Enlarging Agriculture Export

Background -

Farming community in Maharashtra has always been progressive and innovative. It has tried new and improved inputs, technology and crop-pattern with and without support from the State agencies. Therefore, the State had to follow a very dynamic agriculture policy to meet the changing needs of its farmers.

In the present circumstances the State is faced with multifarious problems relating to its agriculture. It witnesses almost stagnant production of food grains, wide fluctuation of production of some of the perishable cash crops, problems relating to procurement of cotton, depleting ground water resources and major threat of land degradation due to imbalanced use of farm inputs. In this backdrop the ray of hope has been provided by the sound production-base for F & V.

WTO regime has provided opportunity to its farmers to get better access to world market but at the same time posed a challenge on the front of quality and cost of production. The domestic market has become more remunerative due to change in consumption pattern and increased purchasing power in urban India but weak domestic marketing network, market information system and infrastructure pose problems which can only be tackled by State intervention. The value addition to farm produce, post harvest handling, scientific storage, processing, marketing and export seem to open new avenues and opportunity for the farmers of the State.

Farmers of Maharashtra resorted to diversification due to absence of tangible benefits of Green Revolution. This is evident from the progress they have made in seed production, sugarcane cultivation, soyabean cultivation and especially the increase in horticulture plantations under E.G.S.
The scope of the study has been determined in this background, which may be summed up as follows -

- To analyze the present scenario and visualize the future requirement from point of view of exports.
- The study aims at flagging various interventions including policy reforms, Institutional reforms, infrastructure support etc.
- HRD needs to carry out the action plan.

### Common Constraints of Agricultural Export

- Restrictive & ad hoc trade policy towards agricultural products.
- High cost of production & export transactions.
- Lack of sound and efficient infrastructure for post harvest.
- Quality aspects neglected
- Inadequate efforts in market development & brand building
- Over-dependence on few markets

#### 2. PRESENT SCENARIO

Maharashtra is one of the States not favored by nature in terms of soil type and rainfall. Agriculture on light soil and drought prone areas has not been remunerative for the farmers. The benefits of green revolution, which took place in 60’s, could not benefit the farmers of the State substantially as the paddy growing areas of the State are rain fed and the State is not very suitable for wheat production. The introduction of hybrids in kharif sorghum resulted into increased production of the grain. But the grain was of poor keeping quality, which had the further problem of blackening in event of late rains in Sept-Oct. The marginal increase in farmers’ income was not enough to sustain the interest of farmers in these crops only. Therefore, the farmers of the State always looked for diversification of agriculture.

Diversification of agriculture towards seed production in most of the parts of central and eastern parts of Maharashtra in late 60’s and 70’s was marked by diversification towards sugarcane-based cropping system in western Maharashtra. The next phase of diversification was marked by introduction of soybean as commercial oil seed crop and planned introduction of wide range of horticulture crops under Employment Guarantee Scheme (EGS). Though, oranges of Nagpur, banana from Jalgaon and grapes from Western Maharashtra do not get overshadowed while making the milestones of diversification of agriculture of the State.

Above mentioned diversification of agriculture has, at all points of time, paid dividend to the farmers of the State, though the sustainability pattern of each phase has been different. Due to increased role of private seed companies - who were always looking for low cost of seed production, invented the preferential suitability of parts of Andhra Pradesh and Karnataka States for seed production, which resulted into decrease in seed production activities in the State. International prices of soybean. Import policy for edible oil has adversely affected the soybean production and soybean based industries in the State.
Sugarcane, banana and orange based cropping systems have resulted into depiction in ground water resources and therefore have its own limitations. The area expansion under horticulture crops of wide ranging varieties have provided a sound base of production of fruits like pomegranate, cashew, mangoes, sweat oranges, lemon, sapota, custard apple, tamarind, amala and what not.

Common constraints on exports of agricultural exports

1. Restrictive and ad hoc trade policy towards agricultural products;
2. High cost of production and export transactions;
3. Lack of sound and efficient infrastructure for post harvest;
4. Management such as storage, cold storage, and bottlenecks at mandies (Insufficient & inadequate storage & handling facilities at ports of shipment)
5. Absence of adequate & timely market intelligence for producers & exporters;
6. Poor quality of the products & absence of standard, presence of high level of pesticide residues;
7. Poor quality assurance system & absence of certification system to conform to international requirements;
8. Lack of modern & technologically sound certification agencies & laboratories;
9. Absence of appropriate technology protocols for handling, storage, and transportation;
10. Inadequate efforts in market development & brand building;
11. Over-dependence on few markets.

3. STRATEGY FOR 10TH PLAN PERIOD

The State's policy for the 10th plan period is marked by increased emphasis given to technology transfer to farmers for globally competitive production in terms of quality and cost. The post harvest handling, value addition, processing, scientific storage, modern marketing system and export promotion are the main features of the policy. The State is sensitive towards the need of techno-infrastructure and market intelligence, product development and product promotion.

During this period the identified problems are being handled by adopting the following strategy -

- Undertaking studies to scientifically define the constraint and identify the alternative solutions
- Making gap analysis in infrastructure, technology and trained manpower
- Identify areas requiring policy and institutional reforms
- Organizing awareness campaign for the farmers of the State for the new regime of WTO
- Removing the structural barriers in tackling the issues of production, PHM, processing and marketing
- Diversification of agriculture towards horticulture, medicinal and aromatic plants, spices etc
- Application of IT in agriculture for addressing mass of farming community for transfer of technology
- Capacity building for extension workers
• Giving due importance to frontier technology as R & D policy.

4 LONG TERM STRATEGY

Long-term strategy towards agri-exports may be defined, in view of terms of reference of the Committee, as strategy, which visualizes long-term problems and suggest solutions accordingly.

Following are the milestones for long-term policy in this regard -
• Setting quality parameters for various agricultural produce on scientific lines,
• Standardization of production technology for export quality production at globally comparative prices to serve dual purpose of protecting domestic market from imported farm produce and getting increased access to export market,
• Mapping of PHH infrastructure such as cold chain, sorting and grading / pack houses, packaging, transport and storage and marking gap analysis.
• Identifying the need for varietal changes in crops from point of view of requirement of end user,
• Identification of technology gap in production, plant protection, PHH, processing etc.
• Market sector reforms for domestic marketing system,
• Setting a system for market survey, market intelligence, market information, product development, product promotion in place - especially with respect to transit markets (domestic) and export destinations,
• Application of IT in agriculture extension and information dissemination,
• Assessment of HRD needs in changed scenario,
• Increased participation of private sector and women

5. INFRASTRUCTURE REQUIRED-

Post harvest handling by scientific methods not only reduces post harvest losses of farm produce but also makes quality material available for agribusiness and raw material for value addition and processing.

Agriculture engineering wing of the sector of agriculture in public sector, has remained almost stagnant so far as development of latest infrastructure in terms of plants and machinery is concerned. Even the ‘minimum technical specifications, performance parameters of such equipment do not match the actual requirement of farmers. Except for the segment of items reserved for SSI units others have undergone a lot of technological upgradation by private sector’s effort.

Road, water and power are other important infrastructure whose support is required for increase in agribusiness. Out of these road development plans are better implemented than irrigation and power sector.

Cold chain, pack houses, scientific storage, advance markets are some other essential ingredients of infrastructure.
Access to rail-head, port and cargo terminals of air-port are of equally high significance.

In case of the State of Maharashtra the farm mechanization is of moderate nature. Road, water and power availability is better than many other States. Except the liberal water and power policy for irrigation water has adversely affected our valuable land resources.

The state has too many cold storage, which are not economically viable. There is strong need to do the mapping of cold chain infrastructure and have a policy to make them viable by getting them business for minimum of 300 days in a year. Controlled atmospheric storage system are still not standardized for tropical fruits grown in the State.

The state has international air-port at Mumbai and sea ports at BPT and SNPT, which puts it in advantageous position. However, small ports can be developed in mango producing area to save cost on transport. Air cargo terminal at Sahar (Mumbai) is not yet provided with cold chain of adequate capacity.

Following infrastructures are required to be developed as a long term strategy.
- Cold chain as per requirement identified after proper mapping as discussed above (at present there are about 161 cold storages in the state but majority of them are concentrated in Western Maharashtra and hence there is no uniform distribution of them leading to under utilization of this facility in some areas and cut throat competition in other area)
- Minor ports in Sindhudurg and Ratnagiri districts to facilitate direct exports cutting down transport cost
- Cashew processing units in Konkan
  (With rapid increase in area under cashew cultivation under EGS linked Horticulture Development Programme, need for promotion of cashew processing in the state itself was given main thrust. Today under workplan so far more than 400 cashew processing units have been established and around 450 units will be established during 2002-03. Thus the 70% of the state’s cashew production which otherwise was going to other states like Kerala, will gradually processed in the state, providing employment opportunities and scope for value addition. Such as project is also promoted by NABARD at Gopuri (Dist. Sindhudurg) in the form of cashew cluster.)
- Food parks for processing of major fruits, which requires expensive and hi-tech common facilities such as oranges, sweat lime, pomegranate, and mangoes
  (the state has already established one food park at Butibori, Dist. Nagpur.)
- Bio-technology park to facilitate availability of expensive infrastructure to industries
- Fully developed agri-export zones for grapes, mangoes, cashew, onion, pomegranate, oranges, banana etc.
  (Maharashtra State Agricultural Produce Marketing Board and Maharashtra Industrial Development Corporation (MIDC) have taken initiatives and has identified few areas as Agri Export Zones such as Aurangabad for kesar mangoes, konkan for Alphonso mango , Grape and Grape wine at Nashik and
Sangli. Besides this vapour heat treatment plant is set at APMC, Washi for control of fruit fly in mango)

- Modern flower auction house
  (Considering the growing area under floriculture and especially inhouse cultivation, the State Government has taken initiatives to establish flower auction centre at Goregaon, Mumbai on the lines of Dutch auction market.)
- Air cargo terminal with cold chain at Mumbai and Nagpur
- Rural godowns for storage of non perishable farm produce
- Farmer level Onion Storage System and Market level Hi-tech treatment system for enhancing self life such as irradiation (Maharashtra is a major state producing onions. To minimize losses in storage, assistance for erection of improved onion storage structures is given. So far 988 such structures are erected in farmers fields and 1180 will be erected during 2002-03.)
- Advanced and developed markets - on concept of NDDB markets for F & V
- Web based Market Information System and information Kiosks (The State Government has launched website “phalbazar.com” on which market rates of all APMC s is available. In future this type of facilities will gain momentum. Besides this the department is promoting Agri-information centres through which the farmers will have access to world market.
- Video conferencing facilities for farmers- researchers-extension workers interface
- On farm vegetable and fruits storage /processing /preservation and packing facilities
- Post harvest technology department should be established in Agriculture University for horticultural crops.
- Setting up Agri export zones the crops having export potential like grapes, banana, mango, onion, pomegranate, cashew, chilli and orange.
- Multi chamber cold storage on large scale to be established
- For quickest transport of horticultural commodities special railway wagon should be developed incusultation with railway dept.
- Crop wise commodity board for mango, santra, onion, banana, sapota, cashew to be established in maharashtra to have coordination between various dept. like Coop, Agril. Universities MIDC Industry etc.
- To promote the precision farming concept to the farmers.
- For promotion of vegetable production concept of shed net cultivation should be promoted.
- Agro Horticultural cropping system should be promoted
- To promote monsoon harvesting techniques for horticultural crops.
- Promote the concept of Integrated Pest Management (IPM) and Integrated Nutrient Management (INM)
- Intercropping concept should be promoted in dry land farming
- Beekeeping from horticultural production point of view to be promoted
- To finalize the export oriented production standard
- To carry out study on the crop competitiveness in international market
- To develop alternative traditional mango verities against Alphanso
- To establish the food park facilities processing of major fruits which requires expensive and hi-tech common facilities
- Setting a system for market survey, market intelligence , market information ,
product development, product promotion with respect to transit markets (domestic) and export destination

6. TECHNO-INFRASTRUCTURE GAP

In WTO regime non-tariff barriers are going to be more difficult to counter than the tariff barriers. Techno-infrastructure help us in maintaining quality of farm inputs and output.

Following are major techno-infrastructure required for maintaining quality of inputs and quality of production in context of the State.

- The laboratories should be established for testing of genetic purity, Eliza test and other important Tests.
- Tissue culture laboratories should be established for production of quality planting material by using tissue culture i.e. micro-propagation techniques.
- Development of facilities for production of disease / virus free planting material
- Leaf and Tissue Analysis labs
- Residue testing labs at Nashik, Thane, Aurangabad and Sangli.
- Facilities for VCU testing of planting material under new (draft) Seed Act
- Creation of facilities for DUS testing as per National Guidelines under Plant Variety Protection Act 2001
- Phytosanitary labs at the level of phytosanitary certificate agency
- Modernizing of quarantine testing facilities
- Short term and medium term Weather Forecasting Facilities
- Pest and Disease Forecasting Centres
- Bio-technology park to facilitate availability
- Bio-agent labs
- Advance Fertilizer, Pesticide and Seed Testing Labs
- Food Testing labs- to check quality standards of food material targeted for exports (In addition to test the samples of fruits, flowers, vegetables and processed foods imported in India)
- Upgraded Virology labs
- Advanced Soil & Water Testing labs

7. TECHNOLOGY AND R & D NEEDS

- Varietal changes in F & V to meet the requirements of end users (Majority of the available varieties of horticultural crops are not suitable for processing on account of low TSS contents, colour, pulp ratio etc. Unless varietal changes are made this sector can not be exploited properly.)
- Scanning of planting material from various sources all over the world in F & V for selective imports for multiplication in public sector till public sector R & D has yielded desired results (Contribution of public sector in releasing varieties is very migre. Considering the international market trend, market potential for India, relevant germ plasm from all available resources must be screened to become self sufficient in getting varieties of International quality)
• Advanced Technology for food processing including fruit processing for citrus, banana, pomegranate, sapota etc. for making RTS (Ready to serve) drinks etc.
• Technology for advance packaging
• Technology for CA storage of tropical fruits
  (The controlled atmosphere storage facilities today available are not tuned to the need of tropical fruits. There is also need for multi-crop, multi-chamber type of cold storages. This technology should be environmentally friendly.)
• Application of bio-technology in food processing and plant genetics
• INM and management of micro nutrients to crops with special reference to horticulture crops
  (Integrated nutrient management is still in its childhood. Except for few crops such as grapes, it is not yet thought of The basic limitation is non availability of proper fertilizers. Maharashtra has recommended few grades of liquid fertilizers. The department has extended assistance to SAU’s for setting up of leaf and tissue analysis laboratories)
• Complete IPM package in horticulture crops, maize etc.
• Further R & D for varietal development of hybrid seeds in paddy for Vidarba region, tur, pulses and oilseeds including need base Breeder seeds.
• Improving efficacy of bio fertilizers
• Short term and medium term weather forecasting system
• Pest and disease forecasting
• Crop health monitoring and area survey by satellite imageries for kharif and horticulture crops
• Technology for leaf and tissue analysis for making recommendations for INM
• Preparation of Crop wise Good Management practices should be made available to the farmers.
• Guide to the farmers for maintained of GMP record for export purpose
• To finalize the packaging standard for all horticultural commodities which have export potential
• To finalize the codex standard for exportable horticultural crops like grape, mango, onion, pomegranate, cashew etc.
• Establishment of Vapour Heat Treatment plant at sindhudurgh district for export of Alphanso Mangoes.

8. **Strengthening of marketing facilities**

• Marketing cooperatives should be established in horticultural areas. This would link producer with consumers.
• Rayat Bazars on the lines of Andhra Pradesh should be organized all over Mahrashtra. All municipal bodies should create necessary in fracture for that.
• Weekly bazaars for sale of vegetables, fruits and lowers should be organized in every village. The village panchayt should be creating necessary in fracture for weekly bazaars.
• The village woman are given training in scientific preservation fruits and vegetables,
• The micro-credit Groups movement whish is known as ‘Bachat Gats’ has been widely spread all over Maharashtra. This movement has empowered women both rural and urban areas. Self-employment for women would be
generated both in rural and urban areas.

- Co-op marketing societies to be established in each villages
- On the basis of mother dairy NDDB project in New Delhi. The fruit and vegetable marketing center at metropolitan city like Mumbai, Pune Csalapur, Nagpur, Nasik, Aurangabad etc.

Credit facilities for horticulture / Agriculture produce should be given by NABARD on 5 to 6 % interest rate.

9. HUMAN RESOURCE DEVELOPMENT

Available Infrastructure

Maharashtra has satisfactory infrastructure for human resource development. The state has 4 agricultural universities with 4 colleges of horticulture under them and around 6 private colleges of horticulture affiliated to them. Besides this there are 3 NRC’s in the state i.e. for grapes, citrus and onion and garlic. One more NRC is proposed by the state for pomegranate. The state has renouned institute viz. Water and Land Management Institute at Aurangabad rendering training and education to the staff as well as farmers about water and land management. The state has established hi-tech floriculture unit at College of Agriculture, Pune to demonstrate inhouse cultivation of flower crops, vegetables etc. to the farmers. One Centre of excellence is established for tissue culture at SAU, Parbhani. The state also has renouned institutes like Vasantdada Sugar Institute, at Pune, which guides sugarcane growers as well as factories about cultivation of sugarcane and making its bio-products. The state has one Open university i.e. Yashawantrao Chavan Open University, at Pune. The Maharashtra State Agricultural Research and Education Council conducted massive programme of training on minimal qualification regarding various aspect of floriculture, processing, flower arrangements etc. The state department started refreshing course for its staff. The department has seven training institutes of which two are designated for horticulture and the third one is for agribusiness.

Though the state is having basic infrastructure and facilities for human resource development in the state still much more is yet to be achieved. There is need for expertise in many fields such as

- Micro irrigation services (layout, installation, maintenance etc.)
- IPM, INM consultants
- Green house (project preparation, erection, planting and aftercare, market assessment etc.)
- Controlled atmosphere for storage of fruits and vegetables
  (Controlled atmosphere unit should be environment friendly, designed in a multi-crop multi-chamber etc.)
- Capacity building
- Agro information centres
- Agencies for certification of the produce as agricultural produce/organic etc.
- Export promotion agencies (assessment of international market, developing brand for Indian produce, promotional campaign for Indian commodities in international markets, facilities for residue testing laboratories etc.)

Need for human resource development to support the above mentioned actions is self-explanatory. The HRD program may be classified into following categories
1. HRD for Enabling Undertaking Research in the Field of Identified Frontier Technologies,
2. HRD for Other Priority Research and Adoption of Imported Technology,
3. HRD for Capacity Building for Technology Transfer to User Groups,
   - In public sector
   - In private sector
   - In User’s Group
4. For Capacity Building for Undertaking Self-employment in this Sector
5. HRD of Application of IT in Agriculture
6. HRD for Managerial Capacity Building-Review, Evaluation and Monitoring
7. Human resource development is very crucial for promoting horticulture development.
8. Organization of short term course oriented for self employment
9. Promotion of women participants in Agriculture
10. Special development programme for tribal area by doing micro level planning
11. Separate Dept. of Food Processing industries in Maharashtra State as per directives of Government of India should be established
12. The producer farmer will have to be given intensive training in handling horticultural products for exports.
13. Establishment of separate Directorate for effective monitoring of Agri business and export
14. To organise awareness campaign for the farmers of the State for the new regime of WTO

For undertaking HRD program of above mentioned magnitude and dimension, a multi-agency approach has to be followed. State has already endorsed to this view and Institute of Agriculture Extension Management has recently been set up. PHM is being taken care by MSAMB.

For undertaking R & D in hi-tech agriculture SAUs and Director of Horticulture have been provided with model training centres dedicated to F & V, mushroom cultivation and floriculture.

The State has four SAUs to meet the varied demands of different agro-climatic conditions, three NRCs, one training centre of CFTRI at Mumbai, Indian Institute of Packaging in Mumbai.

The State has set up separate university of Animal husbandry, dairy and fisheries at Nagpur.


10. POLICY AND STRUCTURAL REFORMS

- Introduction of New Seed Act and setting up support system for VCU testing
- Finalization of subordinate legislation’s for PVP Act 2001 and Setting support system for DUS testing in Order
- Market Reforms - APMC Act
- Public sector investment in non profit making key infrastructure
- Reorganization of DoA on Farming System Approach
- Tax policy for food processing industries
- Tariff policy for Hi-tech agriculture
- Tariff policy for imports to be sensitive to domestic producers’ protection
- Import policy for planting material in F & V in public sector for making new hybrids available to common farmers SSI related policies
- Labour laws-amendment
- Market Access Initiatives -New Role of Indian Consulates Abroad
- Synergy of DoA, Marketing
- Synergy of ICAR and CSIR
- Interface between MoC and MoA
- Forum for Coordination among Air Port Authority, Customs, Air Lines and Exporters, railway.

Executive summery

WTO regime has provided opportunity to get better access to world market but at the same time imposed a challenge on the front of quality and cost of production.

The state is facing with multiferrous problems relating to its agriculture. It witnesses almost stringent production of food grains, wide fluctuation of production of some of the perishable cash crops, problems relating to procurement of cotton, diluting ground water resources and major threat of land degradation due to imbalanced use of farm inputs. In this context hopes have been provided by the sound production base for horticultural crops. Fortunately the diverse agro climatic conditions of the state are very congenial for cultivation of various horticultural crops.

Agriculture on light soil and draught prone areas is not remunerative for the farmers, Therefore, the innovative and progressive farmers of the state always looked for diversification. This includes seed production, horticulture plantation etc. Sugarcane, banana and orange based cropping system have resulted into duplication in ground water resource and therefore have its own limitation. The area expansion under horticulture crops of wide ranging varieties have provided a sound base of production of fruits like pomegranate, cashes, mango, sweet orange, lemon, sapota, tamarind, custared apple, amla etc.

However, important constraints like restrictive and ad-hoc trade policy towards agricultural product, his cost of production and export, transactions, lack of sound and efficient infrastructure for post harvest, cold storage and bottle necks at mandis, insufficient and inadequate storage and handling facilities at ports of
shipment, absence of adequate and timely market intelligence for producers and exporters, poor quality products, presence of high level of pesticide residues, absence certifications systems to confirm to international requirements, absence of appropriate technology protocols for handling, storage and transportation, inadequate efforts in market development and brand building and over dependence on few markets needs to be addressed.

For this purpose strategy and needs to be formulated for globally competitive production in terms of quality and cost. The post harvest handling, value addition, processing, scientific storage, and modern marketing systems and export promotion are the main feature of the policy.

Development of latest infrastructure, techno infrastructure, HRD and policy issues enlisted below needs to be addressed properly.

**Major recommendations.**

**Infrastrutural requirements.**
- Post harvest handling by scientific method.
- Food, water and power.
- Cold chain, pack houses, scientific storages and advance markets.
- Access to rail heads, ports and cargo terminals of air ports.
- processing units.
- Food parks, Bio-technology parks.
- Fully developed agri-export-zone.
- Modern flower auction house.
- Air cargo terminal with cold chain at Mumbai and Nagpur.
- Rural godowns for storage of non perisheable farm produce.
- Farm level improved onion storage structures.
- Advanced and developed markets.
- Web based market information system and formation of kiosks
- Video conference facilities.
- **Techno infrastructure.**
  - Leaf and tissue analysis labs.
  - Residue testing labs.
  - Facilities for VCU testing for planting material under new
    - ( Draft ) seed act.
  - Facilities for DUS testing as per PVP act.
  - Phytosanitary labs at the level of Phytosanitary certification agencies.
  - Modernization of quarantine testing facilities.
  - Wheather / pest and disease forecasting centers.
  - Bio-technology park to facilitate availability.
  - Advanced fertilizers and seed testing labs.
  - Food testing labs.
  - Up-graded virology testing labs
  - Advanced soil and water testing labs.
- **Human Resource Development.**
  - Development of expertise in various fields.
  - HRD for enabling undertaking research in the field of identified frontier technologies.
- HRD for other priority research and adoption of imported technology.
- HRD for capacity building for technology transfer to user group.
- HRD for capacity building for undertaking self-employment.
- HRD for application of Information technology in agriculture.
- HRD for managerial capacity building.
- HRD for review, evaluation and monitoring.

**Policy and structural reforms.**
- Introduction of new seed act and setting up support system for VCU testing.
- Finalization of subordinate legislation for PVP act 2001 and setting support system for DUS testing.
- Modification of APMC act.
- Public sector investment in non-profit making key infrastructure.
- Tax policy for food processing industry.
- Tariff policy for imports to be sensitive to domestic producer’s protection.
- Import policy for planting material in fruits and vegetables in public sector for making view hybrids available to common formers.
- SSI related policies.
- Labor laws amendments.
- Markets access initiatives and new role of Indian consulates abroad.
- Forum for coordination among sea, air port, authorities, custom, airline, exporters, railway, public and private research and development institutes, etc.