market led cotton prices to crash more than 60% since 1995. As a result, most of the farmer suicides in Maharashtra were concentrated in the cotton belt till 2003 (after which paddy farmers followed the suicide trend). Similarly, Kerala, which is world renowned for pepper, has suffered as a result of 0% duty on imports of pepper from SAARC5 countries. Pepper, which sold at Rs. 27,000 per quintal (AUD 771) in 1998, crashed to Rs. 5000 (AUD 142) in 2004, a decline of 81%. As a result, Indian exports of pepper fell 31% in 2003 from the previous year. Combined with this, drought and crop failure has hit the pepper farmers of Kerala hard,
and forced them into a debt trap. Close to 50% of suicides amongst Kerala's farmers has been in pepper producing districts.

8.3.4 Branco Milanovic, a World Bank economist describes how he believes liberalisation helps developing countries achieve growth: 'when a country lowers trade barriers, reduces government intervention in the market in order to allow market forces to operate freely, increases competition and attracts foreign investment, it will increase productivity and reduce inefficiency, which will lead to economic growth. What Mr. Milanovic neglects to mention, though, is that rich countries which now preach liberalisation protected their 'infant industries' at the time they began to industrialize, till they were strong enough to compete globally. The US government, for example, had a defending trade policy in the late nineteenth century to help US companies become competitive in the world. Besides, apart from wool, the US, Germany, Britain and France were all almost self-sufficient in the raw materials that they needed for industries, and took off from that platform, a luxury that India and other developing countries do not have. Most farmers in India were already in a position of minimum security, with no education system, credit facilities, access to alternative employment, or efficient technology. Their only support was government subsidy and regulation. Liberalisation policies came in and dismantled their only support structure. It halted the sharp reduction in rural poverty from 55% in the 1970's to 34% in the 1980s. Not only has the incidence of poverty in rural areas not gone lower than 34% in the 1990's, it has gone to higher levels of 42% in individual years.

8.3.5 Rural Credit - A Recent Paradox: Even today, after a significant growth of Indian Banking System, the study conducted by the Hindustan Times and Invest India Economic Times reveals the facts about failure of the institutional credit to meet the needs of rural people. The factual figures on rural credit supply during 2004 in percentages are as under. (1)
Money Lenders 70%, Public Sector Banks 10%, Co-operative Banks & Societies 9%, Government Loans 1%, Self Help Groups (SHGs) 1% and Others 9%. It is evident that domination of private money lenders is still persists about 70% in rural credit including agriculture.

8.3.6 Role of IT in agriculture development: The farmer of Nanded District and those who are working for their welfare need to be e-powered to face the emerging scenario of complete or partial deregulation & reduction in government protection, opening up of agricultural markets, fluctuations in agricultural environment and to exploit possible opportunities for exports. The quality of rural life can also be improved by quality information inputs which provide better decision making abilities. IT can play a major role in facilitating the process of transformation of rural Nanded to meet these challenges and to remove the fast growing digital divide.

The rapid change in the field of information technology makes it possible to develop and disseminate required electronic services to rural Nanded. The existing bottlenecks in undertaking the tasks need to be addressed immediately. A national strategy needs to be drawn for spearheading IT penetration to rural Nanded. A national coordinating agency with an advisory role can act as a catalyst in the process.

No single institution or organization alone can succeed in the task of e-powering farmers and rural Nanded. At the same time, scattered and halfhearted attempts cannot be successful in meeting the objective. Industries with major stake in villages, such as fertilizer sector, should come together to provide the initial impetus.

The success of any IT based service to rural Nanded hinges on evolving a proper revenue model for the dissemination points. The ‘clicks & mortar’ rural kiosks should be integrated with the ‘bricks & mortar’ industry to make them sustainable ventures by making them a business
gateway to rural Nanded. The information kiosks can draw revenue from the industry by providing and disseminating required services. Once these dissemination points prove to be economically viable, the IT revolution in rural Nanded will require no crusaders.

8.4 POLICY IMPLICATIONS

Conclusions emerging from the analyses of various aspects of agricultural development in Maharashtra and Nanded District provide important directions for reorientation in the agricultural development strategy to be pursued in future. In this respect, Researcher made comments mainly to three areas, namely, irrigation, technology and infrastructural development.

8.4.1 Irrigation:

Progress of agricultural growth in Maharashtra undoubtedly linked to the pace of development of irrigation in future. But gains in productivity from expansion in irrigation and its output stabilizing impact would inextricably depend upon the degree of its dispersal across the crops and operational efficiency of the irrigation systems. Experience of the past, however, has been very unsatisfactory in this context.

Water supply for irrigation has been progressively diverted to sugarcane crop particularly during the eighties with simultaneous fall in its yield per hectare in almost all the sugarcane growing areas. Operational efficiency of the public irrigation systems too deteriorated with significant reductions in the expenditures on repair and maintenance of the systems. (2)

Deficiencies in operational performance of irrigation systems are also linked to non-compatibility of the distribution systems with the schedules of water requirements of crops grown in the command area. The latter, many a times is the result of weak coordination between irrigation and agriculture departments of the state especially during the stage of project formulation and the engineering-oriented programs of CADA. Besides, inefficiency in power supplies (e.g. frequent
power failures and load fluctuations) in many rural areas has adversely affected
efficiency in use and management of water supplies from the privately owned
wells and privately and collectively operated lift irrigation systems. Therefore,
there is an urgency to correct the situation. On the one hand adoption of coercive
policies, such as denying flood irrigation to sugarcane farms or at least restricting
significantly their access to water supplies and making use of water economizing
devices like drip sets or sprinklers etc., compulsory, especially for water intensive
crops, has become all the more inevitable. On the other hand, concurrent and
significant improvements in dependability of water and power supply and in
quality of the associated services are also called for. The problem is, without
financial sustainability of the systems the latter i.e., improvement in their
operational efficiency cannot be achieved.

There is yet another major problem of the large backlog of the existing
irrigation projects in the state. Indeed, the backlog is reported to be highest in
Maharashtra among all the states (3) completion of these projects is equally
important as commencement and execution of new projects. In respect of both,
the regions which have received negligible benefits from the past investment in
irrigation, like Amravati and Konkan divisions should get preferential treatment.
Besides, as regeneration of water resources is fundamental for their increased
utilization in many water scarce areas of the state, development of watershed and
location specific water conservation techniques must progress simultaneously
with the development of irrigation compatible with the former. This implies
integrated planning and concurrent investment in both. In other words, financial
support needed to accelerate development of irrigation and improve performance
of irrigation sector would be stupendous, though increased finance alone would
not be enough. Therefore, three types of significant adjustments in the policies
must be initiated.

One, allocation of public resources for agricultural development and along
with it for irrigation and watershed development deserve to be stepped up
progressively. This represents a clear departure from the near-stagnancy of public investment in agriculture in Maharashtra in the eighties.

Secondly, a phased program of increases in water charges and electricity tariffs whether for agriculture or other purposes must be implemented without delay, while ensuring concurrent improvements in management of the systems and increased allocations for their operation and maintenance.

Thirdly, to improve overall performance of the irrigation sector, farmers' collective participation in distribution and management of water in the public irrigation systems and private investment in future development of irrigation must be encouraged to the extent possible.

8.4.2 Technology Development and Extension:

Having exploited major gains of extensive diffusion of new seed-fertilizer technologies to a few cereal crops in the 1970 and thereafter to selected non-cereal crops during the eighties, the future task of development and extension of technologies for agriculture is now more complex and challenging.

Yield growth has already tapered off during the 1980 for crops like rice, jowar, wheat and maize grown under rained conditions in the state. Even at the national level, there are no significant break-throughs in the pipeline for immediate diffusion for irrigated cereals. Now the need of the hour is the focus should be more on achieving integrated and efficient management of all the input, both conventional and non-conventional. Special attention needs to be paid, in this context, to promote balanced use of fertilizers and organic manures and integrated pest management.

Emergence of gradual trend towards commercialization and diversification of agriculture has also added another challenging dimension to the technology development task. Unlike the past, it has to cover now many more crops, both cereals and non-cereals and devise the varieties for more heterogeneous environments in the rained farming areas from different parts of the state. A more pragmatic strategy under this situation, therefore, would be to concentrate on the
evolution of farming systems and cropping sequences/mixes etc., for promoting rapid rise in the aggregate land productivity rather than aiming at large increases in the yields of a few individual crops, through highly input-intensive technologies.

8.4.3 Credit Expansion and Infrastructural Development:

Intensive cultivation of land through progressive adoption of new technologies requires continued support of the adequate and unhindered flow of credit to agriculture. This need will become increasingly crucial as the trend towards commercialization and diversification of agriculture intensifies in future.

The flow of aggregate agricultural credit to Maharashtra has been more or less adequate in the past as the state's share in all India agricultural credit has been maintained apart from some Inter-year fluctuations, close to or above its share in all India net sown area\(^4\). The more disturbing issue is, however, of the significant inter-regional disparity in the flow of credit. Till 1990-91 shares of Vidarbha, Konkan and Marathwada regions in the state level agricultural credit continued to be below their shares in the aggregate net sown area\(^5\). The problem of inadequacy in credit appears to be more serious for Vidarbha region particularly the Amravati division.

Future expansion in agricultural credit, therefore, must be directed more towards these regions as far as possible. There too, the care has to be taken that the small and marginal farmers are not deprived off their due share in the aggregate credit flow.

Given the appropriate Irrigation and technology development it is the efficient infrastructure particularly good roads, communication and markets which create an enabling environment in which farmers receive their due share in prices paid by the ultimate consumers. Situation in this respect in many rural areas of Maharashtra is far from satisfactory. A collective or cooperative marketing on the part of the producers would greatly help in improving the situation.

Private sector's participation should also be encouraged to the extent feasible, particularly in relatively more developed and agriculturally progressive
rural areas requiring less state intervention. Lastly, we reiterate that concurrent improvements in the quality of state intervention are equally important as the size of investment.

8.4.4 Issue of Small and Marginal Farmers

Finally, a special reference to an important issue of the small and marginal farmers and the associated problem of enhancing productivity and efficiency of their farms is inevitable. This is because 74% of ownership holdings and 63% of operational holdings are 'marginal and small' in Maharashtra and they control about 20% of owned/operated area (NSSO, 48th Round, 1992) (7).

The alternative remedial measures may be devised to support the small and marginal farmers. For example, a phased programme of legalization of tenancy with a right of resumption to the land owner, after a minimum stipulated period may be desirable keeping in view wide-spread incidence of concealed tenancy arrangements (68% of area under unrecorded lease to total area possessed but not owned in Maharashtra as per NSSO, 48th Round, 1992) (8).

It is expected to help the small and marginal owners either to expand their operational holding by leasing in additional land or leasing out their land to others without losing its ownership. Such freeing of tenancy may initially be attempted in some selective areas and extended to the other areas after assessing its impact in the former (9).

8.5 SUGGESTIONS

1. Information Technology has become the core and fragile tool in the development of any business including banking. Particularly the banking sector when computerized can yield much benefit not only to the individual customer but also the society as a unit. IT has to be used to facilitate the easy processes of rural credit like accepting online loan applications, intimating the sanction of loans to the customers etc.
To increase the advances of the bank in the days to come, the bank is suggested to setup the credit-counseling centers at the district as well as taluka levels and create awareness over the issues like improved agricultural practices, lending schemes of bank and other related issues. Not only that, even the bank can too organize loan during cropping seasons to serve the customers to serve the customers at their door steps. This can help the rural poor to get required amount of loan at the right time and seldom approaching money lenders to take loan at an exorbitant rate of interest. Even the bank can motivate the farmers to establish Farmer Clubs and Joint Liability Groups for group lending that enhances the recovery position of the bank. Bank officials have to make periodical visits to villages to understand the requirements of the borrowers including the financial problems being encouragement by the rural customers. The bank can also appoint business facilitators for arrangement of loans and advances of loans and advances, who can minimize the work of bank staff as well as facilitate the rural customers for the easy loans. Hence, the bank is ought to shoulder the responsibility to impart training to the rural educated unemployed youth, who can act as liaison officers to spread the activities of bank and to inculcate credit culture among the rural people. On the other hand, the bank has to promote and encourage liberal finance even to the producers of various fruits in the orchards other than the traditional commercial crop products. Besides, the bank can promote SHGs in rural areas and utilize NGOs for its credit deployment so as to enhance the credit in the semi-urban and urban areas.
Finally, by providing overdraft facilities to the no-frills account holders and issuing credit cards to petty businessmen the banks are expected to see the increase in its customer's base and spread its business transactions.

3. The Subsidy should be released as parallel to the recovery of loan installments.

4. In order to enable the bank to sanction the loans without delay, the Government agencies should adhere to the quarterly targets assigned to them for sponsoring the applications.

5. The Bank Officials should be more careful while selection of the beneficiaries so that needy and eligible peoples will get the benefits of loan.

6. Beneficiaries of Agro activities follow the practice of getting the loans from various sources viz. private finances, money lenders etc. Such beneficiaries are expecting a loan facility of any bank for repayment of such loans, which may reduce the burden of heavy interest. It is therefore, suggested that, policy makers of bank should consider the issue positively.

7. The guidance bureau and consultancies for the guidance of beneficiaries belonging to priority sector should be formed for guiding them for various schemes. The training facilities as well as benefits gained by the beneficiaries in various states and countries must be formulated. This will stimulate to the beneficiaries to participate actively in the various schemes and set ideal example for other innocent beneficiaries.

8. Sanction of loans to the service units that provide heavy machinery for agricultural purpose and in turn making the farming more productive and profitable.

9. Now a day the main problem is the lack in cultivation of food items and it is difficult for making equilibrium in demand-supply. If it will continue, it will compel to import agriculture produces in future and to struggle for food in the drought time. So the relevant authorities working at various level to
introduce and promote modern agriculture practices/methods for the Indian farmers. That's why naturally the farmers are not interested in doing cultivation.

10. The issues in agricultural marketing such as Contract Farming, Group Marketing, Modern Terminal Market, Private Wholesale Markets, Public Private Partnership, Direct Marketing etc. needs to be popularized by conducting the Training and Awareness Programmes on massive scale on the lines of Market Infrastructure Scheme and Rural Godown Schemes. Encouragement of these initiatives will help in total supply chain management.

11. Ground water exploitation must be controlled.

12. In order to avoid misuse of water, living, eating and cropping pattern must be changed.


14. Each farmer must keep 1 to 2 percent land reserved to store rainwater in the field.

15. It is suggested that the government should release loans and advances to the agriculture, energy connection for Agricultural Pumps and to purchase electric motor, PVC pipes etc. with minimum interest rates.

16. The Dapoli Agricultural University successfully lifted six-meter ground water with the help of windmill, which shows that, windmill, is a powerful alternative technology.

17. Government should give dry land to private in the free of cost (like reliance industry, TATA etc.) to do agriculture. Government can also give subsidy, relaxation in tax to this private industry those who are coming to do agri. They can give employment to rural youth like supervisor for tomatoes, supervisor for rice like that. If we make tender like this, Researcher thing private industry will also come.
If it will be realized then Researcher will sure India will not have unemployment and also more chances in green revolution and for becoming developed nation.

To realize it, Indian top companies should come forward to do business in agriculture directly.

GENERAL SUGGESTIONS FOR THE IMPROVEMENT OF AGRICULTURAL DEVELOPMENT:

1. **Remunerative Prices for Pulses**: The minimum support prices for oilseeds, pulses and coarse grain should be fixed at such a level so that it would be as remunerative for the farmers to grow these crops as wheat and rice are. For this purpose it is necessary to impose minimum rates of import duty on these commodities within the bound rates of the World Trade Organisation-in order to stop their import completely.

2. **Promotion of Traditional Farming**: This strategy paid us rich dividends as expected which was termed as ‘green revolution’. However, now we have realised that due to excessive use of irrigation and fertilizers the fertility of the areas under green revolution has come down rapidly. Out of 23 micro-elements, 16 elements including iron element, zink, manganese, sulphur; ferrone, nitrozen, phosphate, potash etc. have been found lacking in the soil of these areas which needs to be corrected.

3. The farmers at individual levels and the NGOs have produced successful models at several places in the country, where the same quantity and of better quality foodgrains could be produced with less than half of the chemical elements. It is, therefore, essential to chalk out a programme to prepare compost with the residue of agricultural commodities and the garbage of villages, towns and cities. Similarly, wormi-culture which has been successfully experimented in regions like Rajasthan should get due attention.
4. It is also necessary to set up financial and institutional frame-work and promote food processing industry. This would reduce cost, improve quality of production and bring down pollution and would also reduce adverse effect on human health.

5. **Meaningful Minimum Support Price**: The Concept of minimum support price (MSP) has been devised in order to rescue farmers with procurement of agricultural produces when the market is volatile - which obviously would mean that procurement by the government agencies be the last resort.

6. **Removal of Export Restrictions**: The biological diversity of India is unique in the whole world. Our traditional crops could be sold at remunerative prices in the international market.

7. **Need to Promote Agro-based Industries**: Similarly, coarse grains produced in India are more useful due to rich-nourishing elements from human health point of view. These are being used as cattle feed since ages.

8. **Encouragement to Medicinal Plants**: There are vast potentialities of international trade in medicinal and fragrance giving plants and their products.

9. **Protection of Indigenous Cattle wealth**: India's cattle wealth is unique in the world. These breeds have got some special qualities which make them superior to even import breeds and cross breeds developed through imported ones. This is the greatest means of employment generation, to meet the requirement of nourishing foodstuffs in the rural areas and to improve the economic condition of small and marginal farmers. Imported breeds should be discouraged.

10. **Promotion of Animal Husbandry**: The animal husbandry enables one to earn more by using cow dung and of animal urine in the compost etc. than by selling milk. It is possible to resolve the problem of rising cost of
agriculture and the decreasing fertility of the land through effective use of cow dung along with garbage through advanced system.

11. **Step up Investment on Water Resources:** During the last two decades there has been steep decrease in public investment in the agricultural sector. The investment in irrigation has almost become stagnant.

12. **Afforestation Programme:** Increase in production of bio-products through afforestation has not received due attention. In this context the example of Finland is worth following. Finland is the second largest country of Europe from the point of view of area. Afforestation is done in 60 per cent of Finland’s total land area.

If the Central Government formulates an integrated policy and programme with cooperation of state governments there could not be a better programme to solve the problem of poverty, unemployment, starvation and under-nourishment in the country.

13. **Leasing of Land:** Consolidation of small land holdings is pre-requisite for economies of agricultural operation as this would ultimately lead to cost reduction and make agriculture competitive.

The government may lease wasteland under its control to the private sector specially for promotion of Agricultural Research & Development, which would require vast size of land. Similarly, Cultivation for export purpose, like medicinal plants, could be considered under this scheme.

14. **Integrated System of Agriculture:** To develop an integrated system of agriculture so as to reduce cost through converting residue of the crops, using cow dung of animals’ agro-wastes and garbage into organic manure. This would also resolve problems related to pollution and health.

15. **Rationalisation of Fertilizers Subsidy:** Subsidy amounting to several thousand crores of rupees is paid annually to chemical fertilizers.

Two measures are required for this purpose. One, dependence on chemical fertilizers be reduced and whatever subsidy is given may be paid
directly to the farmers or subsidy may be totally abolished and the minimum support price be increased in proportion to the increased cost.

16. Development of Agricultural Infrastructure: World Trade Organisation is being presented only as a danger and a challenge. However, this system has created a potential for export of Indian products. Hence it is also an opportunity. But for this purpose proper utilisation of bio-diversity of India and introduction of sanitary and phito-sanitary checking system and establishment of series of quality certification agencies and to promote trade by linking transport, cold storage and a series of vehicles having cold storage system to Air Ports and Ports is required. In this context, implementation of the proposed Agriculture Export Zones should be expedited.

17. Raising the crop yield on current agricultural land, as most land is not producing yields even close to the maximum possible (in part because modern technologies are not used). If the gap between current and potential yield could be bridged, the production of soybeans could be increased by 64% that of peanuts by 208%, pulses by 472%, and cereals by 170% over a period of several years. To increase productivity, one must also reduce losses from disease and pests, both during growth periods and after harvest (currently an average of 42% of crop yields is lost to these agents). Pest and disease-resistant varieties, better storage facilities and improved transportation could help in this, as well as the development of new high-yield crop varieties, suitable to local weather and soil conditions. Except for the "green revolution" with rice, less effort has been put into the development and study of tropical crops than temperate ones.

18. Retention of trees as crops to protect water and soil resources. In southern Malaysia, 60% of the forested area has been kept in forest, while the other lands are used for agricultural purposes (Spears, 1988). How
much of this land will remain protected with increasing demand for palm oil and other products is questionable, however.

19. **Development of agroforestry projects:** Cash crops might be raised in small-scale agroforestry plots. Such crops as avocados, papayas, peppers, palm fruits, mangos and many other local crops are being raised in this way in the Amazon. According to Spears (1988), the need for industrial wood could be provided by tree plantations of approximately 25 million hectares, about 10% of the remaining forest area, but as of the date of the article, only 2.6 million hectares of such plantations had been established. They could preclude the need to remove virgin forest, particularly if they consist of rapidly-growing species. Such projects can act as alternatives to the expansion of agricultural areas.

20. **Provision of governmental guidance and regulation:** The "green revolution" was successful and widespread only partly because of the dispersal of information to virtually all rice-growers. In addition, some coercive regulation was undertaken by governing bodies – usually local – in some places. In Bali, for instance, water for irrigation is provided only to those farmers who use the new varieties of rice.

21. **Projection TV system for market information Display:** This scheme is beneficial for the Agricultural large producer, commission agent they are sale their product getting the information from the above system & sale there product in those market they provide the maximum rate, also they are getting the information about government schemes.

Under this scheme, Projectiossssn TV System is installed at Market Yard in such a way that, daily arrivals, Agricultural and Agricultural information can be displayed effectively for the benefits of farmers and other concerns. This facility available at Dharmabad and Nanded taluka location.

Each of the APMC participating in the scheme has Projection TV System connected to computer with software for information display and Internet.
connectivity. The consolidated information of arrival and Agricultural is made available on MSAMB's web site. That is downloaded on the computer of Projection TV. The information can be displayed either APMC wise or Commodity wise on the TV through customized software developed in regional language.

This System may be used for following purposes.

✓ To display the information related to Post harvest technology, grading, packing etc.

✓ To display the information about new technology in agriculture, new seeds, fertilizers, pesticides, various crop diseases and solution for the same etc., for the use of farmers.

✓ The information about various schemes, projects of the State and the Central Government.

✓ For the training of farmers.

✓ While displaying Agricultural and other information, various advertisements can be displayed on commercial basis to get the revenue, which can be used for maintenance of this system.

The APMC of Nanded provides this facility but the farmers of Nanded district and other functionaries have no any information about that. So it is necessary to create the awareness of Projection TV.
REFERENCES:


3. Dhawan, B.D., (1996), 'Latent Threats to Irrigated Agriculture in the Ninth Five Year Plan" A paper submitted IIMA National Seminar on 'Agricultural Development Perspective for the Ninth Five Year Plan' (Mimeo). The case of Maharashtra seems to be unique. In the late 1980's the state alone accounts for about 20% of the total Irrigation projects under pipeline in India, with 31 major and 47 medium projects spilling over Into the 1990's, involving a total cost of Rs. 60 billion at 1980-81, prices......
Source: S. Mahindra Dev. ibid page VIII, para 14.


6. Researcher has grateful to M.L. Dantwala, Professor Emeritus, and University of Mumbai for his suggestion to make a reference to this issue.
