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Evaluation of Adequacy of Incentives under NHB Soft Loan Scheme for PHI Facilities In Maharashtra

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Introduction:

Although India is blessed with diverse agro-climatic conditions and so has the ability to produce a wide variety of fruits, flowers, vegetables and a host of other agro based products round the year, the rising domestic demand coupled with increasing post harvest losses often hamper the net horticultural exports of the country. Many study in the past have also indicated the poor post-harvest infrastructure to be the major cause for the deteriorating health of horticulture industry in the country (Ramaswamy, 1995; Kaul, 1997). It is to be noted that a substantial quantity of the country's horticultural produce is lost at the alter of post-harvest handling, processing and storage conditions (Singhal, 1995; Kaul, 1997; Viswanathan and Satyasai, 1997). This emphasizes upon the need to curb these losses by creating appropriate and adequate post harvest infrastructure (PHI) and related facilities. Creation of sound PHI, especially for horticultural produce, was even emphasized in some of the earlier studies (Uppal, 1995). An integrated approach to the post-harvest management through active and joint participation of various organizations such as NHB, APEDA, NCDC, etc. was, therefore, invariably recognized.[1]

As for strengthening infrastructural facilities for horticultural crops, the National Horticulture Board (NHB) is trying to find ways and means to offset and minimize initial post-harvest losses and also to slow down the chain reaction that trigger spoilage of horticultural crops. One of the measures adopted by the NHB is the initiation of soft loan schemes (SLSs).[2] The main thrust of the SLSs is to introduce new technology aside from strengthening infrastructural facilities with backward linkages among producers, processors and marketers. Maharashtra is noticed to be the only state in the country which has received maximum assistance under the soft loan schemes.[3] In fact, the NHB soft loan scheme was implemented with a view to strengthen not only the existing infrastructural facilities for horticultural crops but also to create modern post-harvest infrastructure, reduce losses, improve quality of produce and help create an efficient marketing system. Nonetheless, after a span of five years it was realized that a sizable number of projects assisted under the SLS entered into a depressed position and were on the verge of

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collapse. This had invariably necessitated to initiate proper remedial measures to save this industry from such a gloomy situation.

The present study is, therefore, designed not only to asses the NHB soft loan scheme but also to evaluate the impact of this scheme on the development of PHI for horticultural crops. An evaluation of this scheme at this stage is likely to help in promoting future investment opportunities in this sector in such a planned and appropriate manner that might bring a positive change in an otherwise dismal scenario of this sector.

Data and Methodology

The study has been conducted in Pune district of Maharashtra. Pune district was selected purposely for two reasons. Firstly, Pune district has large area under horticultural crops and it is also a major trading centre for several horticultural product processing and export units in Maharashtra state. Secondly, Pune district has also received maximum amount of assistance from NHB under the SLS for the development of PHI for horticultural crops. Among the various units where the PHI facilities were developed with the help of NHB soft loan schemes, the two units selected for this study were: (a) Abhinav Grape Growers Cooperative Society Ltd. (AGGCS), Agar, District Pune, and (b) Vignahar Grape Growers Cooperative Society Ltd. (VGGCS), Narayangaon, District Pune. It is to be noted that there were only four cooperative societies which had received assistance under the NHB soft loan schemes implemented in the state of Maharashtra. Out of these four societies, the above two societies had received maximum amount of assistance under the scheme.[4] These two societies were established on July 19, 1990. Both the societies deal with marketing of farmers' produce not only in domestic but also in export markets. The present study attempts to evaluate the performance of both the societies.

The entire paper is organized into two sections. The first section evaluates the amount of loan sanctioned to the selected societies, investments on various infrastructural facilities and cost of processing of produce. The second section revolves around various aspects of marketing of grapes such as estimates of various components of marketing costs, especially on export front, quantity and value of exports, destination of exports, price received from various marketing centres, etc. It also deals with certain other aspects such as productivity of crops at the selected villages, post-harvest losses, actual storage capacity available at the selected societies, capacity utilized, etc. Besides, it evaluates the constraints faced by the societies in terms of sanctioning of loan, repayment of loan amount, processing and marketing of produce, and adequacy of incentives and changes warranted.

SECTION – I

Projects Financed under Soft Loan and other Schemes:

The selected grape growers societies have developed the required infrastructure such as pre-cooling unit, cold storage, grading and pack-house, etc. with the help of assistance received from various financial institutions, including soft loans from NHB. Details regarding soft loan component released to the selected societies along with financial assistance received by them from other institutions are provided in Table 1.

Table 1: Project Financed under Various Schemes

Organisation	Project Financed (in lakh rupees)				
	Term Loan from Bank of India*	Soft Loan from NHB@	Member Share Capital	Loan from Food Processing Department	Total Loan
1. Abhinav Grape Growers' Co-operative Society Ltd.	114.75 (49.07)	41.00 (17.53)	18.12 (7.75)	60.00 (25.65)	233.87
2. Vighnahar Grape Growers' Co-operative Society Ltd.	32.64 (39.88)	41.00 (50.10)	8.20 (10.02)	-	81.84

Note : 1) * - Term loan sanctioned by Bank of India for civil and mechanical work

@ - Soft-loan sanctioned by NHB for one pre-cooling unit, one cold storage and one pack – house.

2) Figures in parentheses are percentages to the total project cost.

The total cost of the project was estimated at Rs. 232.87 lakhs for AGCCS and Rs. 81.84 lakhs for VGGCS. For civil and mechanical work, both the societies received financial assistance from Bank of India. However, for the establishment of pre-cooling unit, cold storage and pack-house, the major financial assistance was given to the societies by NHB in the form of soft loan to the tune of Rs. 41 lakhs. The AGCCS had also received financial assistance of Rs. 60 lakhs from Food Processing Department, especially to construct its processing unit. It is to be noted that while AGCCS lacks any technical collaboration with any firm or organization to process or market its produce, the VGGCS has developed technical collaboration with California Humifresh (I) Pvt. Ltd., which supplies plant and machinery to VGGCS. During 1997-98, the total business turnover was estimated t Rs. 106.68 lakhs for AGCCS and Rs. 90.69 lakhs for VGGCS.

Initial Investments towards Development of Infrastructural Facilities:

Details regarding investments made by the selected societies on various infrastructural facilities like buildings, various utilities, air handler, refrigeration equipment, packing lines, etc. are provided in Table 2.

Table 2: Details of Investments made by the Societies on various Facilities (during 1994-95)

Particulars	Investment (Rs in lakh)			
	Abhinav Grape Grower's Cooperative Society		Vignahar Grape Grower's Cooperative Society	
1. Land and land development	0.47	(0.33)	Received in Gift	
2. Buildings	50.34	(35.35)	25.96	(31.72)
3. Utilities				
a. H.T.Station	2.47	(1.73)		-
b. Generator Set	5.40	(6.04)	8.60	(10.51)
c. Domestic electrification	9.31	(6.54)		-
4. Pre-cooling, cold storage and others				
a. Air handlers	21.81	(15.31)	18.53	(22.64)
b. Refrigeration equipment		-		-
c. Packing lines	49.42	(34.70)	25.47	(31.12)
5. Customs duty on imported Machinery and material including Transport cost from port to site, etc.		-	3.28	(4.01)
6. Margin money for working capital	23.00		-	
Total cost of the project (excluding margin money for working capital)	142.42		81.84	

Note : Figures in parentheses are percentages to the total project cost

The total initial investment towards creation of various infrastructural facilities was found to be Rs. 142.42 lakhs for AGCCS and Rs. 81.84 lakhs for VGGCS. Among various components, construction of buildings and packing lines accounted for the maximum share in total investment made by the societies towards creation of infrastructural facilities. The next major investment was found to be on air handlers, followed by investment on the purchase of generator set and on domestic electrification. The VGGCS was also found to import some of the machinery and materials. The import duty on the same is included in the initial investment made by the VGGCS towards development of infrastructural facilities. This expenditure was found to account for about 4 per cent of the total initial investment of VGGCS towards development of infrastructural facilities.

Processing Cost of Grapes:

While working on the estimation of processing cost, the total cost of processing was broadly classified into three components of cost such as cost of labour used for grading, packing, pre-cooling, loading, unloading, etc., cost of packing material –boxes, plastic sheets, pouches, tissue papers, air bubble sheets, grape guards, pallets, angle boards, strap and clips, and wastage, and cost of pre-cooling and cold storage expenses. Operation-wise estimates of processing cost of grapes at the selected society level plants for the year 1997-98 are given in Table3.

Table 3 : Operation – wise Processing Cost of Grapes at the Society Level Plant : 1997-98

Operation	Abhinav Grape Grower's Society			Vignahar Grape Grower's Society		
	No.of Boxes	Per Unit Cost (Rs)	Total Cost (Rs)	No.of Boxes	Per Unit Cost (Rs)	Total Cost (Rs)
1. Labour for grading, packing, pre-cooling , cold storage, loading, unloading, etc.	24000	6.00	144000	45601	5.50	250806
2. Packing Material	24000	50.32	1207680	45601	54.77	2497567
a. Boxes	24000	25.00	600000	45601	26.00	1185626
b. Plastic sheets	24000	1.40	33600	45601	1.30	59281
c. Pouches	24000	5.80	139200	45601	6.84	311911
d. Tissue papers	24000	0.81	19440	45601	0.85	38761
e. Air bubble sheets	24000	2.80	67200	45601	2.80	127683
f. Grape guards	24000	4.35	104400	45601	6.25	285006
g. Pallets	24000	2.25	54000	45601	2.25	102602
h. Angle boards	24000	2.75	66000	45601	3.00	136803
i. Strap and clips	24000	0.50	12000	45601	0.50	22801
j. Wastage	24000	4.66	111840	45601	4.98	227093
3. Pre– ooling and cold storage	24000	2.50	60000	45601	2.75	125403
Total	24000	58.82	1411680	45601	63.02	2873776

Note: Each box contained 5 kgs of grapes in the case of AGGCS and 5.8 kgs of grapes for VGGCS.

The AGCCS was seen to process about 24,000 boxes, each containing 5 kgs of grapes. The per unit (box) cost of processing of grapes at AGCCS plant was estimated at Rs. 58.82. On the other hand, the VGGCS had processed 45,601 boxes, each containing 5.8 kgs of grapes. The per unit (box) processing cost of grapes at VGGCS plant was estimated at Rs. 63.02. In the processing of grapes, various types of materials used for packing put together accounted for the maximum share in the total processing cost. Expenses on labour used during various processing activities such as grading, packing, pre-cooling, etc. turned out to be the next important cost. Pre-cooling expense accounted for the least share in total processing cost. Among various materials, the major expenses were seen to be on packing boxes, followed by expenses on pouches, grape guards, air bubble sheets, angle boards, etc. Wastage of packing material also accounted for considerable share in total processing cost.

It is to be noted that in the processing of grapes, pre-cooling is by far the most important activity. Pre-cooling is the removal of field heat from freshly harvested products. Within a specific time after harvest, the field heat is need to be removed from the fruit through pre-cooling. Pre-cooling not only prevents spoilage of fruit but also helps in maintaining pre-harvest qualities of the produce such as freshness, flavour, firmness and appearance. In fact, the fruit cannot be kept directly in the cold storage if the field heat from the fruit is not removed. Thus, pre-cooling is one of the most important processing activities of grapes.

SECTION II

Changes in Performance Indicators:

Table 4 provides an insight into the changes in various performance indicators of the selected societies over the period from 1994-95 to 1997-98, especially in respect of their actual and utilized cold storage capacity, quantum of exports, export prices and costs, as also the productivity and post-harvest losses of grapes grown on the farms of member farmers.

Table 4 : Performance of the Selected Grape Grower's Societies in Maharashtra

Particulars	1994-95	1995-96	1996-97	1997-98
Abhinav Grape Grower's Co-operative Society				
1. Actual Storage Capacity (in no. of containers)	24.00	24.00	24.00	24.00
2. Capacity Utilized (%)	40.00	75.00	75.00	40.00
3. Productivity (in MT/hec.)	22.00	24.00	24.00	24.00
4. Post-harvest Loss (%)	13.00	10.00	12.00	12.00
5. Exports (in MT)	120.00	285.00	289.00	120.00
6. Export Cost (in Rs/Box)	140.00	140.00	150.00	150.00
7. Export Price Received (in Rs/kg)				
-From U. K	37.50	28.07	28.72	44.17
Vignahar Grape Grower's Co-operative Society				
1. Actual Storage Capacity (in no. of containers)	30.00	30.00	30.00	30.00
2. Capacity Utilized (%)	40.00	65.00	70.00	70.00
3. Productivity (in MT/hec.)	25.00	27.00	25.00	22.00
4. Post-harvest Loss (%)	11.00	11.00	11.00	11.00
5. Exports (in MT)	106.22	287.24	243.08	264.49
6. Export Cost (in Rs/Box)	130.00	140.00	150.00	155.00
7. Export Price Received (in Rs/kg)				
- From U.K.	34.82	30.94	28.16	35.50
- From Netherland	30.76	29.08	26.18	32.17
- Average	33.02	29.58	27.53	34.59

It is to be noted that both the selected societies have their own pre-cooling as well as cold storage plants. The pre-cooling capacity of both the selected society level plants is noticed to be 6 tons in 6 hour. As for the cold storage capacity, it is found to be 24 containers in the case of AGGCS and 30 containers for VGGCS. It deserves mention here that grapes are shipped in reefer containers of 40 feet size. Each such container contains about 3000 cartons (boxes) of grapes. The capacity of a carton is found to be 5 kgs of grapes in case of AGGCS and 5.8 kgs of grapes for VGGCS. Thus, the capacity of a container works out to 15 tons of grapes in case of AGGCS and 17.4 tons of grapes for VGGCS. As for the capacity of cold storage, it works out to 360 tons (24×15) in case of AGGCS and 522 tons (30×17.4) for VGGCS. During the period from 1994-95 to 1997-98, the utilized capacity was found to be much lower than the actual capacity of cold storage available with the societies. Further, during the given period the productivity of grapes on the farms of member farmers was found to vary from 20 to 25 MT/hectare. The post-harvest losses during this period accounted for 10-13 per cent of the total production of grapes. As for the export trade of grapes, both the selected societies have shown considerable progress during the given period. However, the detailed analysis with respect to trade performance of the selected societies as well as costs incurred by them in the export trade of this valued crop is delineated in the subsequent sections.

Export and Domestic Trade of Grapes:

During the given period of time, England was found to be the only country where grapes were exported from AGCCS. However, the VGGCS had exported grapes to both UK and Netherlands. The estimetes related to quantum as well as value of grape exports of the selected societies to various destinations over the period from 1994-95 to 1997-98 are provided in Appendix 1. Further, while AGCCS was trading grapes only in international markets, the grapes procured by VGGCS found their place both in export and domestic markets. Domestic trade estimates of grapes, both in quantity and value terms, for VGGCS are provided in Appendix 2. It could be seen from Appendix 2 that initially VGGCS was trading grapes only in Ludhiana and Mumbai markets. However, in course of time it had switched its trade from Ludhiana to Delhi market as the prices of grapes in Delhi markets were more favourable as compared to Ludhiana market.

Export Costs of Grapes:

The total export cost of grapes was broadly classified into three components such as (i) inland expenses which included inland transport expenses, clearing and forwarding expenses, customs duty, terminal handling charges, etc., (ii) freight for transport from Indian port to the port of the importing country, and (iii) expenses at destination which included custom clearing charges, port cost per container, duty per unit, transportation charges from port to agent's depot, agents depot handling charges including cold storage charges, delivery charges from depot to super markets, super market preparation expenses, etc. The export cost estimates of grapes for the selected societies with respect to the year 1997-98 are provided in Table 5.

Table 5: Cost of Grape Exports Incurred by the Selected Societies : 1997-98

(in Rs/Box)

Particulars	Abhinav Grape Grower's Society	Vignahar Grape Grower's Society
A. Inland expenses		
1. Inland transport etc.	5.63	5.76
2. Clearing and forwarding	0.97	1.03
3. Customs duty	2.10	2.21
4. Terminal handling charges	4.67	4.93
5. Other charges	0.50	0.50
Total	13.87 (9.24)	14.43 (9.35)
B. Freight		
JNPT to Thomas Port	61.02 (40.67)	-
Mumbai to U.K.	-	67.62 (43.82)
Mumbai to Rotterdam	-	67.62
C. Expenses at destination		
1. Duty per unit		
2. Custom clearing charges	34.08	29.43
3. Port cost per container		
4. Transport from port to agent's depot	2.18	2.00
5. Agent's depot handling and cold storage	11.97	13.70
6. Delivery charges from depot to super market	20.03	19.22
7. Super market preparation expenses	2.45	2.76
8. Other expenses	4.45	5.17
Total	75.16 (50.09)	72.28 (46.83)
Grand Total (A+B+C)	150.05	154.33

In the case of AGGCS, the per box export cost of grapes was estimated at Rs 150.05 (Rs. 30.01/Kg). Expenses at destination accounted for the maximum share (50.09 per cent) in total export cost of grapes. The other major item of export cost was the freight for transport, accounting for 40.67 per cent share in total export cost. Inland expenses accounted for only 9.24 per cent share in total export cost of grapes. As for VGGCS, the per box export cost of grapes was estimated at Rs 154.05 (Rs. 26.56/Kg). Expenses at destination again accounted for the highest share (46.83 per cent) in total export cost of grapes. The next important item of export cost was freight for transport, accounting for 43.82 per cent share in total export cost of grapes. Inland expenses accounted for only 9.35 per cent share in total export cost of grapes.

Thus, it could be readily discerned from Table 5 that expenses at destination accounted for the maximum share in total export cost of grapes. The next important item of export cost was the freight for transport from the Indian port to the port of the importing country. Inland expenses accounted for the least share in total export cost of grapes. In general, although VGGCS had shown higher inland expenses and freight for transport as well as total export cost of grapes, the expenses incurred at destination tended to be higher for AGGCS as compared to VGGCS.

Adequacy of Incentives, Constraints Faced and Changes Warranted:

Undoubtedly, the infrastructural facilities created by the NHB have not only helped various grape growers societies to boost their export trade of grapes but also reduced post-harvest losses and raised productivity of this valued crop in the area. However, the procedures followed by the NHB towards sanctioning of soft loans for PHI related activities were noticed to be not only time consuming but also quite cumbersome. It is to be noted that it took more than two years for the selected societies to get the loan money sanctioned from NHB. This had not only delayed the project but also raised the project cost. Thus, the need of the hour for the NHB is to have quick and more effective loan processing and disbursing machinery. Equally important is the financing of the entire and comprehensive project rather than for certain specific components. Further, lack of availability of skilled labour for grading and packing of produce, voltage fluctuation, electricity supply at low voltage and frequent cuts in electricity during the season, lack of availability of water, etc. were seen to be some of the processing related constraints faced by the selected societies. As for the electricity use, another constraint was seen to be related to its tariff. Both pre-cooling and cold storage plants were charged normal electricity tariff as charged for firms operating in urban areas by the Electricity Board. The Chairman of the selected societies, therefore, wanted agricultural tariffs to be applied to their pre-cooling and cold storage plants rather than the normal electricity tariffs.

As for the marketing of grapes, various constraints and suggestions were cited by the Chairman and Secretary and members of the selected societies. According to them, air freight for the transportation of grapes are subsidized by APEDA. However, such subsidies are not available for the grapes being transported through ships. The selected societies, therefore, wanted the sea freight also to be subsidized. Added to this, they also wanted various organizations to come forward to subsidize inland transportation of grapes, apart from providing insurance cover to their produce. The selected societies were also seen to be in favour of receiving funds for setting up of Research and Development (R & D) units for the marketing of grapes.

According to the Chairmen of the selected societies, the exports of grapes require huge working capital which the societies alone can not arrange. The State Government, therefore, should come forward and recommend to National Cooperative Development Corporation (NCDC) to participate in the working capital requirements of the grape grower's societies. However, according to them, the recommendation should be need based and free from any condition of minimum dividend. Further, they also wanted the State Government to come forward to help them in providing market intelligence service for the export of grapes and other fruits and vegetables round the year. Reimbursement of extension service cost from Maharashtra State Agricultural Marketing Board (MSAMB) was another suggestion put forward by one of the Chairmen of the selected societies.

End Notes

1. Post-harvest infrastructural facilities such as cooling, grading, packing, transportation, warehousing, etc. involve enormous efforts and huge investments, which no single organization alone can provide. As per the estimates reported by Kaul (1997), an expenditure to the tune of Rs. 3000 per tonne will be needed to handle or create post-harvest infrastructural facilities for fruits and vegetables (F&V). This means that a total investment to the tune of about Rs. 30,000 crores will be incurred just to handle 30 per cent of the total F&V products which is at present over 100 million tonnes, leaving aside floriculture and other products.

2. The NHB had undertaken two major soft loan schemes. The schemes were: (i) Integrated Project on Management of Post Harvest Infrastructure of Horticulture Crops, and (ii) Development of Markets of Horticultural Produce through Participation in Soft Loan. The first project was undertaken by the NHB in 1988-89. Under this project, assistance was provided for the creation of post-harvest infrastructure such as scientific grading facilities in the producing areas, improved packaging and transport facilities with special emphasis on developing cool chain including establishment of pre-cooling units, refrigerated transport vehicles, etc. The second scheme came into being in 1993-94. This scheme entailed for the provision of soft loan assistance to the beneficiaries of co-operative societies/private and public limited companies/farmers' association and public sector organizations, etc. Under this scheme, soft loan assistance with a maximum limit of Rs. 1.00 crore is being provided at four per cent service charges per annum with one year moratorium period to set up projects related to infrastructural facilities.

3. There are as many as 15 beneficiaries of NHB soft loan in the state that include co-operative societies as well as private/public limited companies. These beneficiaries put togther have received a soft loan component to the tune of Rs. 368.39 lakhs during the period between 1993-94 and 1996-97, which accounts for about 52 per cent of the total soft loan distributed by NHB to various beneficiaries (26 beneficiaries) in the country during the period.

4. The four grape growers' societies who have received soft loan from NHB are: (i) Karamveer Grape Growers Cooperative Society Ltd., Dhule (Rs. 2.40lakhs), (ii) Mogi Grape Growers Cooperative Society Ltd., Nasik (Rs. 1.10 lakhs), (iii) Abhinav Grape Growers Cooperative Society Ltd., Pune (Rs. 41.00 lakhs), and (iv) Vignahar Grape Growers Cooperative Society Ltd., Pune (Rs. 41.00 lakhs).

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Appendix 1 : Export Trade of Grapes by the Selected Grape Grower's Society

Exports	1994-95	1995-96	1996-97	1997-98
Abhinav Grape Grower's Co-operative Society				
1. Country	UK	UK	UK	UK
- Quantity (MT)	120.00	285.00	289.00	120.00
Total Value (Rs in lakh)	45.00	80.00	83.00	53.00
Value (Rs./Kg)	37.5	28.07	28.72	44.17
2. Country	-	-	-	-
- Quantity (MT)	-	-	-	-
Total Value (Rs in lakh)	-	-	-	-
Vignahar Grape Grower's Co-operative Society				
1. Country	U.K.	U.K.	U.K.	U.K.
- Quantity (MT)	59.04	77.39	165.16	192.48
Total Value (Rs in lakh)	20.56	23.94	46.51	68.33
Value (Rs./Kg)	34.82	30.93	28.16	35.50
2. Country	Netherland	Netherland	Netherland	Netherland
- Quantity (MT)	47.18	209.85	77.92	72.01
-Total Value (Rs in lakh)	14.51	61.02	20.40	23.17
Value (Rs./Kg)	30.75	29.08	26.18	32.18

Appendix 2: Domestic Trade of Grapes by the VGGCS

Domestic Trade	1993-94	1994-95	1995-96	1996-97	1997-98
Vignahar Grape Grower'sCo-operative Society					
1. Place	Ludhiana	Ludhiana	Delhi	Delhi	Delhi
- Quantity (MT)	35.00	37.00	41.00	45.00	50.00
Total value(Rs in lakh)	4.50	4.81	5.33	6.30	7.00
Value (Rs./Kg)	12.86	13.00	13.00	14.00	14.00
2. Place	Mumbai	Mumbai	Mumbai	Mumbai	Mumbai
- Quantity (MT)	30.00	32.00	36.00	40.00	48.00
Total value(Rs in lakh)	3.60	3.84	4.68	6.00	7.20
Value (Rs./Kg)	12.00	12.00	13.00	15.00	15.-00