एपीडा
APEDA

कृषि और प्रसंस्कृत खाद्य उत्पाद
निर्यात विकास प्राधिकरण
(वाणिज्य एवं उद्योग मंत्रालय, भारत सरकार)

Agricultural and Processed Food Products Export Development Authority
(Ministry of Commerce & Industry, Govt. of India)

देवेन्द्र कुमार सिंह, आई ए एस
अध्यक्ष

D. K. Singh, IAS
Chairman

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Proposed Export promotion strategy of APEDA products

Government of India has a vision to double the income of farmers by the year 2022 - the 75th year of India's Independence. Export is an important activity and it has direct relation with the farmers' income. In this context, APEDA has initiated steps to frame export promotion strategy for APEDA monitored products. For this purpose, extensive consultations have been held with stakeholders on 11th July, 2017 and 28th July, 2017 to elicit their suggestions.

2. Now a draft Export Promotion Strategy of APEDA products (Part I) is placed in public domain to invite comments and suggestions.

3. APEDA is also simultaneously working on Part II of the strategy document which will focus on individual products. This document is under preparation and may take some time. Once ready that document will also be placed in public domain.

4. APEDA would be glad to receive any suggestions or comments which may be sent to Chairman, APEDA on email ID apedastrategy@apeda.gov.in within 30 days of this notice.

5. Comments with respect to any specific product may also be sent.

D.K. Singh
Chairman

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Export Promotion Strategy
Of APEDA products

(Part I)

The Agricultural & Processed Food Products Export Development Authority (APEDA)

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3, Siri Institutional Area
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New Delhi 110016

September, 2017

INDEX OF CONTENTS

INDEX OF TABLES

Export promotion strategy of APEDA Products

1.0 Introduction:

1.1 The global agricultural exports are approximately $1.57 trillion as per the WTO International Trade Statistics (2015). India's share in global export is about 2.2% and India ranks at 9th position in the world. The share of India is comparable to some extent with Indonesia, Thailand and Australia which are contributing about 2.5%, 2.3% and 2.3% of global trade respectively. The share of major players is indicated below:

Table-1: Major players in global agricultural trade

Rank	Major Players	% share
1	USA	10.4
2	Extra – EU (28)	10.0
3	Brazil	5.1
4	China	4.6
5	Canada	4.0
6	Indonesia	2.5
7	Thailand	2.3
8	Australia	2.3
9	India	2.2

1.2 Export of agricultural items contributes about 13.10% of agriculture GDP. Therefore, it has large impact on Indian economy. Now it is a well accepted fact that Indian agriculture has transformed from the era of production shortages to a country of surplus producer of various agricultural commodities. This present phase has brought into focus various new challenges relating to production,

transport logistics, agricultural marketing, and export to markets which have opened up due to market access.

1.3 Government of India has a vision to double the income of farmers by the year 2022 - the 75th year of India's Independence. Export is an important activity and it has direct relation with the farmers' income. The income of farmer may come from different sources like from production of rice or fruits and vegetables or production of milk, honey or eggs. However, if exports are enhanced then it helps in creating a demand factor in the market as bulk quantities are involved in exports which helps in providing a remunerative price to producer and the benefits of enhanced price is likely to flow back to the farmer.

2.0 Need for Export Promotion Strategy:

2.1 The total exports of agricultural products during 2016-17 are about $ 33.38 billion. This consists of APEDA products (more than 700 tariff lines) and other products like Marine products, spices, coffee, tea, tobacco etc. The share of APEDA products is valued at $ 16.25 billion which is about 49% of the total agri exports from India.

2.2 The data from the year 2000 indicates that there has been impressive growth in exports. Exports doubles up almost every five years. However, the data in Table -7 indicates that there has been a decline in exports now with respect to 2013-14. The exports have fallen from $ 22.71 billion (2013-14) , to $ 21.48 billion (2014-15) and then to the level of around $ 16 billion during the last two years. This trend needs to be curtailed. The major contributors of exports in APEDA products are Basmati rice and bovine meat. It may not be easy to double exports in the next five years from the present level. Therefore, there is a need for a

concerted and well conceived promotional strategy for the next five years period 2017-18 to 2021-22.

Table 2: Export of APEDA products

Qty: MTs Val: Rs Cr

Product Group	**2000-01**		**2005-06**		**2010-11**		**2015-16**	
	Qty	**Val**	**Qty**	**Val**	**Qty**	**Val**	**Qty**	**Val**
Cereals	2393082	3397	5401551	7233	5691810	15235	11825093	40624
Animal Products	325823	1631	1747659	3851	1334694	10499	1895497	29533
Other Processed Foods	917278	1792	726791	2849	1563891	8676	2585672	20112
Fresh Fruits & Vegetables	624412	850	1484611	1725	2099300	3972	4116402	10370
Processed Fruits and Veg.	438541	1269	992672	2627	837340	3575	880441	7152
Floriculture & Seeds	37360	191	42980	394	40529	481	33725	1076
Total	**4736496**	**9130**	**10396263**	**18679**	**11567563**	**42437**	**21336829**	**108867**
$ billion equivalent value		**2.00**		**4.21**		**9.30**		**16.28**

3.0 Where we stand in production?:

3.1 Analysis of FAO 2014 data indicates that India is a powerhouse of agricultural production. We are global players in terms of production in many crops. This is mainly due to the fact that we have diverse agro climatic zone which helps in production of large varieties of items and for longer duration.

3.2 Production of various agri-horti products is given as under:

Table:3 : Production of agri-horti products

Figures in million MTs

Product	World Production 2014	India production 2014-15	% share of India in world production	Major producing countries in order of ranking
Cereals:				
Rice	711.99	157.20	22.07	China, India, Indonesia, Bangladesh, Vietnam, Thailand
Wheat	653.99	95.85	14.66	China, India, Russia, France, Canada
Maize	657.29	23.67	3.60	China, Brazil, Argentina, Ukraine, India
Sorghum	56.90	5.39	9%	Mexico, Nigeria, Sudan India, Ethiopia
Millets	27.68	11.42	41.25%	India, Niger, China, Mali, Nigeria
Animal Products:				
Hen Eggs	1191.00	79.94	7%	China, India, Mexico, Brazil , Japan
Buffalo meat	3.70	1.62	43.78%	India, Pakistan, Egypt, China, Nepal
Goat meat	5.28	2.10	39.77%	China, India, Pakistan, Nigeria, Bangladesh
Fresh Fruits & Vegetables:				
Banana	108.35	29.72	27%	India, China, Philippines, Brazil, Indonesia
Papaya	11.56	5.63	49%	India, Brazil, Nigeria, Indonesia, Mexico
Mango, Mango-steen,Guava	44.27	18.43	42%	India, China, Thailand, Indonesia, Mexico
Apple	75.60	2.49	3%	China, Poland, India, Turkey, Italy
Grapes	63.92	2.59	4%	China, Italy, Spain, France, Turkey, Argentina, India

Product	World Production 2014	India production 2014	% share of India in world production	Major producing countries in order of ranking
Oranges	61.28	7.31	12%	Brazil, China, India, Mexico, Spain
Pineapple	23.72	1.37	6%	Costa Rica, Brazil, Philippines, Thailand,. China, Indonesia, India
Citrus	12.08	0.74	6%	China, Nigeria, India, Columbia, Angola
Tomatoes	147.90	18.74	13%	China, India, Turkey, Egypt, Italy
Potatoes	349.93	46.39	13%	China, India, Russia, Ukraine, Germany
Peas Green	17.03	3.86	23%	China, India, France, Egypt, UK
Eggplant	49.06	13.58	28%	China, India, Egypt, Turkey, Indonesia
Processed fruits and vegetables:				
Groundnut	39.40	6.55	17%	China, India, Nigeria, Sudan, Argentina
Cucumber & Gherkins	7.17	0.17	0.24%	China, Russia, turkey, Ukraine, Spain (India-25th)

4.0 Global demand for agriculture/horticultural products:

4.1 The global demand depends on various factors. In case of agricultural products, there is a strong preference of buyers (consumers) besides other issues. These factors may not match with the nature of production from a country.

4.2 In the global market current demand for some select products is as follows:

Table-4 : Global demand for select products

Product	Global import - $ bn	India's share - $ bn	Top importing countries	Top exporting countries
Cereals:				
Sorghum	0.03	0	Mozambique(66.66%); Barbados(33.33%)	Zimbabwe, USA, South Africa
Maize	31.90	0.18	Korea Republic(13.87%); Japan(10.10%); Mexico(7.57%); Czech Republic(7.12%); Egypt(5.60%)	ÙSA, France, Brazil, Argentina, Poland, Ukraine
Animal Products:				
Poultry meat	2.5	0.013	Saudi Arabia(9.55%): UK(7.78%); Japan(7.19%) , Hong Kong (6.55%); France(5.11%)	Brazil, The Netherlands, Germany, USA, Belgium
Milk Powder	5.00	0.030	China(12.11%);Hong Kong SAR(10.85%); Algeria(8.04%); Mexico(5.12%)	The Netherlands, France, New Zealand, Germany, Denmark; Sweden, USA
Cheese	16.18	0.003	Germany(17.39%); USA(7.04%) UK (6.33%); Italy(5.73%); France(5.25%)	France, Germany, Italy, New Zealand, the Netherland, Belgium UK
Other Processed Foods				
Sweet biscuits	7.19	0.103	USA(13.15%); France(7.39%); UK(6.26%); Germany(6.01%); china(4.24%)	Canada, Mexico, Germany, UK, Belgium, Netherland, Poland
Wine	2.57	0.003	USA(16,82%); UK(13.57%); Germany(8.23%); China(6.10%); Canada(5.98%)	Italy, France, New Zealand, Spain, USA, Chile
Infant food	8.99	0.010	China(28%); Saudi Arabia(7.25%); UK(6.03%);China Macao SAR(3.54%)Germany(3.52%)	Germany, Netherlands, Ireland, Thailand, Singapore, USA
Cassava	0.08	0.002	USA(21.95%); Korea Republic(8.54%); China(8.45%); France(6%); Czech Republic(4.88%)	Thailand, China, Indonesia, Other Asia, USA

Product	Global import - $ bn	India's share - $ bn	Top importing countries	Top exporting countries
Starch	3.65	0.07	China (22.95%); Indonesia(9.70%); USA(6.08%); Other Asia(5.09%) ; Korea Republic(4.88%)	Vietnam, China, Germany, France, Thailand, Denmark, Netherland
Fruits & Vegetables				
Tomatoes	6.4	0.07	USA(24%); Germany(15.27%); Russia(8.01%); UK(7.60%);France(7.30%)	Mexico, Netherland,. Japan, Italy, Spain
Potatoes	2.75	0.069	Netherland(9.28%); Belgium(8.40%); Russia(8.39%) Germany(5.44%); Spain(5.26%)	France, Netherland, Egypt, Germany, Spain, China,
Bananas	11.60	0.020	USA(17.28%); Belgium(8.08%); Germany(6.95%); Russia(6.52%) Japan(6.04%)	Ecuador, Philippines, Costa Rice, Guatemala Columbia
Grapes	8.36	0.17	USA(18.26%); UK(8.05%); Germany(7.89%); Netherlands(7.55%); China(7.01%)	Chile, USA, Italy, Netherland, Spain, South Africa, India
Mandarins	4.21	0	Russia(14.54%); France(9.85%) Germany(9.84%); USA(9.53%); UK(9.08%)	Spain, Turkey, Morocco, Chile, South Africa
Mango, mangosteen and guava	2.41	0.48	U SA(22.50%); China(10.76%); The Netherlands (9.64%); Germany(7.03%); UK(6.74%)	Thailand, Brazil, India, Pakistan, Peru, Philippines, Indonesia
Pineapple	2.41	0.004	Usa(27.95%); The Netherlands (6.35%), Germany (5.77%); UK(5.73%); Belgium(5.15%)	Costa Rica, The Netherlands, Mexico, Other Asia
Processed Fruits & Vegetables				
Cucumbers & Gherkins	0.43	0.18	Canada(9.2%); USA(9.2%); Germany(8.52%); France(8.30%) France(8.3%)	USA, India, UK, Germany, Turkey, Vietnam

Source: UNCOMTRADE (Update as on 15.01.2017)

4.3 However, in spite of such good production, India is not able to export its products even in cases where there is market access available. There are various issues being faced by Indian agriculture like low productivity, high logistics costs,

stringent and ever changing global sanitary and phyto-sanitary standards, lack of adequate post harvest infrastructure, connectivity with ports etc.

4.4 The disconnect between production and export can be seen from the table given below:

Table-5: Disconnect between production and export

Product	**World Production 2014 mMTs**	**India production 2014-15 mMTs**	**% share of India in world production mMTs**	**World import In mMTs**	**India's export mMTs**	**Share of India's export in world import mMTs (%)**
Cereals:						
Rice	711.99	157.20	22.07	31.93	10.64	33.32
Wheat	653.99	95.85	14.66	130.83	0.22	0.52
Maize	657.29	23.67	3.60	153.74	0.57	0.37
Sorghum	56.90	5.39	9%	6.54	0.053	0.81
Millets	27.68	11.42	41.25%	0.23	0.048	20.86
Animal Products:						
Hen Eggs	1191.00	79.94	7%		0.37	
Buffalo meat	3.70	1.62	43.78%	9.28	1.28	13.79
Goat meat	5.28	2.10	39.77%	0.05	0	0
Fresh Fruits & Vegetables:						
Banana	108.35	29.72	27%	16.95	0.11	0.65
Papaya	11.56	5.63	49%	0.30	0.02	6.66
Mango, Mangosteen, Guava	44.27	18.43	42%		0.064	
Apple	75.60	2.49	3%	6.88	0.021	0.31
Grapes	63.92	2.59	4%	3.28	0.20	6.09
Oranges	61.28	7.31	12%	5.30	0.04	0.75
Pineapple	23.72	1.37	6%	2.75	0.005	0.18
Citrus	12.08	0.74	6%	0.04	0.04	?????
Tomatoes	147.90	18.74	13%	5.53	0.27	4.88
Potatoes	349.93	46.39	13%	8.84	0.39	4.41
Peas Green	17.03	3.86	23%	0.25	0.02	8

Product	World Production 2014 mMTs	India production 2014-15 mMTs	% share of India in world production mMTs	World import In mMTs	India's export mMTs	Share of India's export in world import mMTs (%)
Eggplant	49.06	13.58	28%	0.33	0.00001	0.003
Processed fruits and vegetables:						
Groundnut	39.40	6.55	17%	1.74	0.73	52.14
Cucumber & Gherkins	7.17	0.17	0.24%	2.40`	0.072	1.13

4.5 India's low share in global trade despite being major producer: The following table displays the huge gap between top ranking products of India in terms of production and world position and the country's share in global export trade. It is observed that in several items India ranks between 1 to 7 in production but in terms of export its share is far too less. India has achieved higher % share in export in case of grapes due to creation of large number of pack house (>200) in grape growing regions of Maharashtra and establishment of strict monitoring of MRLs through NRC-Grapes at Pune.

Table 6: Production Versus export scenario

Rank in world production	Product	% share in world production	%share in global trade
1	Banana	27	0.34
1	Papaya	49	2.20
1	Mango, guava, mangosteen	42	2.75
1	Lime and lemon	20	0.39
1	Green Peas	27	2.04
2	Cabbage	12	0.02
2	Cauliflowers & Broccoli	36	0.005
2	Egg Plant	28	0.02
2	Potato	13	5.81
2	Tomato	13	1.13
3	Green Beans	23	0.02
4	Oranges	12	0.13
5	Apple	3	0.16
7	Grapes	4	1.58

4.6 The export of APEDA scheduled products during the last five years has been as under:

Table 7 : Export of APEDA products during last five years

Qty: m MTs Val: Rs Cr

	2012-13		2013-14		2014-15		2015-16		2016-17		CAGR
Product	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value	(%)-
Cereals	22.10	52568	21.06	63452	18.41	58280	11.94	40433	11.82	40624	(5.02)
Animal Products	1.83	20778	2.11	32289	2.16	33128	2.07	30137	1.89	29533	7.29
Other Processed Foods	2.33	33030	2.78	25068	3.01	24893	2.51	18855	2.58	20112	(9.45)
Fresh Fruits & Vegetables	2.92	5987	2.91	8761	2.50	7474	2.40	8391	4.11	10370	11.61
Processed Fruits and Vegetables	0.93	5121	1.08	6484	1.00	6670	0.97	7213	0.88	7152	6.91
Floriculture & Seeds	0.05	771	0.04	866	0.03	888	0.03	973	0.03	1076	6.89
Total	**30.17**	**118255**	**30.00**	**136920**	**27.13**	**131333**	**19.94**	**106002**	**21.33**	**108867**	**(1.64)**
$ bn equivalent		**21.74**		**22.70**		**21.49**		**16.20**		**16.27**	

4.7 Import of APEDA monitored products: As per DGCIS data, the import of APEDA monitored products during the last five years has been as under:

Table-8: Import of APEDA monitored products

Product	**2012-13**		**2013-14**		**2014-15**		**2015-16**		**2016-17**		**CAGR**
	Qty-MT	**US$ Mill**	**Qty-MT**	**US$ Mill**	**Qty-MT**	**US$ Mill**	**Qty-MT**	**US$ Mill**	**Qty-MT**	**US$ Mill**	**(%)**
Cereals	49240	22	35004	22	54849	22	723332	188	6061942	1343	127.52*
Animal Products	11044	51	12678	57	16955	89	21940	78	22805	69	6.12
Other Proc Foods	333743	801	430535	887	543168	1116	662791	1088	862149	1241	9.16
F&V	702792	630	683592	684	780523	886	742144	694	904583	881	6.93
Processed FNV	4071319	2561	3230548	1926	4047963	2452	5371626	3466	5962702	3741	7.88
Floriculture & Seeds	19774	102	12507	93	18929	119	19097	125	19624	118	2.86
Total	**51,87,913**	**4,167**	**44,04,864**	**3,669**	**54,62,387**	**4,684**	**75,40,929**	**5,639**	**1,38,33,804**	**7,392**	**12.15**
$ bn equivalent		**4.17**		**3.67**		**4.68**		**5.64**		**7.39**	

*The CAGR is very high since wheat imports have surged during 2016-17 to 57,49,431 MTs as against 5,16,167 MTs during 2015-16. Wheat imports account for 95% of cereals imports during 2016-17.

4.8 Trade Deficit : The scenario about trade deficit in APEDA monitored products during 2016-17 is given below:

Table-9: Trade Deficit

Figures in $ million

Product Group	Export Value	Import Value	Trade Surplus
Cereals	6074	1343	4731
Animal Products	4416	69	4347
Other Processed Foods	3005	1241	1764
Fruits & Vegetables	1552	881	671
Processed Fruits & Vegetables	1070	3741	-2671
Floriculture & Seeds	161	118	43
Total	**16,278**	**7,392**	**8886**

5.0 Components of export strategy:

5.1 The salient features of the proposed strategy have been broadly discussed in the following major headings. Product specific export strategy for important products are given in P art 2 of the report.

i. Pre-harvest Linkages.
ii. Post harvest development
iii. Strengthening of Market Access Efforts
iv. Market Development
v. Regulatory mechanism
vi. e-Governance initiatives
vii. Role of Research & Development – a complimentary role envisaged
viii. Export of Organic produce
ix. Gaps in Export Infrastructure
x. Other issues

5.2 Pre-harvest Linkages:

5.2.1 Cluster development:

5.2.1.1 Due to small land holdings, the produce from even a district has significant variation in terms of varieties cultivated, size and other physical parameters and stage of maturity at the time of harvest. In view of this, it is difficult for the exporters to source requisite volume of a particular fruit or vegetables. Availability of a particular fruit or vegetable in significant quantity with similar physical parameters and stage of maturity at the time of harvest is critical when the produce is required to undergo some post harvest treatment like irradiation, vapour heat treatment or hot water treatment in compliance of the importing country's requirements. Export oriented production through development of clusters will help us making available sizeable volumes of identified crops meeting such requirements.

5.2.1.2 Keeping this in view, APEDA along with State Governments (Directorates of Horticulture) and Ministry of Agriculture and Farmers Welfare (MOACF&W),has identified eleven clusters in seven states in Phase I. In these clusters, the issues of pre harvest stage including integrated management of pests and diseases, maximum Residue Levels will be addressed through involvement of respective state governments and active involvement Agricultural Technology Applications Research Institutes (ATARI) which are under the administrative control of ICAR. The post harvest linkages would be addressed by Central government agencies including APEDA. It is expected that these activities would help in enhancing the capabilities of various stakeholders in the supply chain for higher value realization for exports and also would be able to cater to the requirements of high end domestic market.

5.2.1.3. APEDA is targeting to ensure significant increase in export from the identified clusters by 2022. Eleven clusters in seven states have already been initiated in Phase-I as follows:

Table-10: List of clusters being implemented in Phase -I

State	Product cluster	Proposed Districts
1. Andhra Pradesh	1 Banana 2 Pomegranate	Kurnool, Kadapa, and Anantpurramu. Kurnool, Kadapa, and Anantpurramu.
2. Karnataka	3 Rose Onion & Vegetables 4 Mangoes	Bangalore Rural, Kolar, Belgaum, Dharward, Bagalkote, Chikkalapura Kolar, Chhikabalpur and Ramnagar
3. Kerala	5 Nendran Banana 6 Pineapple	Thrissur , Palghat Idukki, Vazhakulum
4. Meghalaya	7 Pineapple	Ri-Bhoi
5. Telangana	8 Mango	Rangareddy, Kareemnagar, Mehboobnagar, Khammam, Warangal
6. Gujarat	9 Banana 10 Mango	Banana- Bharuch, Narmada Junagadh-Amreli-Bhavnagar; Valsad, Navsari-Surat
7. West Bengal	11Vegetables(Okra ,Brinjal, Green chili, bittergourd, Betel leaves)	Nadia, North & South 24 Parganas, Midnapur and Murshidabad

5.2.1.4. In Phase-II of Cluster Development ,twelve clusters in ten states have been identified as follows:

Table-11: List of clusters proposed in Phase -II

State	Product cluster	Proposed Districts
1.Maharashtra	1.Pomegranate	Solapur, Sangli, Ahmednagar, Pune, Nashik, Latur, Aurangabad, Beed and Osmanabad
2.Punjab	2.Potato 3. Kinnow	Jalandhar, Hoshiarpur, Kapurthala, Ludhiana, Moga, Amritsar Sri Muktsar Sahib, Bhatinda
3.Bihar	4. Banana 5. Vegetables	Muzaffarur, Samastipur, Dharbanga, Bhagalpur Muzaffarpur, Samastipur, Vaishali, Saran, Patna and Nalanda
4. Telangana	6. Green Chili	Khammam, Warrangal
5. Tamil Nadu	7. Banana	Theni
6. Mizoram	8. Ginger	Aizwal and Sarchhip
7. Gujarat	9. Vegetables	Sabarkantha
8. Maharashtra	10. Pomegranate	Solapur, Sangli, Ahmednagar, Pune, Nashik, Latur, Aurangabad, Beed and Osmanabad
9. Madhya Pradesh	11. Pomegranate	Khargone, Khandwa, Burhanpur
10. AP	12. Mango	Krishna, Chittoor, Vijayanagaram , Kurnool
11. Tripura	13. Pineapple	Kanchanpur, Damchera, Bilascherra, Nalkata, Karaticherra, Gondacherra, Jumthung, Bagmara, Deocherra, Lefunga, Hejamara

5.2.1.5 Under the cluster development program, the following roles and responsibilities of different stakeholders are envisaged:

- **Horticulture Department of State Government** :
  - Registration of farmers in HortiNet system
  - Implementation of Package of Practices
  - Providing quality inputs
  - To help in conduct of outreach activities

- **SFAC**:

- Linking farmers and FPOs in the cluster
- Price discovery to farmers
- Training of executives of FPOs in preparation of business plan.

- **Agricultural Technology Applications Research Institutes (ATARI)**

- To coordinate activities of Krishi Vigyan Kendras (KVK) under their jurisdiction and implementation of package of practices.
- Organize at least two meetings in a year where farmers, concerned KVKs, exporters along with APEDA may participate.

- **APEDA**

- Training of Horticulture Officer in use of HortiNet software
- Facilitate third party certification of farmers
- Assistance for creation of infrastructure facilities such as pack houses, reefer vans, laboratories etc.
- Assistance for farmers' training through ATARI.
- Assistance for preparation of DPRs, strategy document for product and branding , packaging improvement.
- Linking the produce with the exporters and arranging Buyer-Seller Meets (BSMs).

- **MIDH**

- Assistance for creation of collection centres, irrigation system and other post harvest infrastructure facilities
- Capacity Building of farmers

- **MoFPI**

➢ Assistance for creation of laboratories and ripening chambers, collection centres under the schemes of the department

5.3 Post harvest development:

5.3.1 Improving Post harvest infrastructure : The focus of developing export oriented infrastructure will be in the identified cluster areas where integrated post harvest, processing facilities, laboratories etc. would be set up.

Table-12: Support agencies for post harvest infrastructure

	Components	**Support by**
1	Collection Centre	MIDH/MoPI
2	Integrated Pack Houses	APEDA/MIDH/MoFPI
3	Ripening chambers	MIDH/MoFPI
4	Processing Units	MoFPI/APEDA
5	Laboratories	APEDA/MoFPI
6	Reefer vans	APEDA/MIDH
7	Cargo handling facilities at exit ports	DoC-TIES

➢ Earlier APEDA has got studies done in 2015 with the help of Price Waterhouse Coopers Limited. The recommendations of the PWC report will be taken into account for infrastructure requirements in the identified clusters.

➢ Thrust will also be laid on setting up adequate number of export testing laboratories. As far as public sector is concerned, the infrastructure gaps identified in the PWC study has been taken up with State Govt. for generating proposal for funding support under TIES/KISAN SAMPADA Yojana/MIDH.

- Liaison with public sector agencies will be regularly maintained to ensure optimum utilization of facilities already set up with APEDA's financial support so that these would be vitalized for executing/enhancement of exports.

- APEDA will closely liaise with airport/sea port authorities e.g. Air India, Airport Authority of India, Port Trust authorities and CONCOR for early redressal of logistic issues.

5.4 **Strengthening cold chain logistics:**

5.4.1 Supply Chain Management is primarily concerned with the efficiency of suppliers, factories, warehouses and stores so that merchandise is produced and distributed in the right quantities, to the right locations and at the right time, and so as to minimize total system cost subject to satisfying service requirements. The objective is to plan and coordinate all the activities necessary to achieve desired level of delivered service and quality at lower possible cost. The scope of logistics includes the entire gamut of activities starting from procurement, and management of raw material, manufacturing, warehousing, transportation etc through to delivery of final product to the customers.

5.4.2 The competitive advantage is the ability of an organization to differentiate itself in the eyes of customers from its competition and to operate at a lower cost and high profit.

5.4.3 The objective of logistics is to link the market place, distribution in works and manufacturing process and procurement activity so as to provide higher levels of services to the consumers at a lower cost. Logistics competency is achieved by coordinating functional areas like information, transportation, inventory,

warehousing, material handling and packaging. Cost of transportation generally accounts for 30% of the total logistics cost.

5.4.4 Fruits and vegetables being highly perishable are susceptible to deterioration in quality unless each functional segment is optimally utilized to reduce overall costs. Being perishables, these are generally transported for export, by air because of distinct advantage of speed with which shipment is transported. However, air transport is characterized by load size constraints and aircraft / space availability. Airfreight variable cost is extremely high due to cost of fuel, maintenance etc.

5.4.5 Smaller airports are not connected with export destinations directly. However, Government is focusing to connect smaller airports with major airports through its UDAN scheme. This initiative provides an opportunity for development of produce for export from diverse areas. In future, there may be a requirement to provide adequate cargo space in these smaller aircraft for perishable goods (fruits, vegetables and flowers).

5.4.6 The existing major airports having connectivity of international flights also require upgradation keeping in view the present load of perishable cargo. Perishable cargo should also be not treated as express cargo. There is a need to change the present practice of handling perishable cargo. The present practice is to allow boxes of fruits and vegetables through the X-ray machine and then make pallets for the loading purposes. Handling of single boxes results in damage of the corner of the boxes as well as it is a time consuming process.It is suggested to explore the possibility of installing X-ray machines which can handle scanning of the pallets. Introduction of such facility will facilitate palletization at the end of the

exporters' facility thereby reducing considerable time at the perishable cargo centre enabling swift evacuation.

5.4.7 Export of APEDA products by air: As per DGCIS, the export of APEDA products exported through air during the last three years has been as follows:

Table-13 : DETAILS OF SHIPMENT OF APEDA PRDOUCTS BY AIR DURING LAST THREE YEARS

Sn	Airport	2014-15		2015-16		2016-17	
		Qnty-MTs	**Val-Rs Cr**	**Qnty-MTs**	**Val-Rs Cr**	**Qnty-MTs**	**Val-Rs Cr**
1	Ahmedabad	566	11	689	15	828	21
2	Babatpur ,Varanasi	58	1	0	0	0	0
3	Bangalore	13474	280	26476	352	26681	339
4	Chennai	24052	90	42344	118	20910	95
5	Cochin	33984	215	54440	351	49289	367
7	Jaipur	202	3	238	3	557	5
8	Hyderabad	4956	103	7506	141	12859	152
9	Kolkata	2448	22	3916	34	6438	48
10	Mumbai	72299	650	71881	756	79179	864
11	Vishakhapatnam	5.43	0.16	17.84	0.49	5.9	0.16
	Grand Total	177914	2362	232775	2767	221208	2819

Source: DGCIS

5.4.8 APEDA would like to suggest the following improvements in exit point infrastructure facilities for exports based on discussions with stakeholders:

i) Augmenting the handling capacity of Ahmadabad Air Cargo Complex from the current 5 MT to 15 MTs.

ii) Augmenting the handling capacity of Centre for Perishable Cargo(CPC) at Mumbai airport which has shown a CAGR of 9.54% and a simple growth of 44% during the last three years.

iii) There is need to have green channel arrangement for quick evacuation of perishables for all countries at Mumbai CPC. Currently this system is in operation for exports to EU only.

iv) At Kolkata airport, since the volume of export is increasing there is need for augmenting the facility of X-ray screening and other infrastructure such as trolleys, hand pallet trucks etc.

5.4.9 There is a need to optimize air freight cost for perishables which is approximately 30% of CNF value. Similarly, MoCA may consider reducing handling / packaging and storage cost at airports because these low shelf life cargo do not require storage or repacking at airport.

5.5 Promotion of value added exports:

5.5.1 India has so far been traditionally commodity exporter to the international markets and not much focus has been laid on development of export of value added products. With the Indian food processing industry still at an incipient stage, there is limited market intelligence available with respect to raw material as well as potential market for processed food products especially to small players. Additionally, inefficient and unreliable marketing/distribution networks are failing to promote Indian brands in the international markets.

5.5.2 Therefore, APEDA proposes to plug these gaps and promote export of branded value added products which can help in better realization to stakeholders. APEDA has identified products like Mango Pulp, Infant foods , Gherkins, Wine, Cassava Starch, Makhana, Potato flakes, Dehydrated Onions, Jaggery etc to be covered under this activity and focus will be on these products. Separate sheets have been enclosed for each identified products.

5.6 Quality enhancement;

5.6.1 Strengthening the Mechanism for effective handling of SPS notifications: Various countries issue SPS notifications from time to time inviting comments of other WTO members. The requirements of notifications serve simultaneously as regulatory barrier and a key to the product quality. It is important that such country notifications are tracked in time so as to be able to offer effective comments within the stipulated time period.

5.6.2 APEDA is the Secretariat for SPS notifications. APEDA has engaged APJ SLG, a legal firm who tracks the notifications and circulates the draft notifications to limited number of exporters to seek their views which are then forwarded to APEDA for further transmission to Department of Commerce. However, it has been observed that there are gaps in understanding the information by stakeholders and also due to limited circulation resulting in delayed in response with comments or these notifications go unnoticed and the exporters come to know the issues and raise their concerns only after implementation of such notifications. The key issue is how to ensure compliance with quarantine phyto sanitary requirements.

5.6.3 It is, therefore, proposed that apart from circulating the draft notifications to larger number of exporters, the SPS notifications relevant to India will also be hosted on AEPDA website in order to get wider and meaningful feedback from the concerned stakeholders. This initiative will also help to alert the exporters as an early warning about the proposed changes in the regulations for a particular product in a particular country and to elicit their views.

5.6.4 APEDA also proposes to engage technical subject experts in the product committees to assess the impact of such notifications and help the law firm to suitably advice further course of action to protect India's interests.

5.6.5 In order for expeditious action on SPS notifications, APEDA proposes formation of an SPS Club of India consisting of various experts which will act as a nodal point for interface on SPS notifications. APEDA proposes to create a network of ICAR, State Agricultural Universities and any other relevant organizations for sharing information on SPS/TBT notifications and eliciting views and comments on such draft notifications.

5.6.6 APEDA also proposes to conduct an annual conference on SPS/TBT issues where the focus of discussions will be to generate awareness amongst all stakeholders about the importance of SPS/TBT issues and their impact on in external trade,.

5.7 Strengthening of Market access efforts:

5.7.1 In order to boost exports, securing market access for new products in newer markets is an essential ingredient to any export promotion strategy. The recent examples of success obtained in gaining market access are mangoes in South Korea, Mauritius, and Iran, buffalo meat in Indonesia.

Table-14: Market access obtained in various countries for various products

S.N	Year Market access granted	Country	Products
1	2005	China	Grapes , Mango, Bitter gourd
2	2007	USA	Mango
3	2011	Australia	Mango
4	2012	Chile	Grapes, Mango, Walnut
5	2012	New Zealand	Mango

6	2014	New Zealand	Grapes
7	2014	Australia	Grapes
8	2015	Mauritius	Mango
9	2015	Canada	Mango, Pomegranate, Banana, Grapes
10	2015	USA	Litchi, Pomegranate
11	2016	South Korea	Banana, Mango, Aubergines
10	2017	Malaysia	Mango
11	2017	Iran	Mango
12	2017	Portugal	Litchi

5.7.2 APEDA proposes to continue its efforts in gaining/sustaining market access for agro products in identified markets in association with NPPO, DAHDF, (Ministry of Agriculture and Farmers Welfare) and Indian Mission in respective countries. The products and markets to be pursued in short term are:

Table-15: Country-product matrix for market access issues to be pursued

S.No.	Country	Products
1	Australia	Grapes, Peas, Okra
2	Azerbaijan	Potato
3	Chile	Walnuts in shell
4	China	Okra, Papaya, Pineapple, Rice, Bovine Meat
5	Colombia	Moringa
6	EU	Potato
7	Indonesia	Dairy Products
8	Japan	Grapes, Pomegranate
9	Kyrgystan	Banana
10	Malaysia	Moringa
11	New Zealand	Grapes
12	Paraguay	Tomato, Watermelon
13	Peru	Mango, Citrus
14	Philippines	Potato
15	Russia	Dairy Products
16	South Africa	Mango, Grapes, Dairy products
17	South Korea	Grapes, Pomegranate, Okra, Brinjal

18	Sri Lanka	Tomato, Okra
19	Thailand	Strawberry, blueberry, Kiwi, Lemon, Okra, Potato
20	Turkey	Walnuts in shell
21	USA	Grapes, Pomegranate, Litchi
22	Vietnam	Grapes
23	Middle East and African countries	Recognition of compartmentalization of poultry products.

(The list is based on the alphabetical order of the country and not based on priority).

5.7.3 In order to give impetus to the market access issues for identified products and markets, APEDA proposes the following actions:

5.7.3.1 Close coordination with the concerned agencies: APEDA will closely coordinate with concerned Ministries such as Ministry of Agriculture (NPPO and Department of Animal Husbandry, Dairying and Fisheries), for compilation of Technical information, and subsequent follow up with Indian Missions in target countries. APEDA also proposes to liaise with other concerned agencies such as FSSAI, product specific ICAR institutions or State Government Agricultural Universities etc., for compilation of the required technical inputs.

5.7.3.2 Formation of Product Committees: APEDA proposes to engage with all stakeholders in the consultation process to identify Product - Market matrix, concerning market access issues. For this purpose, product committees comprising of experts and trade representatives will be formed in the areas of (a) Horticulture (b) Processed Value added products (c) Livestock products (d) Cereals. The committees will also suggest new markets to be explored for specific potential products.

5.7.3.3 The composition of the committees is proposed as follows:

1) Chairman/Director, APEDA – Chairman
2) Divisional head of the concerned functional division of APEDA
3) One representative from NPPO, DAHDF, IIP, concerned ICAR/CSIR institutions depending upon subject matter.
4) One representative from BIS, FSSAI, AGMARK (Standards setting organizations) depending upon subject matter.
5) Subject matter experts , representatives of IIFT or any other Trade Expert
6) Representative from concerned trade segment

5.7.3.4 The committees may suggest any new products for seeking market access in particular markets for which subsequent activities will be initiated by APEDA. Such committees will also regularly help in offering expert advice on SPS/TBT issues. Details are given under the "Mechanism for effective handling of SPS/TBT notifications.

5.8 Market development:

5.8.1 Import of Planting material of varieties which have demand in international market: The demand for various fruits in the international market is driven by consumer preferences. For example, consumers overseas demand colored grape varieties, clean textured mangoes with a tinge of red or pink on its skin etc. Since thrust is now being laid on value addition, there is a felt need for having processing varieties of onions that have high Total Soluble Solids (TSS) levels. This triggers the need for having better planting material for achieving

desired objectives of augmenting export of such specific products. Therefore, APEDA proposes to work in tandem with concerned ICAR institutions and State governments for importing such varieties for which provision has been built in the new scheme submitted for approval of Government. The other products identified include grapes, potatoes , gherkins and pineapple.

5.8.2 Participation in International Trade Fairs: Participation in international trade fairs is a critical activity for exporters to gain exposure to various requirements of the international trade. In order to make APEDA's participation broad based, it is proposed that preference will be given to small/first time exporters. This will help them to showcase their products and update themselves about the requirement of the importing countries. APEDA proposes to participate in the trade events in the important countries/regions. For the year 2017-18, Government sanction for 9 participations has been received. To facilitate the exporters, APEDA has created an online facility to receive their request for participation in July, 2017. This measure is aimed at bringing more clarity and transparency and will give opportunity to small/first time exporters.

5.8.3 Product promotion programs: Experience has shown that Indian food products exported are still consumed by ethnic communities. It is important to diversify consumption of Indian food products by mainstream population. For this a need is felt to facilitate them taste Indian delicacy and educate them about special characteristic of Indian food products. This can best be done by organizing product specific promotion programs in identified locations. Such programs are needed immediately after market access is obtained for a particular product so that consumer become aware, start liking and demand the new product from India. An immediate case in point is the market access for mango in South Korea in May,

2017 when APEDA organized mango promotion program in Seoul and Busan which helped in understanding the consumer preferences in that country. The best result can be obtained by continuing the promotion programs, after market access, for at least 2 to 3 years. During the current year, APEDA will organize two promotion programs in Myanmar and Bangladesh. These programs will help promotion of Indian products particularly from North Eastern Region.

5.8.4 Reverse Buyer-Seller Meets: Buyer-Seller meets (BSMs) are an instrument for generation of export business in a confidence building environment. APEDA proposes to conduct Reverse BSMs for various potential products in the coming three years. APEDA proposes that apart from inviting leading importers from the target countries in the reverse BSMs, food journalists/columnists, food critics and chefs will also be invited to publicize about Indian food in their own countries. The number of such BSMs will be decided in consultation with trade.

5.8.5 Market Promotion: At present APEDA is focusing on participation in international trade fairs. In prominent trade fairs, exporters can also directly participate. However, in smaller markets and in countries where market access has been granted for a specific product, APEDA may do market promotion aggressively in order to enter into that market. It has been felt that even after getting market access, there is no export happening in all these markets due to lack of promotion of our products. Recently, APEDA has done market promotion in South Korea which has led to a very satisfactory result and export of 76 MTs of mangoes has happened in the current financial year. APEDA proposes to have

market promotion in the following countries during the coming years :

i) **CIS and East European** countries for tropical fruits and vegetables , wine and processed foods.
ii) **Iran** for mangoes
iii) **Malaysia** for mangoes
iv) **Portugal** for litchi
v) **South Korea** for mango, banana and egg plant
vi) **USA** for litchi, mango and pomegranate

5.8.6 Market intelligence: Timely and reliable trade information is critical for stakeholders and Govt. to take informed decisions. It is found that mostly the trade information is available on the basis of time series data that too with a time lag. In order to get trade data dynamically, APEDA proposes to tie up with institutions like IIFT or any other renowned international agencies for real time market intelligence which would be analyzed and shared with stakeholders through APEDA trade portal. It may be treated as value added services based on suitable charge.

5.8.7 Branding: In order to create a unique name and image for premier Indian products , it is proposed to to establish a significant and differentiated presence in the global markets. While products like Mango, Mango Pulp, Banana, Pomegranate, Potato, Gherkins, Biscuits, Wine etc are proposed to be undertaken initially for the purpose of branding.These are core Indian products which have distinctive values.

5. 9 Regulatory mechanism:

5.9.1 Mechanism for dissemination of changes in regulatory requirements: In the international trade, there are frequent changes in regulatory requirements which may o not come to the notice of stakeholders in time. In order to disseminate such crucial information on a timely basis, APEDA has already formulated a mechanism to disseminate such information to farmers and other stakeholders through bulk SMS, emails to registered exporters etc., including for Grapes and Basmati Rice.

5.9.2 Residues monitoring of agrochemicals, heavy metals, antibiotics and hormones:

With the reduction of import tariff under FTAs, importing countries have started focusing more on enhancing non tariff measures such as stringent sanitary and phyto sanitary measures. This results in higher cost of compliance for Indian exporters. One of the major sanitary issues in global trade is the adherence to the permitted levels of residues in food product. EU has introduced a harmonized system of MRLs in 2008. Similarly other countries have their own set of MRLs which must be adhered while supplying food products from India to these countries. It is therefore essential that while exporting food products particularly fresh horticulture produce, the residues are monitored so that there is no exceeding levels traced either prior to shipment or at the receiving end. Detection of higher than permissible levels of residues of agro chemicals, results in rejection of consignments causing (a) tarnishing of country's image as a reliable exporter and (b) severe financial damage to exporters. APEDA, therefore, proposes to continue

its efforts at upgrading the laboratories to be able to match the monitoring expertise for the global market.

5.9.3 Assistance to National Referral Laboratories (NRLs):

APEDA also proposes to assist National Referral Laboratories (NRLs) and other institutions for residue monitoring of agrochemicals and to act as technical partners to APEDA under the proposed new scheme. APEDA has identified NRCG , Pune as NRL for products of plant origin and based on trade requirement any other NRC would be identified for such assistance under APEDA scheme during the next five years.

5.9.4 Mandatory export of fresh produce through Pack houses:

In 2003, APEDA's grape exports got almost stalled due to detection of higher than permissible levels of residues of pesticides. This resulted in framing of a Residue Monitoring Program (RMP) under which grape pack houses were registered by APEDA. Exports were made from these pack houses. Subsequently the implementation of this system was driven by web-based software (GrapeNet, 2006). The results of this regulatory mechanism have been phenomenal and grape exports have reached a level of around 2,00,000 tonnes today. Similarly, in 2012, EU banned import of mangoes and certain vegetables from India due to residue problem. Consequent to this, and after mutual discussions and visit of an FVO team, Government of India assured EU that export of all horticulture products to EU will be regulated through APEDA recognized pack houses where phyto-sanitary inspection will also be carried. With acceptance of this system, export commence to EU and since then no sanitary and phyto-sanitary issues have arisen.

APEDA, therefore, proposes to continue its efforts at upgrading the laboratories to be able to match the monitoring expertise for the global market. It is also proposed to implement, in the near future, the procedure for routing all export shipments of perishables only through APEDA recognized pack houses which is currently applicable for EU shipments say after 2020. It is also proposed to implement, in the near future, the procedure for routing all export shipments of perishables only through APEDA recognized pack houses which is currently applicable for EU shipments say after 2020.

5.9.5 Administration of Basmati Rice Geographical Indication (GI): Now that the Basmati GI has been registered, APEDA proposes to conduct training programs for 50,000 farmers in the growing belts for farmers in conjunction with the Agriculture Departments of the concerned states. Sensitization about the new Basmati.Net software will be done once the software is implemented. APEDA has also initiated the activities related tor registration of Basmati rice GI Logo and its licensing to the users.

6.0 e-Governance initiatives:

6.1 APEDA has been a pioneer in using IT systems for the development of exports from India and the initiative started way back in the early 90's. Starting with a beginning on building databases on export statistics, APEDA's IT initiatives have grown its website www.apeda.gov.in into a full-fledged e-Governance portal. It is working as an effective Virtual Office for a range of stakeholders in the exports supply chain including exporters, State Agriculture / Horticulture Departments, AGMARK, NPPO, Laboratories, Processing units, Certification bodies, etc.

To continue its efforts in this direction, APEDA proposes to carry out following e-governance activities in the next five years:

i) Development and implementation of a web-based system; Basmati.net for the traceability for which work has already been initiated.

ii) Up gradation of organic traceability system by including livestock and aquaculture.

iii) Integration of some of the traceability systems with NPPO and EIC for issuance of regulatory certificates through a common platform.

iv) Online processing and disbursement of lab testing charges for grapes and peanuts to the exporters.

v) Development of Mobile app to access the analytical reports from agri exchange portal.

vi) Brand promotion of major Indian products through web portal.

vii) APEDA has launched a mobile App ÄPEDA Farmer Connect" on 1st September, 2017 which will help the farmers in registration on HortiNet . The app will also capture laboratory testing reports and will help in geo tagging of farms and farmers for better traceability. The mobile app has facility to register 14 types of vegetables, 3 fruits and Basmati rice. The app is available in English, Hindi and likely to be made available in Marathi and other prominent Indian languages.

7. Role of Research & Development:

7.1 Synergy with Government institutions/stakeholders:

The focus of APEDA is also on promotion of export of processed value added products. There is a need to develop products acceptable in the international market for which specific varieties of the raw produce is required. In order to develop such varieties e.g. white onion with high TSS, low sugar potato varieties, APEDA will work in close coordination with concerned ICAR institutions for time bound results. APEDA also proposed regular consultation with ICAR institute like IIHR, IIMR and CISH etc. for product development such as cosmetic and new varieties of fruits and vegetables.

7.2 Identification, awareness and adoption of Innovative technologies by exporters:

7.2.1 APEDA will work in close coordination with IIP and CFTRI for development of innovative, convenient, and internationally accepted packaging for quality and shelf life enhancement particularly for high end processed value added food items. Similarly, liaisoning with expert private agencies like Uflex for new technology in packaging. To meet the international requirements, APEDA will get the packaging standards developed through IIP for 10 new products.

7.2.2 Regular consultative interaction with institutions like DFRL and CFTRI, for development of innovative technologies like osmotic dehydration, retort pouch processing, fluidized bed drying technology and convenience foods etc.

7.2.3 APEDA proposes to encourage exporters to go in for new technologies such as:

i) **Generally Recognized As Safe (GRAS)** for colour retention and shelf life improvement of litchi through Bhabha Atomic Research Centre (BARC).

ii) X-ray screening for mango: The **CISR-Central Electronics Engineering Research Institute (CEERI)** has developed a new low cost X-ray screening technology for detection of spongy tissue/pests in mango. The technology is an X-ray imaging based mango sorting system to sort mangoes based on internal disorders (spongy tissue & seed weevil) in real time. The system can detect the seed weevil in mango varieties like Alphonso, Neelam And Totapuri and spongy tissue in Alphonso mangoes. The X-ray scanned mangoes are safe for consumption and there is no health hazard. Similar technology can be developed for other fruits also. This technology can help in segregating fruit not suitable for export and thus help in augmenting quality of exported mangoes.

iii) Automated, real-time, fast portable and hand held and low cost instrument for detection of synthetic adulteration in milk : CEERI has also developed technology which detects chemical contamination in milk samples and is useful at all stages of supply chain. Dairy exporters will be encouraged to adopt this technology. The system is capable of detecting adulterants such as urea, salt, detergents, boric acid, caustic soda, Lye (NaOH), soda, hydrogen peroxide and many more unknown adulterates in raw milk.

iv) **A handheld embedded system for ripeness detection of oranges** has been developed by CEERI to estimate the optimal harvesting time based on the ripeness index. This technology can be adopted to ascertain the right period of harvesting.

The technology is based on a handheld embedded odor-vision sensing system (HEOVS) using artificial olfactory (e-nose) and image processing techniques (e-vision) . The system helps in estimating optimal harvest time for plucking of fruits. The HEOVS system was gives additional information about shelf-life and storage time. This system could be used for other fruit samples like grapes and mangoes

v) **Accelerated Freeze Dryingtechnology developed byDefence Food Research Laboratory (DFRL),** Mysore has developed technologies for accelerated freeze drying and fluidized bed drying technology . Accelerated freeze drying is a method of drying materials, such as certain foods, that would be destroyed by the loss of **volatile** ingredients or by drying temperatures above the freezing point; the material is frozen under high vacuum so that ice or other frozen solvent will quickly sublime and a porous solid remain. This technology is helpful in horticulture products in particular.

vi) Fluidized Bed Drying technology: It is the intensive heat/mass exchange of the fluidized bed products and is very effective and time-saving. The technology is also **suitable** for post-drying of spray **granulated** or **extruded** products with very low residual moisture. Fluidized bed drying can be used in the entire powder processing industry.

vii) **New Packaging technology – Uflex Flexfresh Liner for improving shelf life of horticulture produce** : M/s Uflex have developed a new technology by which horticulture produce can retain their shelf life for much longer period and remain fresh without condensation effect . the technology is an improved verison of Modified Atmosphere Packaging where reducing oxygen slows down maturation,

increasing Carbon Dioxide prevents mold growth and the oxygen concentration in the package is maintained to ensure Aerobic Respiration. APEDA proposes to encourage use of this technology which will be helpful in long haulage time especially for sea shipments.

viii) Solar Cold Room : M/s Ecozen Solutions, Pune have designed an innovative micro Cold Storage - a solar powered cold storage system. The product primarily designed for the rural segment serves their needs ideally, as it does not depend on grid electricity. This innovative product can be suitably adapted for local conditions. This low cost technology can be useful at the farm level and can greatly help in arresting huge post harvest wastages.

7.2.4 : APEDA has taken a delegation of 15 exporters to Defence Food Research Laboratory (DFRL), Mysore on 7th September 2017 to identify technology of processed foods , packaging and new product development. This exercise has been well received by exporters and it has been suggested to have similar exercise with different other National Referral Laboratories (NRLs) . It is proposed to have at least two similar visits in every year to such institutions.

8. Export of Organic Produce :

8.1 During 2016-17, area under organic certification was around 4.45 million ha including forest area of 3.01 million ha. The total volume of Organic agricultural exports was 309767 MT valued at Rs. 2478.17 crores ($ 370 million). The major destinations for Indian organic products were European Union , USA, Canada, Switzerland, Australia, New Zealand, Japan, Middle East countries and ASEAN

countries. The major products exported were Basmati Rice, Processed Foods (Mango pulp),Pulses ,Tea Spices, Flax seeds, Soyabean meal, Soyabean, and Sugar.

8.2 APEDA has a recognition agreement with EU, USA and Switzerland since 2006 for certification and export of organic products. The National Program for Organic Production (NPOP) standards for crop production have been recognized by European Commission and Switzerland as equivalent to their country standards. USDA has recognized NPOP conformity assessment procedures of accreditation as equivalent to that of US.

8.3 APEDA is negotiating at present with Japan, South Korea, Canada and Taiwan for equivalence of organic standards. After notification of domestic standards by FSSAI, considerable progress may be achieved in near future.

9.0 Gaps in export infrastructure

India is the second largest producer of rice (107.5 m MTs), wheat (93.5 m MTs) , fruits (83 m MTs) and vegetables (121m MTs) in the world. It has a large population of bovine (buffalo, cattle) 298.64 m, sheep 65.04 m, goat 135.17 m and poultry 729.2 m as per 19th Census, 2012. Yet, India's share in global export trade in agricultural exports is a miniscule 2.4%. One of the major constraints for this for low exportis lack of commensurate post harvest infrastructure facilities.

a) **Collection points**: Perishable horticulture produce, especially vegetables , meant for export , require consolidation at a point as close to the harvest area as possible. This is best possible through the Collection Centers where the

preliminary sorting grading operation can also be carried out. Though there is no specific study to evaluate the requirement of collection centres. In the APEDA identified 11 clusters in 7 states which cover around 600 blocks ,assuming that 20% blocks are provided with a pack house which has at least five collection centres catering to it/ It would translate in to 120 pack houses and 600 collection centres required in these clusters.

b) **Refrigerated Transportation:** After harvesting the produce must be transported to the pack house for processing and from pack house to exit port for evaluation , in the refrigerated vehicle and from pack house to exit point There is a large requirement of such transport vehicles. A study conducted by NCCD and NABCONS has projected that as against the requirement of 61,826 reefer vans in the country the current availability is only 9000 reefer vans thus a gap of 52,826 reefer vans exists.

There is a need for huge investment in this sector and service providers need to be supported by government agencies . There is need to create sufficient fleet of reefer vans. It is estimaqt6ed that a support of Rs 500 Cr from Government may help in investment of around Rs 2000 Cr by the private sector.

c) **Ripening Chambers:** Horticulture produce like bananas, mangoes etc. are currently ripened through various methods. The NCCD/NABCONS study of 2015 has found that as against the requirement of 9,131 ripening chambers current availability is only 812 thus there is a gap of 8,319 ripening chambers.

d) Pack houses: A pack house is an enclosure structure where the harvested produce arrives for sorting, grading, washing, cleaning, packaging, pre cooling

activities after which they are placed in cold store prior to evacuation for shipment through exit ports. The NCCD study has found that there is a requirement of 70,080 pack houses and current availability of only 249 pack hoses leads to a gap of 69,831. We have succeeded in grapes in spite of our low share in agricultural production due to the fact that large number of pack houses have been created in the grape growing areas in Maharashtra e.g. about 250 pack houses are located in and around Nashik district . Creation of infrastructure for export with help from the National Research Centre for Grapes (NRCG) has helped in augmenting export of grapes.

e) Cold stores : The NCCD study has found that as against a requirement of 4,20,35,196 cold stores the current availability is only 2,68,50,000 thus leaving a shortage of 1,61,21,.447 cold stores.

f) Need to have at least 4- 5 laboratories in major agriculture producing state: Post WTO, focus of food regulator has shifted towards compliances with stricter food safety requirements (MRLs) and food quality. Due to stringent MRLs imposed by several countries particularly the EU, a wide range of laboratories are required to facilitate this activity. APEDA has 40 recognized laboratories which are located in the states of Andhra Pradesh, Telangana, Gujarat, Maharashtra, Karnataka, Kerala, Haryana, Madhya Pradesh, New Delhi, Uttar Pradesh, Tamil Nadu, Punjab and West Bengal. There is need to have a wider network of export testing laboratories as a measure to facilitate prior to shipment testing of produce for compliance with importing country requirements. EIC has 26 and FSSAI has 16 referral recognized laboratories .

However, there are many states where there is no laboratory e.g. Bihar, Uttar Pradesh, North Eastern Region etc. There are certain states where exporters have to travel their product for a long distance for sample testing . Therefore, it increases the cost of the sampling . We can also encourage of Agricultural universities or educational institutions to get their laboratories recognized in APEDA system for the purpose of exports.

g) Availability of aircraft : For the export of perishables, air cargo space is needed which requires a wide bodied aircraft. Such wide bodied aircraft are not available at Hyderabad. Similarly, only one airline has wide bodied aircraft at Ban galore. Therefore, there is need to encourage private airlines to have wide bodied aircraft from Bangalore and Hyderabad.

h) Railway infrastructure :

- **Domestic sector**:

Many of the products of North India are not available in distant places like the North East or South India. To illustrate, Langda variety of mango of UP is not available in other parts of the country. Likewise, Passion Fruit and Pineapple of North East is not available in Delhi. The Nendra Banana and Rajapuri Mango of South India are not well known in other parts of the country. Therefore, in order to make products of one region be available in other parts of the country where there is demand , at a minimal cost. This can be achieved if Railways transport such perishables in refrigerated containers. Therefore, reefer transportation facility in Railways is required. This needs to be facilitated.

- **Export** :

Transport of perishables and other agricultural export cargo by train to exit port can lead to lower logistics costs and augmentation of exports. In Maharashtra, more than 1,40,000 containers of grapes were exported. These containers move on road. If grape Train is provided for 3-4 months, it may help in reducing the transport cost.

i) Exit point infrastructure: There is need for augmenting the exit point infrastructure as follows:

- **Ahmedabad Air Cargo Complex**: The airport has a capacity to handle **5** MT which needs to be augmented to 15 MTs.

- **Mumbai airport**: With a simple growth of 43.96% in the volume of perishables handled by the CPC at Mumbai airport there is need for capacity augmentation. There is need to have a green channel arrangement for perishables for quick evacuation, hygiene needs to be improved, cracks and seepage need rectification, cooling system needs to be made effective, air strips on departure doors are required and cold rooms need to be operational.

- **Kolkata**: For export of perishables from Kolkata exporters are facing difficulty in getting space in the EU/Middle East destinations from Delhi for their perishable consignments which they move from Kolkata to Delhi for onward transmission. This problem had come up during 2015 and APEDA along with Kolkata based exporters had a meeting with ED, Cargo AI on 23rd July, 2015. AI had confirmed that Kolkata exporters can move their consignments to Delhi by

evening flights and these could be transhipped to Middle East/EU by early morning flights from Delhi. However, exporters have informed APEDA that their freight forwarders are not accepting booking from Kolkata due to non availability of space from Delhi.

j) Seaports facilities: A report on "India's Merchandise Exports: Some Important Issues and Policy Suggestions" conducted by Dr HAC Prasad et. Al. In 2014 has brought out the following port infrastructure deficiencies:

- There is need to have the facility for berths in seaports like Mumbai , Kandla and Mundra etc to have facility to accommodate larger vessels which will not only help in augmenting volumes but also lower freights.
- There is need to provide special purpose agri jetties for agricultural cargo in ports like Kandla and Mundra to reduce ship and improve the supply chain efficiency.
- There is need to deploy shore mobile cranes for loading cargo onto ships . This will help in improving port efficiency.

k) No Entry restrictions: In big cities, there are restrictions on movement of cargo. Vehicles containing perishable products for export may be allowed to enter city limits during NO ENTRY time also.

10. Other issues: The following other activities are proposed to be undertaken during the next three years:

10.1 Capacity Building of APEDA officers: Under the new proposed scheme, APEDA plans to enrich the skills of its officers and staff by deputing them for

specialized trainings within and outside India. The indigenous training programs will be conducted through expert institutions like IIFT, NIFTEM etc.

10.2 Outreach programs: There is a need to conduct regular outreach programs across states to sensitize all stakeholders regarding the role and activities of APEDA and also about regulatory requirements and market intelligence about exports from India. State Government role has to be strengthened in the outreach programs.

10.3 **MEIS**: MEIS scheme of DGFT provides incentives @ 3% on certain fruits & vegetables. Earlier these were getting 5% under VKGUY. As trade in fruit & vegetables is price elastic, it is proposed that DGFT may consider 5% incentive.

10.4 GST: GST rates on services rendered by airlines on perishable cargo is 18%. It has blocked the working capital of exporters. This may be reduced to 5%.

10.5 : Stable Export Policy:

India may not be considered as a reliable supplier of agricultural commodities due to frequent changes in export policy and imposition of Minimum Export Price (MEP). Therefore, there is a need to have a stable export policy in such a way that at least there is no impact on export of 10% to 20% of the production of the item in a season. The balance quantity would be available for domestic market.