



**REPORT ON THE EVALUATION STUDY OF CHANGKI VALLEY FRUIT PRESERVATION
& CANNING FACTORY
AT LONGNAK**

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PREFACE

As the fourth publication of Evaluation Unit this report present the findings and recommendations of the Evaluation Study of Changki Valley Fruit Preservation and Canning Factory at Longnak in Mokokchung district. This case study which was taken up at the instance of the Planning and Co-ordination Department, aimed at assessing the progress of the state's maiden venture in fruit preservation and canning, gauging its impact on fruit –growers and suggesting effective measures for its efficient functioning. The study refers to the period from 1965-66 to 1971-72 when hand-operated production on a very small scale was just dragging on its existence and the arrangements for factory level production were awaiting completion. The enquiry has revealed certain irregularities, problems and bottlenecks in setting up the factory and organizing production on a rational basis.

In fact, there is ample scope for the fruit preservation and canning industry to flourish in Nagaland where congenial agro-climatic conditions hold out enormous prospects for horticultural development. The state's agricultural programme has recognized that horticulture as an additional source of income, can improve the economic condition of the farmers. Apart from this the massive drive for horticulture development under five year plan has virtually paved the way fro fruit preservation and canning which may be organized as a resource- based industry. Increased fruit production on the one hand and low per capita fruit consumption on the other is expected to result in a substantial marketable surplus of fruits. Industrial utilization of these surplus fruits might have been the prime consideration that led to the establishment of the aforesaid factory at Longnak which enjoys the locational advantage of proximity to the fruit- growing areas in and around Changki Valley.

Despite practical limitations Shri.N.N Banerjee, former Evaluation Officer ably carried the burden of conducting the study and preparing the report. Evaluation unit is grateful to the concerned officers of department of Agriculture for their co-operation and assistance in carrying out this study. It is expected that the report will, prove useful to the concerned implementing agency in taking the follow-up action as suggested.

Kohima,
Decemebr, 1975

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EVALUATION STUDY ON CHANGKI VALLEY FRUIT PRESERVATION AND CANNING FACTORY AT LONGNAK IN MOKOKCHUNG DISTRICT.

CHAPTER – I Introduction and background

1.1 Nagaland in its physiography and with its wide variable in topography, soil and climatic conditions, offers ample scope for the development of horticulture. The temperature ranges from tropical to temperate and as such a great many varieties of tropical, subtropical and temperate fruits can be grown with advantage suiting the soil, climate and altitude in different areas of the three districts that comprise the State of Nagaland. The annual rainfall in the State averages between 70" and 100" and is mostly received in monsoon months. On a rough estimate, the altitudinal distribution of the area in the state would be about a quarter between 1000-3000 ft, half of the area between 3000-6000 ft. and the remaining quarter between 6000 to 10,000ft. The summer temperature ranges from 60°F to 100°F. During winter months the temperature is low, and in most of the areas the winter though severe is not marked with snow fall.

1.2 The enormous potentialities for development of horticulture in the State remains still unexplored though a start has been given only recently. The following fruit-growing areas in the State may be cited as some among the important ones:

District	Name of Fruit growing areas	Fruits grown in the area
1. Kohima-	i) Southern & Western Angami Areas	- Temperate fruits like Pears, Plum, Peach, Apple.
	ii) Pfitsero	- Citrus, guava, banana.
	iii) Northern Angami area	- Pine-apple, citrus and banana.
	iv) Ghaspani area	- Pine-apple, citrus and banana.
2. Mokokchung-	i) Changki area	- Citrus and Pine-apple
	ii) Baghty area	sub-tropical and
	iii) Chungtunia area	temperate fruits.
	iv) Akuluto area	
	v) Chungtia area	
	vi) Kinionger area	

3. Tuensang-	i)Tobu area	- Citrus, Pine-apple and Guava.
	ii)Kiphire area	Orange and Pine-apple.
	iii)Longleng area	Mango and Pine-apple
	iv)Longkhim area	Temperate fruits.
	v)Shamator area	Temperate fruits.
	vi)Tigit area	Orange and Pine-apple
	vii)Naginimara area	Orange, Pine-apple and Cashew- nut.

1.3. Apart from the scope for extension of the area under orchard, different improved cum new varieties and species of fruit- trees requires introduction to replace the traditional local varieties which are mostly of poor quality with none too encouraging yields. Facilities like communications and transport being extremely inadequate, the commercial aspect of improved horticultural activities together with an extension of area thereunder could not take root in the minds of growers because of unsaleable surplus. Added to this was an absence of the State's proper attention towards potentiality of horticultural developments and problems associated with it. As a matter of fact, prior to the formation of the State in Decemebr1963, nothing tangible in this regard was done in areas which now comprise the State. The First Five Year Plan did not perceptibly touch the areas now under it when the areas were within the State of Assam. The Second Five Year Plan mostly went blank due to disturbances except for the last three years under the a nascent NHTA Administration when some feeble attempts were made by way of distribution of fruits seeds, seedlings, suckers, budded and grafted plants as the following will reveal:-

Name of district	Kinds of seeds/plants distributed	1958-59	1959-60	1960-61
Kohima	i) Orange seeds	- 10 seers	-	-
	ii) Orange seedlings	- -	1400 Nos	-
	iii) Fruit seed (not specified)	- 1200 Nos	-	-
	iv) Plants, grafts (not specified)	- 1911 Nos	4464 Nos	12,250 Nos
Mokokchung	i) Orange seedlings	- 16,120 Nos	5000Nos	Nothing reported
	ii) Pine-apple suckers	- 1200 Nos	200 Nos	Nothing reported
	iii) Lichee plants	- -	50 Nos	Nothing reported
	iv) Budded plants (not specified)	- -	700 Nos	Nothing reported
	v) Grafted plants (not specified)	- -	500 Nos	Nothing reported

1.4. It may be noted that what ever development schemes were taken up during the above three years had been on an ad-hoc basis. During this period against a total plan provision of Rs.433.85 lakhs for the whole NHTA area (now named Nagaland) under different development schemes of the plan, provision under agricultural programme including Community Development was Rs.66.98 lakhs while the actual expenditures were Rs.315.72 lakhs and Rs.52.50 lakhs respectively. The Third Five Year Plan started somewhat realistically in December'63 when the new state of Nagaland came into existence. The agricultural programmes however suffered in absence of well organized machinery for implementation. Incidentally it may be mentioned that only at the flag end of 1961 the Directorate of Agriculture just started functioning notionally which continued till May 1963 when a full fledged Directorate came into position with the key and top-ranking persons therein. It is however significant that during the 3^d Plan, against a total expenditure of Rs.77.20 lakhs in the Agricultural Sector (including cost of buildings worth Rs.5.83 lakhs), schemes under Horticulture accounted for Rs.13.33 lakhs.

(N.B. Sources of figurative data is Plan Books)

1.5. As successful running of a Fruit Preservation and Canning Factory like the one under study depends mainly on adequate and timely supply of quality fruits from areas of the state surrounding it, it may be of interest to dwell on horticultural development programme sponsored by the State Government. The First Year of the third plan viz 1961-62 showed no tangible activity except distribution of some plants and grafts in the usual as in proceeding years. It was only in 62.3 when some timely and useful programmes has been drawn and worked upon by way of

- (i) Horticultural loan (cash and kind)
- (ii) Establishment of Fruit Nurseries (progeny orchards) and Small Scale Demonstration Orchards.
- (iii) Home Scale Fruit Preservation and
- (iv) Establishment of Horticulture Research Farm at Pfutsero

The following will reveal the year wise progress and position in respect of each of the 4 Schemes.

- (i) Horticultural Development (distribution of seedlings at 50 % subsidy, loan schemes followed by subsidy schemes.

1.6. A new measure known as loan scheme was introduced in 1962-63. The aim was to encourage willing growers to bring suitable lands under orchard by way of giving a loan of aRs.500/- per acre, half of which was to be given in cash for preparation of land, fencing etc. and the rest in kind by way of supply of fruit plants. Such scheme on cash cum kind loan worked upto the end of the Third Plan i.e. 65-66. Achievements may be shown as follows:-

Year	* Amount spent	+ Area newly brought under orchard (estimated)	Number of loanees
1	2	3	4
1962-63	Rs.1.15 lakhs	324 acres	+ 98
1963-64	Rs.0.74 lakhs	138 acres	+ 46
1964-65	Rs.1.49 lakhs	300 acres	+ 85
1965-66	Rs.1.00 lakhs	200 acres	** 106
Total	Rs.4.38 lakhs	962 acres	335

* Source - Agriculture Directorate.

- Source – Annual Plan Book except data for Col.4 against 65-66.

** Source – District Agricultural Officers.

The area in Column 3 however excluded a total area of 677 acres brought under fruit growing during the Third Plan period with an expenditure of Rs.1.77 lakhs by way of supplying planting materials at subsidized rates (50 %)

1.7. Since 1966-67, the above scheme of loan (cash and kind) was reoriented in favour of a scheme of subsidy in kinds @ Rs.300/- per acre which is being paid to willing farmers by way of supply of plants/grafts, fencing materials, tools etc. This scheme covered an area of 640 acres at a total cost of Rs.3.66 lakhs during the three ad-hoc plan years of 66-67, 67-68 and 68-69. In 1966-67 the scheme could not be taken up for nonfinalisation of the policy regarding granting of subsidy. However it was finally decided that subsidy would be paid to cultivators for fencing materials only, while plants, grafts and tools would be issued free of cost. The subsidy scheme continues during the Fourth Plan also. In addition, horticultural demonstration on cultivators holding, rejuvenation of declining citrus orchards, supply of vegetable seeds at 50 % subsidy rates and distribution of pamphlets relating to various horticultural crops for publicity purposes have also been included as supplementary measures during the Fourth Plan under the Horticultural Development Programmes to which the subsidy scheme belongs. Progress on Horticultural Development Schemes covering all the above are shown as under:

Year	Amount spent	Achievements
1969-70	Rs.0.61 lakhs	555 acres (including vegetable)
1970-71	Rs.0.61 lakhs	233 acres (including vegetable)
1971-72	Rs.1.35 lakhs	403 acres (including vegetable)

1.8. Of the above schemes, the citrus rejuvenation programme involving distribution of improved fruit plants is being implemented since 1970-71 for which Changki Valley has been specially selected as avenue for execution of the programme. This has been done with a view to having supply of quality fruits to the factory when commissioned. Upto 1971-72 there has been a total distribution of *25,900 Nos. of fruit plants to cover *130 acres involving a total cost of Rs, *15,350/- on plants only excluding transport cost.

(ii) Establishment of fruit Nurseries (Progeny orchards) and Small Scale Demonstration Orchards:-

This scheme was sponsored in 1962-63 with an initial expenditure of Rs.0.24 lakhs for setting up the Nursery at Baghty. Target in the 3^d Plan in respect of this scheme was to start 3 Nurseries and 3 small Scale Demonstration orchards one in each district of the State for which there had been a Plan provision of Rs.5.15 lakhs. The objective of the scheme is to achieve as much self-sufficiency as possible towards the requirement of the state in matter of fruit plants and grafts by way of eliminating the need of procurement from neighboring States which involved huge sums every year apart from difficulties and transit mortality together with uncertainty regarding quality of plants as also suitability in agro climatic condition of Nagaland . During the Third Plan period 3 Nurseries were set up respectively at Baghty, Mangaki and Heninkongla, while 3 demonstration orchards were set up at Dimapur (later turned into progeny orchard cum Nursery), Tuli and Tigit. The acquisition and development of 270 acres comprising all these Nurseries demonstration Orchards together with planting of 3150 Nos of fruits plants/ grafts (mainly oranges, lemon and guava) therein for future propagation , plus expenditure on buildings of Rs.0.84 lakhs etc, during the Third Plan involved a total expenditure of Rs.4.06 lakhs. During ad-hoc plan years 2 more progeny orchards, one high altitude and one medium altitude, had been set up at Chengtang (Tuensang District) and at Atoizu in Mokokchung District respectively with a total expenditure of Rs.3.45 lakhs.

1.10. The maintenance cost of these orchards, Nurseries etc is being met from Non- Plan grant since 66-67. However a sum of Rs.2.60 lakhs being the cost of spillover works by P.W.D. (construction of quarters) during Third Plan has been kept for spending during the Fourth Plan in a passed manner out of which Rs.0.05 lakhs and Rs.0.20 lakhs had been spent during 1969-70 and 1970-71 respectively.

(iii) Sponsored in 1962-63 at Kohima, the scheme envisaged dissemination of knowledge among fruit growers regarding fruit preservation in a simple and small scale by practical demonstration before house-wives and growers during visits by field staff to individual homes. In 1963-64 the scheme was extended to Mokokchung while in 1965-66 the scheme though earmarked for extension to Tuensang, could not be worked upon. The scheme could neither make any headway nor create enthusiasm and was ultimately abandoned after spending Rs.1, 000/- in 1962-63, Rs.6, 000/- in 1963-64, Rs.4, 000/- in 1964-65 and Rs.3, 000/- in 1965-66.

(iv) Horticultural Research Farm at Pfutsero:

1.12. The major position of Nagaland having a subtropical to temperate climate, the State offers scope for extensive research and trial on exotic and indigenous varieties of various fruits. To arrive at suitable varieties after research and trial in regard to fruits specially of temperate varieties like apple, pears, apricot etc that may suit different areas, the horticultural farm was located at Pfutsero at an altitude of 7000' ft with temperature ranging between 65 F in summer to 20.F in winter.

1.13 Though sponsored in 1962-63 with an allocation of Rs.1.73 lakhs, actual work on it could not proceed in the desired way. A preliminary expenditure of Rs.0.11 lakhs and Rs.0.01 lakh was incurred in 1962-63 and 1963-64 respectively. The site for the farm was finally selected in 1963-64 when 150 acres of land was acquired of which only 10 acres could be developed and planted with apple grafts and seedlings which involved a total expenditure of Rs.1.29 lakhs during the third plan period. During the

(N.B. Source of figures with asterick marks is Directorate of Agriculture while others non-marked denote Plan Books as source)

Ad-hoc plan period a further area of 214 acres were acquired (of which 75 acres were cleared) and 4000 apple plant/ grafts planted with arrangement for irrigation, fencing of entire are etc. which involved a total plan expenditure of Rs.3.41 lakhs. Of the aforesaid number of 4000 plants, 1000 Nos of Apple plants had been bought from Kashmir for plantation in the farm in 1966-67. So far i.e. upto 71-72, an area of 75 acres is under plantation including 45 acres for commercial purposes and 30 acres for research. Besides 5 acres remain under Nursery. The plantation of 75 acres covers improved species of apple, pears, apricot and plum. However, systematic research work still suffers due to non- appointment of a qualified Research Officer. Year wise expenditure and achievements are shown below.

(source - ** Directorate of Agriculture, source - * Plan Book)

(i)

Year	Area acquired (acre)*	Area developed (acre)	Area planted (acre)**	Total amount spent (inclusive of all)**	
				Plan	Non-Plan
1	2	3	4	5	6
1962-63	Nil			0.11	Nil
1963-64	150			0.01	Nil
1964-65	Nil	* 10	Nil	0.36	Nil
1965-66	Nil			0.81	Nil
Total in					
3 rd Plan	150	10	Nil	0.81	Nil

1	2	3	4	5	6
1966-67			1	1.24	0.35
1967-68	214	* 65	Nil	1.00	0.32
1968-69			25	1.17	0.34
Total in					
Ad-hoc	214	65	36	3.41	1.01
Plan years					
1969-70			31	0.97	0.55
1970-71	Nil	** 14	5	0.02	0.72
1971-72			3	0.17	0.30
Total in					
4 th Plan	Nil	** 14	39	1.16	1.57
Upto 71-72					
Grand Total	364	89	75	5.86	2.58

(ii) Scale proceeds of farm products and grafted plants (in Rs.lakhs, source- Agricultural Directorate):

It appears that the I.C.A.R. was to have taken over the farm since 1969-70 for research work. But till now no such take-over has materialized.

1.14 In course of contacts with villagers who were to be the ultimate beneficiaries of the schemes, it appeared that implementation of the schemes under Horticulture was suffering from a number of limitation in the way of having the desired impact. The loan scheme had to be abandoned in favour of a subsidy scheme fro non-repayment of loan by the loanees. The subsidy scheme too, requires close

observation and scrutiny against possible misutilisation by way of follow-up measures with hitherto has not been undertaken with as much earnestness is called for. The block agency may be geared up for this role. The citrus rejuvenation measure has been a timely and much needed one, success of which equally rests upon an organized field staff like Block agency and on effective co-ordination between the department and the block. The impact of orchards and nurseries has yet to be felt in a perceptible way.

The activities of research and trail at Pftusero centre have suffered for want of a qualified Research Officer. All these call for gearing up the administrative machinery to the desired level so that these useful schemes may not remain as expenditure oriented bereft of achievements and impact to the desired extent. It has to be borne in mind that success in Horticultural development through the aforesaid schemes has a close bearing not only on socio-economic aspects, but also on supply of adequate quantity of quality- fruits to the Fruit Preservation Factory under study, apart from acting as a stimulus for setting up of similar enterprises in future whether on Government, Cooperative or private levels in different Fruit growing belts of the State.

CHAPTER-II

Progress regarding the Factory:

2.1 The Changki Valley Fruit Preservation Factory is located at Longnak in Changki Valley known for its orange and pine-apple belt. The genesis of the scheme for establishing such a factory owes its origin to the suggestion of an expert from Sikkim who on a request by the State Government had toured the fruit growing belts and submitted a report to the Government. The report not being traceable at present, relevant details that might feature in the said report could not be gathered for the purpose of the present Evaluation Study.

2.2 This scheme started with an allocation of Rs. 5.00 lakhs out of which Rs. 2.39 lakhs had been proposed for the first year viz 1963-64. The total cost estimated initially was Rs. 6.48 lakhs later revised to Rs. 4.04 lakhs. In 1965-66 construction of building (other than Factory building) taken up by P.W.D. accounted for an expenditure of about Rs. *0.79 lakhs. The total expenditure however, during Third Plan was Rs.+ 2.35 lakhs of which buildings (staff quarters and godown etc.) accounted for Rs. **0.79 lakhs and machineries and equipment accounted for Rs. **0.70 lakhs. Since '66-67 the maintenance cost of the Factory is met from Non-Plan provision. Although most of the preliminaries had been completed by 1965-66 including appointment on deputation of a Fruit Technological Officer and purchase of most of the machineries and equipments, the absence of a factory building was a deterrent to installation of the machineries and equipment therein for the purpose of bulk production. It appears that a sizeable chunk from within the heart of the factory site having been taken over by Border Road Organisation for construction of the present all weather road, the remaining space for the factory was considered insufficient for future expansion of the Factory. Moreover there was the question of soil erosion by River Longnak which passes allong the proposed factory site. All these factors led to protracted negotiation for an alternative site which however fizzled out owing to Vacillating attitudes of land owners leading ultimately to unwillingness on their part. The Department had therefore to be content with the previous site for the factory though rendered somewhat smaller though the said acquisition by Border Road Organisation.

2.3 Even after the considerable time-lag stated above, the construction of Factory building was not taken up in right earnest. It however appears from the 9th Report by Committee on Government Assurance,

April 1970, that the delay on the part of P.W.D. for undertaking construction of Factory Building was due to delayed receipt of approval from Agriculture Department regarding construction of the Building at the present site which had been received by P.W.D. not earlier than January 1970. The Committee however was assured by Executive Engineer of P.W.D. that by September 1970 if not earlier, the work on construction of Factory Building would be completed. Para 25 of the said report regarding Agriculture Department, states "The committee deplore the slackness on the part of the Department in implementing the assurance. The committee fail to understand why the Agriculture Department took so much time to convey the approval of the site. The Committee would urge upon the department to take expeditious steps hereafter for completing the construction of Factory and for

Source: - Directorate of Agriculture. Plan Books. Figures are estimated. Includes Rs. 1.56 lakhs as furnished by Directorate of Agriculture on all expenditures other than buildings

starting the Factory at an early date". Unfortunately however, the position did not improve and the production could not start for want of Factory Building. An extract from the Twelfth Report of Public Accounts Committee, December 1970 is revealing in this context—"The Committee are also distressed to note that even a small undertaking as Changki Valley Fruit Preservation Factory has not been properly set up by the Department although the scheme has been under implementation since long ago and although huge amount had been spent so far. The Committee would like the Agriculture Department to make serious effort for starting the factory. In case it is not found feasible to set up the factory and run it on economic lines it would be better to wind up the factory instead of sinking further capital on it".

2.4 It is also possible to have a look into earlier years vis a-vis the department's expectation and complacency regarding construction of factory Building as it provided by Animal Plans brought out by the Planning & Coordination Department. Relevant extracts from some of these books may be quoted as follows :-

(i) "As regards the construction of Factory building, the revised estimate has already been sanctioned and building is expected to be completed by the end of 1965-66. Most of the machineries to start the factory have been received and it is proposed to start canning during the next fruit season" (Revised Annual Plan 1965-66).

(ii) ".....and tenders invited for constructing the factory Building. A Fruit Technological Officer has already been posted.....and it is expected that the Factory will start production by the end of 1965-66" (Draft Annual Plan 1966-67).

(iii) "In absence of Factory building the machineries could not be put into useThe factory is expected to start production during 1966-67 if the factory is completed" (Revised Annual Plan 1966-67).

(iv) "The Factory is expected to go in for production by 1969-70 when the main building is expected to be completed. Machineries required for the Factory have been procured but some of them could not reach the site due to bad road condition" (Draft & Revised Annual Plan 1967-68).

(v) "The Fruit Preservation Factory could not start functioning due to non-completion of building. Although most of the heavy machineries have been purchased, these could not be installed in absence of the main factory building and a proper road.....it is expected that during 1968-69 this factory building will be completed.....The factory is likely to go on production during 1969 70" (Draft Annual Plan for '68-69).

(vi) ".....No progress could be made on production programme due to non-completion of the construction of the factory building due to difficulties such as bad communication connecting the valley etc. The Border Road Organisation has now completed the road through the Valley, and the P.W.D. has also taken up construction of the factory building which is expected to be completed by 1971-72" (Revised Fourth Five Year Plan).

(vii) "During 1969-70, a sum of Rs. 1.53 lakhs was spent by the P.W.D for construction of the factory building while RS. 0.86 lakhs has been kept for the year 1970-71. The building programme for Changki Factory is likely to be completed by the end of 1971-72" (Revised Annual Plan 1970-71).

(viii) "Most of the Buildings for the factory have been completed except the main factory building for which amount has been provided in the Plan. A sum of Rs. 0.86 lakh is likely to be spent by the P.W.D. during 1970-71 for construction of the Factory Building. It is expected to be completed by 1971-72 by spending another sum of Rs. 0.56 lakh" (Draft Annual Plan 1971-72). Nevertheless, construction being over, the factory building was handed over by P.W.D. to Agriculture Department in January 1972.

2.5 It is thus apparent from above that continuous expectation over years regarding the factory building and its early commissioning ignored reality though it came down gradually to a low key. Such complacency and expectation outweighed even the feasibility aspects in terms of time factor, specially when there was no semblance of the existence of infrastructure like communicable road, power, and water-supply arrangements even in the neighbourhood of the proposed factory site. The creation of all these infrastructural facilities rested too on other departments. As a matter of fact the construction of the road and power line extension from Mariani upto the factory site at Longnak were completed not earlier than 1969-70. Notwithstanding these, the department embarked on activities of secondary and lower priorities like procurement of machineries and equipments, transport vehicle and staff recruitment etc. as discussed hereinafter and in subsequent chapter.

2.6 The extracts quoted will also reveal that though the departmental approval of site, however delayed, had been conveyed to P.W.D. in January '70 and the connecting all weather road had been completed meanwhile, the work of construction of the Factory Building had not been taken up with as much earnestness as it should have been. Obviously enough, lack of coordination between the Departments concerned caused this inordinate delay in completing the construction not earlier than December 1971. The sense of urgency that prompted hasty purchases of transport (pick-up) vehicle (1963-64), of machineries and equipments (64-65 to 67-68) together with recruitment of Driver (1964-65) and handyman (1965-66), of Factory workers (1964-65 to 66-67) and office staff (1964-65) was not discernible in the matter of Factory Building. The question remains whether or not all these activities involving huge capital as well as recurring expenditure in the form of staff salary, etc., should have awaited the constructional stage of the Factory Building in the absence of which all these had to remain idle e. g. Plants and machineries, or at best underutilized e.g. Factory workers and staff, power wagon with driver and handyman etc. etc. for years- It thus follows that placement of due priorities on successive items of execution became a casualty through disarray. Added to this is the question of a possible time-lag in matter of Boiler installation in accordance with the layout (since completed) of plants and accessories to be prepared by a visiting expert from outside under whose guidance the Boiler is to be installed. Thereafter a further time-lag may ensue in securing the necessary license with instruction for Boiler operation from Chief Inspector of Boiler following inspection by himself or by his authorised officer. Last but not the least is the appointment of a Boiler man from outside the State as none with requisite qualification is available locally. Needless to state, all these are time consuming.

2.7 In fine, had all the above been properly visualised through foresight, unnecessary expenditures for years might have been avoided. The present activities on hand made miniature production carried out in the godown is only an attempt to make best of a situation and was not conceived in the scheme for the Factory. In short, the present handmade operation is a creation of circumstances wherein the previous experience and expertise of the present Fruit Technological Officer in charge of the Factory have only limited scope for display and of being assessed.

2.8 The Evaluation Study had therefore to be content with the study of a miniature hand made production instead of a bulk production which is possible only when the factory is commissioned. Notwithstanding some change in aspects for the study and consequent limitations imposed thereby, the study may be useful as a base for further Evaluation in future when the Factory is commissioned or on a similar enterprise elsewhere in the State.

CHAPTER III

Evaluation Study

3.1. In the preceding Chapter, an attempt has been made to discuss precisely though in brief some measures carried out in this State for the upliftment of Horticulture. To what extent each individual programme has contributed towards Horticulture development in substance is a subject matter for further field study in future whereby actual impact on fruit growing areas may be assessed in depth depending on the availability of relevant primary level data.

3.2. However, the preliminary activities and the lacuna that marked the initial stages prior to completion of Factory Building have also been dwelt on at some length in previous chapter. This will help in having some idea regarding time lag and resultant loss factors continuing unhappily over years which will be spelt out in greater details later on.

Objectives and scope of the study:

3.3. In the previous chapter and particularly under preface, the objectives of this study, its nature and scope have been stated. To remember, it is only a case study, as the Factory under study is the first and the only Government enterprise on fruit preservation and canning in the State of Nagaland.

Procedure of enquiry:

3.4. The Evaluation team besides visiting the Factory also visited some fruit growing places in Changki Valley. Discussion were held with some fruit growers, Goan Buras, and leading villagers in Changki Valley about fruit growing in the area, scope of Horticultural development, Government measures, their views on such measures etc. Data were collected from the Factory and from Directorate of Agriculture. Besides, discussions were also held with Fruit Technological Officer in charge of the Factory and the officers of the Directorate and specially with the Horticultural Officer. Furthermore, in course of visit to other areas of the state, information was gathered through discussions with cultivators on horticulture and Government measures on it together with their views thereon.

Limitation:

3.5. Absence of any experienced Investigators, in the Unit was the principal limitation towards field enquiry both in width and depth. Secondly, the research staff of the Unit had little knowledge of the local dialect of the fruit growing areas in Changki Valley and had to discuss matters through interpreters. No land survey having been undertaken in the State, the villagers had no idea regarding under fruit trees. It is also noted that this aspect had a vital bearing on adequate or otherwise of fruit supply position when factory is commissioned for bulk production, if necessary in more than one shift. Reliable lists village wise, showing cultivators with different varieties and respective number of fruit trees grown by them are not available. In addition, basic year wise data were not readily available in

many cases to enable assessment on the trend of schemes connected with horticulture. What is more, a systematic survey on Horticulture has yet to be undertaken in the State.

CHAPTER -IV

Organisation, infrastructure, amenities and other facilities.

4.1 In previous chapter, schemes relating to Horticulture have been discussed. It may be worthwhile to give here a brief outline on the general set-up of horticulture section in the Directorate of Agriculture.

4.2. There is one Horticultural Officer (Gazetted Class II) at State Level who is in charge of Horticulture Section in the Directorate of Agriculture. Besides, there are 4 (four) Horticultural Inspectors, one in each of the 3 Districts of Nagaland attached to the office of District Agricultural Officer and one attached to the Directorate of Agriculture and Horticulture Section.

4.3. The Horticulture Officer is under the administrative control of the Directorate of Agriculture. It is the Director of Agriculture who evolves policy and schemes, and controls all technical matters on Horticulture. Except technical guidance, the Horticultural Officer has no control, administrative or in technical matters, over officers and staff of Fruit Nurseries, Orchards and Fruit Research Farm, as also on Horticultural Inspectors. The officers and staff of Fruit Preservation and Canning Factory under study bear no exception to this. They are under the administrative and technical control of Director of Agriculture. The Horticulture Officer however assists the Director of Agriculture in devising schemes and measures on Horticulture, and in course of his limited tours supervises the implementation of schemes, assesses the progress and gives technical guidance. According to the Director of Agriculture, absence of any provision for jeep has restricted the tour of the Horticultural Officer.

4.4. To come now to the organizational aspect of the factory under study, some light has been focused previously on the initial stages and the difficulties and inhibitions which have brought about an inordinate time-lag in the commissioning of the Factory- the gestation period whereof still continues. In the annexure, the staffing pattern of the Factory has been shown together with other details regarding the incumbents. The annexure provided at a glance the turnover of all cadres (except the Chowkidars who joined) beginning from 1965 till August 1972 when Evaluation team visited last.

4.5. The Fruit Technological Officer (or F.T.O. in abbreviation) is solely responsible for management and implementation of the scheme. He appears to have the requisite technical qualification on Fruit preservation and canning and has past experiences in a similar Government enterprise in a neighboring state wherefrom he came to serve in Nagaland on deputation on 2.11.1964. He remained at Kohima till he was finally posted at the Factory Site (Longnak) in June 1965. His services remained underutilized till 1966-67 when experimentation with fruit products began followed by handmade production in 1967-68.. In other words his past experienced and expertise on bulk production at Factory stage have so long

remained unutilized and unassessed pending commissioning of the Factory. The present hand made production of fruit products on small scale made under his management, supervision and guidance is running at a loss for factors, which, though not particularly of his own making, have been discussed later on.

4.6. To assist the F.T.O. there is one Fruit Technological Assistant. The cadre was filled up as early as in August 1965 when there was no semblance of even the hand made production which began only by the way of experimentation in 1966- 67. The present incumbents joined here in May 1971 and is the third substitute in succession. The three incumbents in succession who are all local people appear to have agricultural qualification. The present incumbent has qualification on fruit preservation but lacks Factory training. The Fruit Technological

Assistant, according to the Fruit Technological Officer, should have factory experience also for ably supervising the factory work during the bulk production. His suggestion to send the fruit Technological Assistant for factory training merits consideration by departmental authority.

4.7. The only office staff is the U.D.A. cum Accountant. This post, it seems, was prematurely filled up as early in March 1965 even before the posting of Fruit Technological Officer and Fruit Technological Assistant- and long before the hand made production, which had actually started in 1967-68 (though commenced notionally in 1966-67 on a negligible scale, only by the way of experimentation and not for the sale). The present incumbent is the 3rd substitute in succession having joined in November 1970.

4.8. The recruitment of the boiler man justifiably awaits installation of the boiler, Regarding driver, handyman, their recruitment might have awaited the present handmade production. This becomes apparent from the fact that although the first among the cadre (Driver) officially reported for duty on 1.3.1965, he with the vehicle was engaged elsewhere for other duties under direction of the Director of Agriculture till December 1967 when actually the present vehicle was, for the first time, placed at the disposal of F.T.O. at Longnak. Even then the question remains if the work load under existing handmade production on a small scale can justify service of any Power Wagon (Truck) for economic point of view.

4.9. In place of a sanctioned strength of 8 Packer-cum-Workers, 4 had been recruited for the Factory work in 1965 with two more additions in 1966 one of whom left in '68. The present 5 Nos. of workers are all regular incumbents. As already stated before, the present handmade production started in 1966-67 although mainly for experimentation and not for sale. This raises doubt about justification for recruitment of regular all time workers in aforesaid strength without due regard for the work load which was least evident in 1965. According to Fruit Technological Officer's own estimate, the appointment of 2 persons as Packer-cum-workers if at all, would have met the present work load of hand made production. Through only estimated, the following reveals the extent of under-utilization in the present small scale

production of the regular packer-cum-workers vis-à-vis a previous strength of 6 later coming down to 5 such workers: (Source – F.T.C)

Annexure (para 44)
Data on Staff in Changki Valley Fruit Preservation & Canning Factory at Longnak (as on 31-3-1972)

Designation	Scale of pay (Rs)	No. of post sanctioned	No. in position as on 31-3-72	Educational qualification of both previous and present incumbents (By Sl.No)	Technical qualification (if any) of both previous and present incumbents (By Sl.No)	Date of posting (by Sl.No) of incumbents of each cadre previous and present	Date of transfer or relief from the factory	Remarks
1	2	3	4	5	6	7	8	9
1.Fruit Technological Officer (Class IIGazetted)	385-1020	1	1	B.Sc	Completed advance course of Fruit Preservation Training in CFTRI,Mysore.	June 1965	...	Joined actually on 2.11.64. as F.T.O at Kohima (having come on deputation from Govt. of Assam) where remained till his posting is the Factory in June 1965.
2. Fr.Tech.Assistant (Class III)	275-330	1	1	i)Matriculate ii)Matriculate iii)Matriculate	I.Sc.(Agriculture) I.Sc.(Agriculture) I.Sc.(Agriculture)	1.8.1965 1.5.1967 1.5.1971	28.2.66 31.4.71 ...	
3.U.D.A.cum Accountant (ClassIII)	220-330	1	1	i)Matriculate ii)Matriculate iii)Matriculate	I.Sc.(Agriculture) I.Sc.(Agriculture) I.Sc.(Agriculture)	1.3.1965 9.6.1969 15.11.1970	31.3.69 14.11.70 ...	
4. Boilerman (Class III)	140-220	1	Nil	...	...	...	...	Vacancy due to non-installation of boiler.
5.Driver (Class III)	125-155	1	1	i)Class IV ii)Class IV iii)Class V iv)Class VI	... ... ... ...	1.3.1965 16.2.1967 9.6.1968 1.7.1970	13.7.66 31.5.68 21.6.69 ...	
6.Handyman (Class IV)	95-145	1	1	Class V	...	1.5.1965	...	
7. Packer-cum-worker (Class IV)	95-145	8	5	i) Class VI ii) Class V iii)Class VII iv) Class V v) Class VII vi) Class V	... ... ... ... ... ...	1.2.1965 1.4.1965 22.4.1965 1.5.1965 1.5.1965 1.5.1966	... ... ... 30.4.69 ...	Out of 6 recurcited1 have left. Since then the three vacancies not filled up pending commissioning of factory.
8. Chowkidar (Class IV)	90-140	1	1	i) Class V	...	1.7.1967		
9.Peon (Personal) (Class IV)	90-140	1	1	i)Class IV ii)Class V iii)Class V	... ... ...	1.2.1965 1.1.1966 1.11.1966	31.12.65 31.10.66 ...	

Year	Total No. of man-days for production work	Average man- days per worker in the year for production work
1	2	3
1967-68	540	90
1968-69	570	114
1969-70	885	177
1970-71	890	178
1971-72	990	196

Bearing however, in mind that production in a Fruit Preservation enterprise is seasonal, local labourers who as it appears are generally available in the area on monthly wage rate of Rs.135/- P.M. might have been, from time to time casually employed with advantage in requisite numbers depending on work load. This obviously would have eliminated the under-utilisation of the present incumbents over years and effected economy to a great extend.

4.10. The recruitment, however, of a Chowkidar in 1967-68 when production actually began, seems to have been judicious. There is nothing to comment upon the appointment in 1965 of a peon attached to F.T.O. as the said officer joined in November 1964.

Staff turn over:

4.11. It is desirable that frequent transfer of staff specially the technical staff should be avoided as far as possible. The present F.T.A. unlike his predecessor (who left on transfer after 4 years of service and experience) should have a permanent posting here. As this is the only Fruit Preservation enterprise in the State none else among the local people has qualification on Fruit Preservation, a permanent posting is desirable to utilize the experience and expertise of an F.T.A. growing more and more with years.

4.12. Training:

(i) Of the present strength of 5 regular labourers now engaged for handmade production, three had been sent for one month's training in a Fruit Preservation Factory at Shillong. On completion of the training they have resumed duties.

(ii) Regarding boiler training there had been protracted negotiations with some concerns. Ultimately the Assam Oil Company at Digboi (Assam) having agreed, a new recruit from local people has been sent for three years training on a monthly stipend of Rs.100/- It is understood that he has joined his duty as a trainee on 5.5. 1972.

Communication:

4.13. The Factory site at Longnak is located at a distance of about 48 KM from Mokokchung which happens to be the district and Sub-Divisional Headquarter. The old weather road known as Mariani-Mokokchung road passes through Longnak and Changki and was constructed by Border Road Organisation and completed in 1969. This road, literally speaking, has opened up the area from obscurity much to the relief of the inhabitants. Apart from Mokokchung, the link with Mariani(34 KM) which is the nearest marketing centre and rail head and nearest post office as well, has immensely facilitated mobility of motor vehicles like trucks, cars and jeeps. Notwithstanding the existence of such an all weather road, there are no adequate bus services plying on this route. Due to this, journey to and from Mokokchung (48KM) becomes difficult for the public and for Government Staff as well who intend to move for various purposes including treasury work and other Government duties. Such difficulties are also faced in moving to Mariani (34 KM) which is the nearest market and post office and provide the nearest railhead and bus point as well, for undertaking outward journeys. The * introduction of adequate number of bus services on this road seems therefore to be a felt need.

4.14. Nevertheless, in the matter of procurement of fruits for the factory and transport thereof by Government vehicle attached to the factory, some new all weather roads require early construction for linking with fruit growing areas, of which, the most important is Baghty lying at an estimated distance of about 45 KM. It appears that necessary survey for linking Longnak with Baghty through a newly constructed road has been completed by P.W.D. It is understood that the construction of road covering an estimated length of 45 KM is to be undertaken in phases. For the first phases covering a distance of 19 KM, the estimated cost is 11.42 lakhs out of which Rs.2.00 lakhs have been the allocation for the year 1972-73. Further more, from the existing Mariani- Mokokchung road some all weather approach road leading to some neighbouring fruit growing areas like Panikheti areas of Changki (5 to 8 Kms), Chungliangsen (14Kms) Athupomi (6 Kms), Satukba (10Kms), Japu (15Kms) Longsemdang (29 Kms) etc. to name some important ones, should be constructed according to priority and importance, as the road leading to the above areas where and if existing, are Kucheba and do not permit mobility of vehicles for procurement of fruit specially during rainy season. Even in dry months mobility of heavy vehicles to some of these areas becomes difficult. It is desirable that construction of all these road and specially the Baghty- Longnak road are undertaken and completed at an early date to obviate possible interruption or inadequacy of supply of fruits during bulk production at factory stage through immobility of factory's vehicle to these areas for procurement.

(N.B. *at the time of reporting, one state bus service is on the route between Mariani and Mokokchung. Number of services in a day is only one in either direction which is considered inadequate)

Power:

4.15. As stated before, the power line extension from Mariani upto the factory site at Longnak proposed in 1964-65 has been completed in November 1969. Following this, the electrification of Government buildings has been possible in the Factory and those in its neighborhood. There will be therefore no difficulty in the supply of power to the factory building as soon as electrical installation and fittings which are in progress therein are complete.

Water supply:

4.16. Until now there is no provision for water supply to the factory and to residential buildings. The present requirement of water for the hand-made small scale production is met from stream water. It appears that the scheme for the supply of water from river Longnak has received administrative approval to meet the requirement of the factory when commissioned, as also of all the buildings in the area. Necessary work order has since been issued to the contractor but execution has yet to commence.

Labour:

4.17. As state previously, with the construction of all whether road from Mariani in Mokokchung via Longnak and Changki, mobility and its scope have immensely increased. For local labourers, the avenue of employment too in various spheres and specially in road construction, road repair etc shown an increasing trend. During dry months, the local labourers are therefore in great demand for the above jobs where they get continuous employment at a stretch for a month and even more. Because of this, it becomes difficult to get the service of the local casual labourers for short duration period or daily wages. The discomfoting feature is that they express unwillingness to work on daily wage for short duration and insist on employment on monthly wage irrespective of work load along with facilities as are allowed to regular workers in the factory like Sundays and holidays. This compels the Fruit Technological Officer to employ at times for a month at a stretch 2 or 3 such casual workers on a monthly wage of Rs.135/- not only during peak season but also during off season when such casual workers are required for work on maintenance of orchard.

Market:

4.18. Mariani (34Kms) which is in the state of Assam is the nearest marked though not a big one. The fruit growers of Changki Valley, many of whom specially from nearby fruit growing areas supply fruits for the present small scale production, also sells fruit to traders coming from Mariani. Due to movement of vehicular traffic like trucks, jeeps and cars following the construction of the Mariani Mokokchung route via Changki, the fruit growers also sell the fruits to intending persons including traders moving in such vehicles.

4.19. In anticipation however of early commissioning of the factory, there has been no attempt hitherto for introducing the present hand made products even in different markets and agencies in Nagaland e.g. markets at state capital, district and sub-divisional headquarters. State and cooperative agencies,

railways, police and Military canteens etc. The entire production now is offered for sale at the production-gate to intending persons moving in trucks, jeeps and cars. Had there been organized endeavor for marketing of the present products, stock of finished products of such magnitude as stated below in terms of money value would not have remained unsold at the end of the year: (Source F.T.O)

1967-68	- Rs.2433/-
1968-69	- Rs.2302/-
1969-70	- Rs.4748/-
1970-71	- Rs.2912/-
1971-72	-Rs.2912/-

Notwithstanding absence of any organized endeavor for marketing so far, the rise of the sale of handmade products from the production door from Rs.8836, 50 in 1967-68 to a maximum of s.21,154.00 in 1970-71 serves as a pointer to the wide scope of marketing of the bulk production at the factory stage conditional of course, upon competitive price and quality of the products. On quality, notwithstanding absence of any quality tests of different products by the Government or Government approved agency, the products though at present sold only at the production gate have so far brought in no adverse comments from the consumers. Pending however the above quality-test and acceptance in wider markets during the factory stage of bulk production, confirmation on quality suiting consumer's test will remain in suspense. In case the present products are of standard grade, there can be no reason for possible deviation from the present quality of the products during the factory stage of bulk production. What therefore will be essentially of the products in the prevailing competitive markets.

4.20. In addition to the present sales agencies within the State at Government, Cooperative, Private and other levels, important markets located in the bordering State of Assam require to be explored for marketing of the bulk production at factory stage. Needless to state the railhead at Mariani (34 KM) may serve as a dispatch centre for bulk transport of factory products at economic cost to different markets on Assam of whom are connected by railways besides the all-weather roads to enable vehicular transport where and when necessary. Such external markets to cite a few are Tinsukia, Jorhat, Dibrugarh, Golaghat, Luming, Nowgong and Gauhati, as also Imphal (Manipur).

Raw-Materials :

Fruits :-

4.21 The Fruits, obviously, predominate among the raw materials. The supply of fruits at present comes mostly from Kheti areas of Changki (5 to 8 Kms), Athuponi (6 K M) Satukba (10 K M), and Chumgliangsen (14 K M) which suffices to meet the requirement of small scale handmade production. Other areas still remain untapped. It is to be noted that during factory stage of bulk production, the

availability of fruits in terms of requisite quantum and quality too at reasonable price from areas of Changki Valley will be of supreme importance. So far there is no reliable record based on any systematic survey of the area to indicate actual area under different species of fruit trees or orchards in the Changki Valley area to enable estimation of available supply fruitwise. The decision to establish the Fruits Preservation Factory in Changki Valley was based more on expectation of adequate supply than on any reliable estimates in this regard. As a matter of fact a supplementary measure by way of having a sizeable orchard attached to the factory was once under proposal though ultimately rejected. According to the Fruit Technological Officer the procurement of desired quantity of fruits suffers at times due to non-availability at reasonable price. Till, however, the factory is commissioned, it will be premature to judge adequacy or otherwise of fruit supply from Changki Valley.

4.22 Nevertheless the supply of improved fruit plants by Agriculture Directorate to growers of Changki Valley and its neighborhood under the Citrus Rejuvenation programme, is regarded as a very useful measure. Sponsored for the Fourth Five Year Plan, the implementation actually began in 1970-71. Figures as under will reveal the progress: (Source: Directorate of Agriculture).

Year	Name of fruit	Number of plants distributed	Amount spent (in Rs.) on plants only (excluding transport cost etc.)	Nos. of recipients	Area covered
1	2	3	4	5	6
1970-71	Orange	6,100 Nos.	12,200.00	190	35 acre
	Lime	1,000 Nos.	1,000.00		
1971-72	Orange	11,000 Nos.	22,000.00	435	95 acres.
	Lime	5,300 Nos.	4,000.00		
	Mosembi	2,000 Nos.	400.00		
	Litchi	200 Nos.	450.00		
	Mango	300 Nos.			
	Total-	25,900 Nos.	Rs 45,350.00	625 Nos	130 acres.

The impact of the programme has obviously to wait till the plants attain fruit bearing. As stated previously, the early completion of Baghty-Longnak road (45 KM) is all the more desirable for procuring fruits from Baghty Valley not only as a supplementary measure but also from the point of view of competitive price. According to F.T.O. Pineapple is not available in sufficient quantity in the neighbouring areas of the Factory. This calls for an early distribution of improved varieties of Pine-apple suckers among the orchard growers, because a good deal of diversified products can be manufactured from this fruit during factory stage of bulk production.

4.23 Among the fruits now processed for production on small scale are orange, pine-apple, guava, plum, pears and lemon. Production of plum products has been a new venture since 1971-72 while that of pears since 1970-71 only. All these fruits grow in Changki Valley though Pears and Plum grow comparatively in higher altitudes of the valley. Because of better quality and adequate availability, only plum was procured from neighboring areas of Mokochung in 1971-72. The procurement period of fruits are shown as under :-

Name of fruit	Period of procurement
1. Plum	June to July
2. Pine-apple	June to August (summer variety) November-December (winter variety)
3. Pear	July-August
4. Guava	August-September
5. Orange	November-February
6. Lemon	September-February.

It is to be noted that summer variety of Pineapple being sweeter than the Winter Variety, is used for present production in preference to the winter variety.

Sugar:

4.24 For all fruit products this is an important item. The quantity used for different products varies according to the nature of products and the fruit used. At present the annual consumption is limited viz 35 to 40 quintals. It is understood that during periods of control, no permit was obtained for the present small-scale production and as such procurement had to be done in open market at higher price. In factory stage of bulk production the requirement obviously will be high which on a modest estimate may be 8 to 10 times if not more, in comparison to the present consumption specially in the initial period of bulk production. It is, therefore, of utmost importance to procure sugar at controlled or reasonable price to eliminate rise in production-cost.

Chemicals (Colour, preservatives, etc.):

4.25 The present requirement being small, chemicals are procured from Gawahati. When factory is commissioned, bulk purchase according to the F.T.O. should be made from manufacturers or their agents in Calcutta or any other nearby places if any, at comparatively less price.

Glass containers :

4.26 At present one brand of wine bottles when empty after use, is procured locally to meet the present requirement of small scale production. During bulk production, bottles of specific design shall have to be procured from manufacturers. It appears that the labels, designs and printing regarding Squash have already been made under Government approval. According to the F.T.O. during bulk production under factory stage, Squash bottles and jars of specific designs have to be procured from Calcutta market but unless order for bulk quantity is placed with the manufacturer, the latter is not likely to accept or entertain any order.

Tin Containers:

4.27 The tin containers can be procured only on issue of a quota by Government of India depending on production capacity of a concern. These are not available in open market where their sale is prohibited. These containers will be used however for canned products and Jam during factory stage of bulk production. Due to small Scale production at present, tin containers are not used. However a quota of Tin Containers has been obtained from Government of India for procurement at subsidised rate.

Transport:

4.28 There is a power wagon of 1 Ton capacity belonging to the factory. This, it appears, was delivered to the Fruit Technological Officer from the pool of Agriculture Directorate in 1967-68 (on 2-12-67) when production for the purpose of sale had commenced on the present handmade scale. It however appears that in 1963-64 a new transport vehicle (pick-up) had been purchased from the budget of the factory at a cost of Rs. *25,305/- in expectation of early commissioning of the

N. B. * Source:-Directorate of Agriculture.

factory although there was then no communicable road worth the name. Pending commencement of the present handmade production, the present vehicle (which is other than the one originally purchased for factory) had been used for various purposes of the Agricultural Directorate covering already a distance of *20,447 KM before sending it in 1967 68 for Factory's use. Till then all expenses of the vehicle had been met from Factory's budget notwithstanding its use for duties other than factory's needs. The permissibility regarding such expenditure on vehicle from Factory's budget over non-factory duties is open to question, decision whereon rests on the Government. Such expenditures on the vehicle are shown below: -

Year *Total expenditure on P. O. L, & repair, for non-factory duties but met from factory's budget.

1963-64 Nil
 1964-65 273.80 (P. O. L. & repair)
 1964-66 1965-66 5880.29 P. O. L. & repair)
 1964-67 1966-67 3067.40 (P. O. L. & repair)

4.29 It however appears that under the present small scale production, the vehicle is needed only scarcely for factory-duty and that too when considerable quantity is available at a time from the fruit growing areas for procurement and transport there from mid provided the condition of the approach roads to such areas then permits movement of the vehicle. Otherwise, supply of fruits are received from growers at the production premises. Nevertheless, the vehicle is also utilised at times for other purposes of Agriculture Directorate like transport of fertilisers, plants and seeds etc., etc. But expenses irrespective of factory and non-factory duties are all met from factory's budget. The present worn-out condition of the vehicle apart from non feasibility of its use for heavy-duty, has led to a high running cost in terms of propulsion and repair which has a direct bearing on cost efficiency of production. To add to this, the utilisation of the vehicle by Agriculture Directorate for non-factory duties as aforesaid, obviously enhances the present production cost as expenses on such duties are met from Factory's budget. Data on yearwise expenditure on the vehicle are shown as under : - (Source : F.T.O.'s record).

Year	Total expenditure	Break-up of Column 2			Distance covered during the year		
		Pay & allowances of Driver and handyman	P. O.L.	Repair	On factory duty only (KM)	Other Deptt., duty not relating to Factory (KM)	Total (Col. 6 & Col. 7) (KM)
1	2		4	5		7	8
1967-68	7861.70	4,941.35 (63)	1,476.43 (19)	1,443.92 (18)	2346 (97)	76 (3)	2,422
1968-69	7807.20	4,783.28 (61)	2,548.25 (33)	475.67 (6)	2409 (40)	3590 (60)	5,999
1969-70	9446.05	4,047.63 (43)	3,213.93 (34)	2184.49(23)	1343 (40)	1976 (60)	3,319
1970-71	14624.19	5,133.20 (35)	3,851.99 (26)	5639.00(39)	2396 (78)	600 (22)	2996
1971-72	11187.52	6,547.93 (59)	3,0236.34 (27)	1603.25(14)	1832 (65)	971 (35)	2,803

Figures within bracket () in Cols. 3,4,5 denote percentage of the total expenditure, while those in Cols. 7 and 8 denote percentage of the total distances run by the vehicle.

N. B. *Source—Directorate of Agriculture.

4.30 An analysis of the data in the above table reveals:

Year	Overall cost per KM-run of the vehicle (including pay and allowances of Driver and handyman)	Cost of P. O. L. consumption per KM-run
1067-68	Rs. 3.20	Rs. 0.60
1968-69	Rs. 1.30	Rs. 0.42
1069-70	Rs. 2.84	Rs. 0.96
1970-71	Rs. 4.78	Rs. 1.26
1971-72	Rs. 3.27	Rs. 1.08

By a close examination of the data in the table with figures arrived at as above, it will be apparent that the lowest cost viz. Rs. 1.30 in 1968-69 is due to (i) lower rate of P. O L. consumption in relation to that in other years, (ii) comparatively more distances covered by the vehicle, (iii) lowest repair cost. The highest cost viz. Rs. 4.78 per Km-run is due to more or less (i) less distance covered (ii) higher rate of P. O. L. consumption (iii) exceedingly high repair cost of the vehicle which even exceeded the pay and allowance of the vehicle staff and the cost of P. O. L. as well. While a careful handling, proper care taking and timely repairs will bring about the much desired lower P. O. L. consumption, the question remains whether or not the retention of a transport vehicle will be economic. This obviously will depend upon the optimum utilisation of the vehicle for transport of fruits in bulk from areas of procurement and of fruit products during factory stage of bulk production. The present state of overall under utilisation of the transport vehicle and specially in the sphere of transport of fruits will be obvious from the following: (Source : P. T. O.'s records).

Year	Total No. of days the vehicle had run	Break-up of column (2)		
		No. of days used for transport of fruits	No. of days used by F. T. O. for purposes (duties) other than fruit transport	No. of days the vehicle was used for other non-factory duties of Agriculture Directorate
1	2	3	4	5
1967-68	50	Nil	2(4%)	48(96%)
Since 2.12.67 when the Vehicle was handed over to F.T.O.)				
1968-69	126	Nil	26(21%)	100(79%)
1969-70	66	Nil	16(24%)	50(76%)
1970-71	58	10(17%)	11(19%)	37(64%)
1971-72	43	Nil	24(56%)	19(44%)

Figures within () denote percentage of the total number of days the vehicle had run during the year. Another discomfoting feature which requires elimination is the use of vehicle for non-factory purposes, the expenses whereon are not from Factory's budget. As stated previously, this ultimately reflects on production cost. The following may give some idea regarding proportionate cost in matter cost of P. O. L. and repair 'taken together based on the percentage of coverage of distances by the vehicle for factory and non-factory duties: -

Year	Total cost on POL & repair	Factory's share in the cost	Agriculture Directorate's share in the cost for non-factory duties by the vehicle.
1967-68	Rs.2920.35	Rs.2832(97%)	Rs. 88 (3%)
1968-69	Rs.3023.92	Rs.1210(40%)	Rs. 1814 (60%)
1969-70	Rs.5398.42	Rs.2159 (40%)	Rs. 3239 (60%)
1970-71	Rs.9490.99	Rs.7403 (78%)	Rs. 2088 (22%)
1971-72	Rs. 4639.59	Rs. 016 (65%)	Rs. 1624 (35%)
Total	Rs. 25473 27	Rs.16620(66%)	Rs. 8853 (33%)
Average	Rs. 509465	Rs. 3324(65%)	Rs. 1771 (35%)

4.31 It is understood that apart from transport of fruits which is very seldom the existing vehicle (power wagon) is mainly used by F.T.O. for visiting fruit growing areas and to meet growers of fruit in connection with preliminaries on fruit procurement etc., etc. For want of public conveyance like Bus service, he has to, at times, use the vehicle for other Government duties also as he has no jeep at his disposal. According to the F.T.O. such unavoidable use of the transport vehicle for touring purposes invariably involves more consumption of petrol which might have been considerably less by undertaking such journeys by jeep. When factory is commissioned for bulk production, such movements by F.T.O. will assume greater dimension not only over fruit procurement but also over timely disposal of fruit products to several agencies. In the opinion of F.T.O. the provision of a jeep and a trailer would serve both the purposes, viz. movements by F.T.O. on jeep only, and jeep with Trailer for transport of fruits and fruit products. The tenability of the above proposal, which apparently is based on economic advantage, merits careful examination by the Agriculture Department.

Factory area :

4.33 The Factory area comprising of 12.52 acres includes areas under the main factory cum office building, staff quarters, labour barracks, godown, garages for motor vehicles and an area of about 6 acres earmarked for orchard of which 2.28 acres only are under plantation beside waste lands, Paths, etc., etc.

Staff-quarters & Rest house :

4.33 The construction of staff quarters began in 1963 and that of three labour barracks containing a total of 16 units started in 1966-67. Though completed earlier, these were formally handed over to the F- T. O. in January 1972 by the P.W.D. The Staff quarters belong to different types as shown below :
- (Source : F.T.O.'s records).

Type	Number	Plinth area of each type	Year of construction
(i) H/T Type V	1	1000 sq. ft	65-06
(ii) ,, ,, IV	2	770 ,, ,,	63-64
(iii) ,, ,, II	3	492 ,, ,,	64-65
(iv) ,, ,, I (SP Type quarter)	1	300 ,, ,,	63 64

Arrangement thus has been made to provide residential quarter to each staff including the regular labourers. Each quarter and also labour barracks have been electrified but lack water-supply which, as reported earlier, depends on execution of the scheme by the contractor. For facility of visiting officials,

an old kutchra built thatched room has been purchased in 71-72 at a low cost of Rs. 1,000/— to serve as a place for rest. Being dilapidated, this requires early renovation.

Garage for vehicles :

4.34 As reported earlier, there is one power wagon belonging to the factory. In consideration of future needs that may arise with more and more increase in production at factory stage, two garages have been constructed—one for accommodating 3 power wagons, while the other for housing 2 jeeps. No jeep having been provided to the F. T. O., the garage for jeep remains unutilised although garage for power wagons is partly utilised.

Office-Building :

4.35 The Office is included within the factory shed area. Pending electrical installation, fitting and water-supply to the factory building containing office rooms in a portion of it, the office of F.T.O. is held in a portion of the F. T. O.'s residential quarter pending commissioning of the factory.

Factory Building :

4.36 The construction of the factory building had been taken up by P. W. D. as late as in 1970-71, completed in 1971-72 and ultimately handed over by P. W. D. in January '72. It appears that during constructional stage there had been pause for several months leading to inordinate delay in completing the construction. This in turn has resulted in timelag in matter of commissioning of the factory which is still awaited. This aspect has been dwelt on in detail in earlier chapter. Nevertheless, as already stated before, the all-weather road connecting Mariani with Mokokchung passes through a sizeable chunk of the original factory site. As a result the site of the factory has become smaller. Although completed after inordinate delay, some petty works, as noted below, still remain to be taken up :

(i) Plinth area of factory building is lower than the surrounding area. This has rendered the factory building vulnerable to the ingress of rain water from the elevated surrounding areas necessitating early arrangement for proper drainage.

(ii) Fencing of surrounding area should be done as a precaution against stray cattle and other animals for the maintenance of hygienic condition which is essential for an enterprise manufacturing fruit products.

(iii) Wire netting in all the windows remains to be taken up as a precaution against entry of flies and insects which may hamper production under hygienic condition.

(iv) Adequate number of outlets (holes) are to be constructed to drain away water from the floor of factory.

(v) Approach road to the factory building still awaits construction.

(vi) Measures to be taken for preventing entry of dust, flies, insects, etc. the open spaces beneath the roof.

Godown (Store-shed)

4.37 The godown or store-shed with an area of 1800 sq. ft. was constructed in 1964-65 wherein the present handmade production commenced. Its capacity is based on daily requirement of 4 tonnes of fruits besides provision for storing of finished products. Though it is in close proximity to the main factory building, the fact remains that had it been constructed under the factory shed, extra labour for movement of raw materials and finished products between factory building and godown might have been eliminated. This aspect has a bearing on economy in the matter of production. The area of the godown is considered enough for storage during bulk production. A portion of the godown is under use since 1966-67 for trial of fruit products followed by present handmade production since 1967-68 in absence of factory building. The godown still remains unelectrified. There is no water-supply arrangement also.

Cost of land and buildings:

4.38 Pending value of land which is under the stage of negotiation, no payment on land has been made. Regarding all the buildings, the actual cost estimated by P. W. D. was Rs. 4.59,155/-. It appears that in 1965-66 the expenditure on building was Rs. 79,000/- followed by Rs. 18,000/- in, 66-67. Final data on actual expenditure over the years on buildings have been collected from P.W.D. but the same remains to be submitted by the P.W.D. to the Agricultural Department.

Orchard

4.39 Under the initiative of the F.T.O. a very small area of about 6 acres has been set apart for the orchard out of which only 2.28 acres are under plantation. Activities on orchard began in, 66-67. It appears that all the fruit plants are of local variety and have been procured locally free of cost. So far 1500 pine-apple suckers, 50 lemon and 15 Guava trees have been planted of which 400 pine-apple plants have attained age for economic fruit bearing. 10 Lemon and 4 Guava trees have only started bearing fruit in a small way pending attainment of economic bearing age. Fruits shown below were procured from the orchard and utilised along -with fruits procured from growers in making fruit products.

Year	Name of fruits procured from the factory orchard	Value (estimated)
1	2	3
1967-68	Pine-apple (8 Kg.)	Rs. 4.32
1968-69	„ „ (31 Kg.)	Rs. 16.74
1969-70	„ „ (204 Kg.)	Rs. 110.16
1970-71	„ „ (381 Kg.)	Rs. 205.74
1971-72	Guava (21 Kg)	Rs. 6.93
	Lemon (350 Nos. = 25 Kg.)	Rs. 12.25
	Pine-apple (109 Kg.)	Rs. 58.86
	Guava (7 Kg.)	Rs. 2.31

(since finalised at Rs. 12,300/-)

This excludes Rs. 13/- worth of fruits as sold in 67-68.

Expenditure over the factory orchard yearwise is shown as under :-

Year	On casual labourers
	(Rs.)
1966-67	1941
1967-68	1311
1968-69	1248
1969-70	1339
1970-71	1683.75
1971-72	1080

4.40 In addition, regular workers were also engaged sometimes in the orchard. In absence of record, the total man-days rendered annually by the regular workers of the factory in the orchard could not be assessed. It may be noted that the regular workers of the factory because of existing low workload underhand-made production had have to remain underutilised in production matter. Hence they are utilised as far as possible in orchard and other miscellaneous work. It is felt that services of more and more regular workers might have been utilised judiciously in orchard work to minimise expenditure on casual labourers.

4.41 It is obvious that notwithstanding a fair amount of expenditure on the maintenance of the orchard, the return in the shape of fruits received so far for factory production is insignificant and

negligible. To improve matters, improved varieties of fruit plants suiting the soil and climate of Longnak should have been planted in the orchard for full utilisation of the remaining unused and unplanted area. Only then could its usefulness be assessed in terms of economy. Furthermore some unutilised area might have been utilised as Nursery area for free distribution of Fruit Plants after raising seedlings/plants of improved varieties of fruit trees. Needless to state that unless it ultimately proves to be of economic advantage, maintenance of such orchard will be a drag on factory's budget as it has proved hitherto pending attainment of economic fruit bearing age of majority of the plants in the orchard. It was observed that some stubborn weeds infest areas in the orchard affecting growth and yields of planted trees and suckers. If measures needed to check such weeds prove in-effective, the orchard will ultimately be of little benefit.

Plant, Machineries, tools and equipments :-

4.42 In expectation of early commissioning of the factory, expenditures on purchase of these were incurred as shown below : (Source : Directorate of Agriculture).

Year	Value of purchase
1964-65	Rs. 44,661/-
1965-66	Rs. 25,703/-
1966-67	Rs. 19,154/-
1967-68	Rs. 20,219/-
1968-69	
to	Nil
1971-72	

Total Rs. 1,09,737

4.43 Pending commissioning of the factory, plants and machineries and equipments etc., except a few tools required for handmade production, had have to remain idle over years indicating a blocking of huge capital. In relevant portions of earlier chapter, this aspect of futile expectation vis-a-vis the feasibility aspects of such commissioning of factory in absence of necessary infrastructures has been discussed. Happily however, care has been taken to protect the plant, machineries and equipments etc., from any damage through neglect. Due, however, to the blocking of the aforesaid capital, the overall loss on capital interest at the end of 1971-72 even on a modest estimate of 6% per annum comes to about Rs. 38,600/-.

CHAPTER—V

Production & Sale, economic, documentation, etc.

5.1 In the proceeding Chapter, the infrastructural aspects commensurate with production efficiency have been discussed at some length. Emphasis therein has been laid on availability in requisite quantum of quality fruits at reasonable price during the factory stage of bulk production. As a matter of fact this aspect alone occupies a pivotal position in the successful working of the factory when commissioned, if necessary, in more than one shift. The unpredictability however in the matter of scope for the needed bulk-procurement of fruits at reasonable price from areas of Changki Valley alone remains in itself a problem. In this context the desirability of having as early as possible the all weather motorable linkage with alternative source or sources of procurement e.g. Baghty Valley and other potential areas within Changki Valley hitherto untapped, has also been stressed upon while discussing previously the aspect of

communication. The present requirement of different fruits under Small Scale Production has hitherto faced no problem in matter of procurement which, except on fewer occasions, has been done at the production-door. As stated already in the preceding Chapter, the supply of fruits for the present small requirement comes mostly from growers of only four villages while other potential areas within Changki Valley remain still untapped. The promotional measures for horticultural development in and around the Changki Valley though sponsored lately but in a small way, call for more and more sustained and vigorous go through in line with a crash programme. Socio-economic aspect apart, all these have vital bearing on the position of fruit supply to the Factory when commissioned for bulk production.

5.2 In coming over now to the present-condition- of prod tret iottr+t may be stated that as discussed previously in para 2.7 of Chapter II, the existing phase of small scale production is a creation of circumstances over whisfa further discussion is unnecessary. Nevertheless, the present Small Scale enterprise has been unable to make the needed headway in arresting the mounting loss over years. On a pragmatic view, the high establishment cost and resources envisaged for a bulk production under factory stage of working have been thrust on a small scale production obviously because of circumstances born out of ill founded complacency and expectation having no bearing on reality. These have already been spelt out in detail in Chapter II during discussions over factory building and also in the preceding Chapter needing no further repetition here. The net effect, however, has been a recurring loss over years wherefrom apparently there seemed to be no escape. This is mainly because of a committed expenditure over regular staff and transport vehicle whose services have had to remain underutilised. For example, the present Small Scale Production which is seasonal by nature might as well go on with only casual labourers seasonally employed or at best with 1 or 2 labourers on regular pay supplemented by labourers employed seasonally on casual basis. The fact of delivery of fruits by growers at the production door for the present small production obviates the need for the existing truck meant mainly for transport of fruits and fruit products, and occasionally for raw-materials like sugar, chemicals, containers and tools, etc., etc. This will be obvious from the fact that since 1967-68 (when the Truck was delivered for factory duty), the vehicle though used sparingly and very occasionally for transport of other raw-materials like sugar, chemicals, containers, tools and implements, etc., had been needed for only 10 days on fruit-transport and that too only during 1970-71 and in no other year including 1971-72. The fact that about .51 lakhs (including about .11 lakhs on repair) had been the overall expenditure on the vehicle from factory's budget during the 5 years-viz 1967-68 to 1971-72 is indeed staggering in (the context of only 10 days' service on fruit transport and none for transport of fruit-products, as these are sold entirely at the production-gate. On the aspect of] transport, discussions in detail have however been made in the preceding chapter.

5.3 On a close examination of the working of the present small scale production,! it however, seems that the enterprise has failed to rise to the occasion in the context of i recurring^loss over years. The .production, notwithstanding some rise over the years since its commencement, has apparently come to a stagnation level in absence of further demand. As a matter of fact such a stage stems from the following factors :-

- i) Exclusive reliance for sale of the products only at th© production gate.
- ii) Lack of any organised endeavour for marketing.
- hi) Lack of persp ective planning under the existing phase of small scale production for utmost utilisation of the underutilised services e. g. manpower, vehicle, etc. by way of increased production and marketing the products in different markets both inside and outside the State.
- iv) Lack of urge for meeting the situation of a recurring loss in the best possible manner.
- v) Complacency and persistent hope of early commissioning of factory for bulk production though rendered futile over years.

5.4 It may be of interest to dwell on now the present aspects of manufactured fruit-products which are stated as under :

License :

5.5 The license for the manufacture of Fruit products and sale thereof to the public has been obtained in 1967.

Quality :

5.6 According to the Food law, the prescribed minimum fruit juice content in a fruit squash will be 25%. It is understood that in the present small scale production the prescribed minimum is observed in the preparation of orange, pine-apple and lemon squash. It seems however, that it would have been better if different fruit products as are now prepared had been sent for quality test to Government agency or any recognised institution for having confirmation regarding standard or grade. By this, deficiency if any detected during the test might have been eliminated.

Fruit and Fruit-products : 5.7 In accordance with prevalent market practice, orange and lemon are purchased by numbers while pineapple, plum, pears and guava by weight. These are now purchased generally at the production gate from growers who come for sale except plum which is purchased from neighbouring areas of Mokokchung. The respective periods of procurement of fruits have been indicated in Chapter IV during discussions on raw-materials. Though purchased by numbers, orange and lemon are weighed and their weights recorded. According to the Fruit Technological Officer, in average 100 Nos. of orange and lemon weigh respectively 12 kg. and 7 kg. taking into account the sizes of the fruits as are accepted for procurement. The following gives an idea on annual procurement of different fruits under the present phase of small scale production by purchase and from factory's orchard.

(a) Name of fruit	Quantity purchased annually (in Kg.)					
	66-67	67-68	68-69	69-70	70-71	71-72
Orange	3795	2925	2112	2145	7572	1995
Lemon	—	231	455	147	76	5'6
Pine-apple	—	—	—	—	184	447
Guava	—	148	246	335	92	83
Pears	—	—	73	2C9	137	—
Plum	—	—	—	—	—	65

(b) Quantity of Fruits (in Kg.) procured from Factory's orchard area is shown below :-

Name of fruit	67-68	68-69	69-70	70-71	71-72
Pine-apple	8	31	204	381	109
Guava	-	-	-	21	7
Lemon	-	-	-	-	25

(c) The following gives an idea on quantity (in kg) of fruits procured by month during 1970-71 and 1971-72. According to Fruit Technological Officer such procurement is always done on consideration of reasonable price, quality and availability keeping always in view the quantum of unsold stock of fruit products and possible demand.

Month	Plum		Pears		Pine-apple		Lemon		Guava		Orange	
	70-71 (kg)	71-72 (kg)	70-71 (kg)	71-72 (kg)	70-71 (kg)	71-72 (kg)	70-71 (kg)	71-72 (kg)	70-71 (kg)	71-72 (kg)	70-71 (kg)	71-72 (kg)
April	-	-	-	-	-	-	-	-	-	-	-	-
May	-	-	-	-	-	-	-	-	-	-	-	-
June	-	65	-	-	-	-	-	-	-	-	-	-
July	-	-	-	-	-	-	-	-	-	-	-	-
August	-	-	137	-	184	447	-	-	22	-	-	-
September	-	-	-	-	-	-	8	-	70	64	-	-
October	-	-	-	-	-	-	-	125	-	19	-	-
November	-	-	-	-	-	-	68	178	-	-	1825	-
December	-	-	-	-	-	-	-	-	-	-	5747	1560
January	-	-	-	-	-	-	-	203	-	-	-	435
February	-	-	-	-	-	-	-	-	-	-	-	-
March	-	-	-	-	-	-	-	-	-	-	-	-

(d) Different fruit-products as are prepared now under handmade Small Scale Production :-

Name of fruit	Varieties of products	Year when production was undertaken for the first time	Remarks
1	2	3	4
Orange Lemon Pine-apple Pine-apple	Squash ,, Squash Jam	1967-68 ,, ,, ,,	No production in 70-71 but production was renewed in 71-72 No production in 68-69 & '70-71 but production was renewed in 71-72.
Guava Pears Pine-apple & Pears	Jelly ,, Mixed fruit Jam	1968-69 1969-70	No production in 71-72. Production discontinued since 70-71 for lack of demand.
Plum Plum	Jam Jelley	1971-72 1971-72	

5.8 From Col. 4 under (d) above it would appear that in some years production of certain product was not undertaken. Production being generally associated with fruit-procurement, reasons for non-procurement of fruit and for that matter non-production of fruit products have been stated only in a general way in item (c) on page 28 while furnishing data on monthly procurement of fruits. According to F.T.O. the availability and reasonable price of fruits are the prime factors that always guide procurement. In some years production could not be undertaken of certain products for either of the two factors. In the production of Squash the advantage is that any concerned fruit if available in sufficient quantity at a cheap price in a certain year can be procured in bulk, its juice extracted and preserved. Such stored and preserved juice can be utilised not only for current year's production of Squash but also for the succeeding year, and condition permitting, even for the next one. In case of non availability of

fruit or fruits at reasonable price, such preserved juice can be utilised with advantage for production of squash. In regard to other products such advantage does not exist. Fruits, whatever are procured, have to be utilised for finished products e. g. Jam and Jelly. Needless to state, such production, apart from availability of fruits at reasonable price, will depend on assessment, of possible demand and position of unsold stock.

(e) The quantity of different fruit-products prepared and sold annually together with rate at which sold alongwith other details are shown as under (In col. 6 fig. within bracket indicates value while in col. 7 this indicates % of cumulative production) :-

(i) Squash (in bottle of 750 mls) :-

Year	Fruit	Qty. prepared (Nos.)	Rate at which sold	Qty. sold (Nos.)	Other disposal & loss (Nos.)	Balance remaining as stock (Nos) (progressively position) *Price Increase of Rs. For transport cost
1	2	3	4	5	6	7
1967-68	Orange Squash	4798	Rs. 2/-	3744 (Rs. 7488)	X	1054 (21.97%)
1968-69	„	3270	Rs. 2 & Rs. 2.50	3649 (Rs. 8562.50)	61	614 (7.61%)
1969-70	„	6255	Rs. 2.50 & Rs. 3	5714 (Rs. 14492)	21	1134(7.91%)
1970-71	„	5849	Rs. 2.50 & Rs. 3	6343 (Rs. 17,379.50)	20	620 (3.07%)
1971-72	„	5486	Rs. 3	5576 (Rs. 16.728)	X	530 (2.06%)
Total :-		25,658 Nos.	-	25,026 (Rs. 64,650)	102 Nos. (0.4 %)	-
Annual average		5,132		5,005 Nos. (Rs. 12,992)	20 (0.4%)	-
1967-68	Lemon Squash	412	Rs. 2	295 (Rs. 590)	X	117 (28%)
1968-69	„	338	Rs. 2 & Rs. 2.50	343 (Rs. 803.50)	4	106 (14%)
1969-70	„	170	Rs. 2.50	245 (Rs. 612.50)	X	31(3%)
1970-71	„	Nil	„	1 (Rs. 2.50)	X	30(3%)
1971-72	„	110	Rs. 3	78 (Rs. 234)	X	62(6%)
Total		1030 Nos	-	962 Nos (Rs. 2242.50)	4 Nos. (Negligible percentage)	-
Annual Average		206 Nos.	-	193 Nos. (Rs. 448.50)	Negligible No.	-
1967-68	Pine-apple Squash	115	Rs. 2.50	109 (Rs. 272.50)	X	6 Nos.(5%)
1968-69	„	36	„	42 (Rs. 102)	X	Nil
1969-70	„	52	„	18 (Rs. 45)	1	33(16%)
1970-71	„	491	Rs. 2.50 & Rs. 3	494 (Rs. 1434.50)	1	29(6%)
1971-72	„	376	Rs. 3	310 (Rs. 930)	X	95(9%)
Total		1070 Nos	-	973 Nos. (Rs. 2787)	2 Nos. (Negligible percentage)	-
Annual average		214 Nos.	-	195 Nos. (Rs. 557.40)	Negligible No.	-

(ii) Jelly (in bottle/Jar containing 454 gms) :-

Year	Fruit product	Qty. prepared (Nos.)	Rate at which sold	Qty. sold (Nos.)	Other disposal & loss (Nos)	Balance remaining as stock (Nos.) (Progressive position)
1	2	3	4	5	6	7
1967-68	Guava Jelly	273	Rs. 2/-	237 (Rs. 474)	X	36(13%)
1968-69	„	450	Rs. 2/- & Rs. 2.50	296 (Rs. 737)	8	182(25%)
1969-70	„	700	Rs. 2.50	393 (Rs. 982.50)	X	489(34%)
1970-71	„	278	„	676 (Rs. 1690)	X	91(5%)
1971-72	„	179	„	211 (Rs. 527.50)	22	37(2%)
Total :-		1880 Nos.	-	1813 Nos. (Rs. 4411)	30 Nos(2%)	
Annual Average		376 Nos.		363 (Rs. 882)	6 Nos. (2%)	
1967-68	Pears Jelly	No production				
1968-69	„	114	Rs. 2.50	91 (Rs. 227.50)	4	19(17%)
1969-70	„	397	„	217 (Rs. 542.500)	X	199(40%)
1970-71	„	312	„	253(Rs. 632.50)	X	258(31%)
1971-72	„	Nil	„	89(Rs. 222.50)	X	169(21%)
Total :-		823 Nos		650 Nos. (Rs. 1625)	4 Nos. (0.5%)	
Annual Average (for 4 years)		206 Nos		163 Nos.(Rs. 406)	1 No (0.5%)	
1967-68 to 1970-71	Plum Jelly	No production				
1971-72	„	84	Rs. 3/-	84 (Rs. 252)	X	Nil
Total :-		84 Nos.		84 (Rs. 252)	X	
Annual average(for 1 year)		84 Nos.		„		

(iii) Jam (in bottle/jar containing 454 gms) :-

Year	Fruit product	Qty prepared (Nos.)	Rate at which sold	Quantity sold(Nos.)	Other disposal & Loss (Nos.)	Balance remaining as stock (Nos.) (progressively position)
1	2	3	4	5	6	7
1967-68	Pineapple Jam	8	Rs. 2/-	6 (Rs. 12)	Nil	2(25%)
1968-69	„	Nil	„	2 (Rs. 4)	Nil	Nil
1969-70	„	61	Rs. 2.50	54 (Rs. 135)	Nil	7(10%)
1970-71	„	Nil	Rs. 2.50	2 (Rs. 5)	Nil	5(7%)
1971-72	„	41	Rs. 3/-	36(Rs. 108)	Nil	10(9%)
Total :-	-	110 Nos	-	100 Nos	Nil	-
Annual average	-	22 Nos	-	20 Nos (Rs. 52.80)	Nil	-
1967-68 to 1968-69	Mixed fruit Jam	No production				
1969-70	Pine-apple & Pears	10	Rs. 2.50	Nil	4	6(60%)
1970-71	„	Nil	„	4(Rs. 10)	Nil	2(20%)
1972-72	„	Nil	„	Nil	Nil	2(20%)
Total :-		10 Nos	-	4 Nos.(Rs. 10)	4 Nos (40%)	-
Annual average		3.33 Nos	-	1 Nos (Rs. 3.33)	1.33 Nos (40%)	-
1967-68 to 1970-71	Plum Jam	No production				
1971-72	„	35	Rs. 3	35 (Rs. 105)	Nil	Nil
Total :-		35 Nos.	-	35 Nos. (Rs. 105)	Nil	-
Annual average (for 1 year)		„				

(f) The following reveals the annual receipt (income) by sale of different fruit products (in Rs.): -

Year	Orange	Lemon	Pineapple	Total	Guava	Pears	Plum	Total	Pineapple	Mixed fruit	Plum	Total	Total sale of all products
	2				3			4				5	
1967-68	7488 (84.7%)	590 (6.7%)	272.50 (3.1%)	8350.50 (94.5%)	474 (5.4%)			474 (5.4%)	12 (0.1%)			12 (0.1%)	Rs. 8,836.50
1968-69	8562.50 (82.0%)	803.50 (7.7%)	105 (1.0%)	9471 (90.7%)	737 (7.1%)	227.5 (2.2%)	...	964.50	4 (Negligible %)			4 (Negligible %)	10,439.5
1969-70	14492 (86.2%)	612.50 (3.6%)	45 (0.3%)	15149.50 (90.1%)	982.50 (5.9%)	542.5 (3.2%)	...	1525 (9.1%)	135 (0.8%)	...	...	135 (0.8%)	16,809.5
1970-71	17379.50 (82.1%)	2.50 (Negligible %)	1434.50 (6.8%)	18816.50 (88.9%)	1690 (8%)	632.5 (2.9%)	...	2322.50 (11%)	5 (Negligible %)	10 (Negligible %)	...	15 (0.1%)	21,154.0
1971-72	16728 (87.5%)	234 (1.2%)	930 (4.9%)	17892 (93.6%)	527.50 (2.8%)	222.5 (1.2%)	252 (1.3%)	1002 (5.3%)	108 (0.6%)	...	105 (0.5%)	213 (1.1%)	19,107.0
Total	64650.0 (84.7%)	2242.5 (2.9%)	2787.0 (3.7%)	69679.5 (91.3%)	4411.0 (5.8%)	1625.0 (2.1%)	252.0 (0.3%)	6288.0 (8.2%)	264.0 (0.4%)	10 (Negligible %)	105 (0.1%)	379.0 (0.5%)	76,346.50
Annual average for the last 5 years	12930.0	448.5	557.4	13935.9	882.20	325.0	50.4	1257.6	52.80	2.00	21.00	75.80	15,269.3

Production : -

5.9 In conformity to the general rule of production vis a-vis demand, the production of squashes, Jelleys and Jams had been conditioned accordingly. The fruit-products having been offered for sale only at the production-gate, the demand of these products was naturally confined to the limited taste and choice of a limited number of potential buyers among the passers-by. The merits and demerits of individual products in terms of demand cannot be assessed in proper perspective unless such products are offered for sale in wider markets having a vast number of potential buyers with both diversified and sophisticated taste and choice. It is a fact that among all the fruit-products, the production of Orange Squash in each year had far outstripped even the cumulative production of other items of fruit products. While in terms of demand the popularity of Orange Squash cannot be denied, the fact of a far less production of other items of products vis-a-vis demand of such products among the production-door-buyers cannot be regarded as a pointer to their demerits. The unhappy feature lies in the fact that there was no urge during the last five years for marketing of the products away from the Production-premises. This invariably has resulted in bringing about the present stagnated level of production in absence of greater demand. In other words, the scope of a greater production that might have been possible through greater demand in open markets even under the existing phase of small scale handmade enterprise has not been availed of because of complacency which took away all urge for meeting a stagnated situation.

5.10 Nevertheless, before proceeding further with discussions on production of individual products, it is desirable to have an appraisal regarding rate of procurement of fruits on which the cost-efficiency of different fruit-products depends primarily though not exclusively. Quantum of different fruits procured annually have been indicated on page 28.

Table below furnishes the data :

Year	Orange (Per1000 Nos.) (Rs)	Lemon (Per 1000 Nos) (Rs)	Pineapple (Per Kg) (Rs)	Guava (Per Kg) (Rs)	Pears (Per Kg) (Rs)	Plum (Per Kg) (Rs)
1	2	3	4	5	6	7
1967-68	40.00	40.00	0.54	0.33	...	...
1968-69	50.00	50.00	„	„	0.41	...
1969-70	65.00	35.00	„	„	„	...
1970-71	70.00	„	„	„	„	...
1971-72		„	„	„	...	0.65

5.11 From the above table it will be evident that while rate of Guava, Pineapple and Pears remained same during the years, Orange had been noted by a steep rise in rate from Rs. 40/- in 1967-68 to Rs. 70/- in 1971-72. Lemon-rate however declined from Rs. 40/- in 1967-68 to Rs. 35/- in 1969-70 with no further change till 1971-72. It appears that the high price in the rate of orange is due to speculation by non-local traders who are gradually stepping in such deal and seasonally taking lease of orange orchards from growers through payment in advance. However gratifying or advantageous it may be to the growers, this cannot but have an adverse effect on availability of fruits at reasonable price specially during factory stage of bulk production when dimension of procurement is apt to be high. Furthermore, Pineapple from which diversified products can be manufactured are not available in plenty. Orange trees which are mostly old and are of local variety are marked with a declining harvest. Although 1710) Nos. of improved orange plants have been distributed during the last 2 years in and around Changki Valley, these are considered inadequate Furthermore economic fruit-bearing from such plants (as well survive ultimately) will obviously not come soon to ease present situation.

5.12 To renew the discussion now on production aspects, a reference to item (d) on pages 29 will indicate different fruit products prepared from individual fruits followed by some general discussions

thereon in para 5.8. The following however indicates in brief the production aspects of individual fruit products vis-a-vis the data furnished on pages 30, 31 and 32.

Squashes :

5.13 Orange, Lemon and pine-apple are the 3 varieties of Squashes prepared. The total production [in bottles of 750 ml] of all the 3 varieties, over the years ranged between the lowest at 3644 Nos. in '68-69 to the highest at 6477 Nos. in '69-70. The production of Orange Squash however far outstripped the other 2 varieties. It ranged between 90 to 96 % of the total production of all Squashes over the years. During the 5 years [67-68 to 71-72] the annual average production of Orange Squash works out to 5132 Nos., of lemon to only 206 Nos. and of Pineapple to 214 Nos. as will be evident by a reference to the data in col. 3 under item [e] on page 30. The lemon Squash price at par with the Orange variety failed to attract the production-door-buyers who in general preferred Orange variety to the Lemon product. Re: pineapple Squash, its production according to the F. T. O. was conditioned mainly by availability of the fruit at reasonable price. Needless to state, the procurement of Pine-apple at reasonable price during the Factory Stage of bulk production may have to be done elsewhere, if necessary, in the bordering State of Assam.

5.14 Data in col 7 on page 30 shows balance of unsold stock of Squashes [in terms of number of bottles]. This excludes unused stock of preserved fruit-juices of respective fruits awaiting utilisation (consumption) in succeeding year or years for preparation of the finished product i.e. Squashes. In every year such unused stock of juice, more specially orange and lemon remained as balance in appreciable quantity as in absence of sufficient demand only a portion of such preserved juices could be utilised for preparing Squashes. In some years such juice specially of orange and lemon had to be discarded in appreciable quantity due to deterioration resulting from long storage. This obviously had an adverse effect on cost-efficiency of concerned fruit-products which might have been avoided had these products been offered for sale in open markets. During the 5 years 71-72, the extent of such loss through deterioration of juices was : Orange Juice—5u7 kg.. Lemon Juice—117 kg. and Pineapple Juice—2 kg.. In terms of quantity of fruits these are approximately equivalent to a loss of about 1420 kg. of orange, 380 kg. of Lemon and 7 kg. of Pine apple.

Jelly :

5.15 Three varieties of Jelly (in bottle/jar containing 454 gins) have so far been prepared of which Plum Jelly has been a new venture in '71-72. While production of Guava Jelly continued uninterrupted every year since 67-68, that of pears had to be discontinued in '71-72 because of accumulated stock. The overall production of all varieties of Jelly in any year taken together recorded 1097 No. of bottles/jars as highest in 1969-70 and 263 Nos. as lowest in 1971-72. In this context Guava Jelly predominated with its production ranging between 100% in 1967 6S with only 273 bottles/jars, and lowest i e. 64% in 1969-70 though with a production of 700 bottles which however was the highest for any such production in a year when considered individually. The low production of Jellies in comparison to Squash is obviously due to less demand, The Plum Jelly has been introduced only in 1971-72 with a unit cautious small production of 84 bottles/jars. Its entire sale during the year is an encouraging feature for undertaking enhanced production in future years.

5.16 During the 5 years ending '71-72 production of Guava Jelly totaled 1880 number of bottles/jars, Pears 823 numbers and Plum 84 numbers. The balance stock 'cumulative) of each such product as revealed in col. 7 of page 31 at the end of 1971-72 is 2% for Guava and Nil for Plum while for pears Jelly it was appreciable viz 21% due to less demand.

Jam:

5.17 So far three varieties of Jam have been prepared viz Pine apple, Mixed fruit (Pine-apple & Pears) and plum—the last-one being a new introduction in 1971-72. Due to less demand, the production of these was marked with caution. During the 5 years viz 1967-68 to 1971-72, the overall production of all

Name of fruit (with weight in Kg indicated in bracket)	Value of fruit (Rs.)	Production of squashes				Production of Jelly			Production of Jam			Total Value of all fruit products produced from the fruit (Cols. 6+9+12) (Rs.)	Co-relation between fruit and its products taken together in terms of unit value of fruit .
		Total sale squashes (Rs.)	Value of unsold squashes (Rs.)	Value of unutilised juice in term of money – value of equivalent fruit (Rs.)	Total value of production (cols. 3+4+5) (Rs.)	Total sale	Value of unsold stocks (Rs.)	Total value of production (Cols. 7+8) (Rs.)	Total sale	Value of unsold stocks (Rs.)	Total Value of production (Cols. 10+11)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Orange (20,544 Kg)	8985	64,650	1,896	1,488	68,034	-	-	-	-	-	-	68,034	1:7.57
Lemon (1,440 Kg)	833	2,242	198	175	2,615	-	-	-	-	-	-	2,615	1:3.13
Guava (932 Kg)	299	-	-	-	-	4,411	168	4,579	-	-	-	4,579	1:15.31
Plum (65 Kg)	42	-	-	-	-	252	Nil	252	105	Nil	105	357	1:8.50
Pine-apple (1364 kg)	736	2,787	291	Nil (no stock left)	3,078	-	-	-	264	30	294	3,372+1525	1:4.60
Pears (419 Kg)	172	-	-	-	-	1,625	432	2,057	-	-	-	-2,057+10	1:12.01

It is needless to state that if all the extracted Juice of a fruit could be fully utilized in the manufacture of the Squash, direct co-relation might have possible by eliminating a semi-finished product like Juice in the assessment.

the 3 varieties taken together numbered only 155 bottles/jars each containing 454 gms. in Net weight similar to Jelly products. Of the 3 varieties, Mixed Fruit Jam failed to attract customers. Introduced in

'69-70 with a production of only 10 bottles/Jars, its sale upto 1971-72 did not exceed 4 and as such its production was discontinued. Pineapple Jam was marked with an overall production of 110 bottles/jars during the aforesaid 5 years. Regarding Plum Jam produced only in '71-72, its entire sale viz 35 Bottles/Jars augurs well for a hopeful future demand

5.18 Regarding Squashes, Jellys and Jams it is to be noted that the respective data on other disposal and loss" as indicated in col. 6 on page 30, 31 and 32 means presentation of the fruit products to important persons for publicity, loss by breakage and through quality deterioration Taking into consideration the overall production of each item of fruit-products during the 5 years (67-68 to 71-72), such disposal and loss may be regarded as very small being 2% for Guava Jelly, 0.5% for Pears Jelly, 0 4% for Orange Squash. For other 2 Squashes such percentage was negligible while for Plum Jelly, Pine apple and Plum Jams it was Nil. In the case of Mixed Fruit Jam with an insignificant production of only 10 Bottles/Jars the loss of 4 Bottles/Jars through quality-deterioration in the very year of manufacture is however a pointer to the manufacturing defect or lacuna.

Co relation between Fruit and its different Fruit products (in terms of value):

5.19 In the context of economics of production, it will be of interest to have an idea on the above co-relation. For this the fruit-wise entire production during the period 67-68 to 71-72 (5 years) have been visualised as the following will reveal. It is to be noted in this connection that for Squashes the semi-finished product viz Juice that could not be fully utilised in the manufacture of Squash for want of necessary demand of the product had to remain in stock for future utilisation. The value of this semi-finished product viz Juice has been worked-out in terms of money value of equivalent fruit for a proper assessment of the value of production.

5.20 By a reference to the aforesaid table, it is interesting to note that fruits predominantly or wholly used for Jam/Jelly products had higher returns in production-value than fruits used as for Squash products. What is equally interesting is the coincidence that the lower the average rate is for procurement of the fruits over the year?, the higher is the return production value in the aforesaid 2. sectors of products. The following is revealing in this context: -

Sector of products	Fruits	No. of time in production-value vide col.14 of aforesaid table	Average rate at which the fruits was procured by weight in Kg
1	2	3	4
Jam/Jelly	Guava	15.3	Rs.0.33
“	Pears	12.0	Rs.0.41
“	Plum	8.5	Rs.0.65
Squash (where the fruits is wholly or predominantly used)	Orange	7.8	Rs.0.44
	Pine-apple	4.6	Rs.0.54
	Lemon	3.1	Rs.0.58

(Pine-apple being used predominantly for Squash, its Jam production is not shown in Jam/Jelly sector separately in above but included in its data for Squash). Co-relation between Fruit, Juice and Squash during manufacture.

5.21 As Juice extracted from the fruit is finally processed into the finished product viz Squash, it is desirable to have a probe in their co-relation. The data collected so far in this connection reveals the following :-

Fruit	Total Qty. of fruit used (Kg)	Total Qty. of Juice obtained (Kg)	Total Qty. of Juice utilized (Kg)	Total Qty. of Squash obtained (in no. of bottle of 750 ml)	Fruit equivalent of 1 Kg. of Juice (Kg) (Col. 2 Col. 3)	Production in no of bottles (per Kg) of Juice (Co. 5/Col. 4)
1	2	3	4	5	6	7
Orange	20,544	7391	6470	25,658 Nos.	2.77	3.96 (Nos.)
Pineapple	596	169	351	955 ,,	3.52	2.72 (Nos.)
Lemon	1,440	435	329	1,030 ,,	3.31	3.12 (Nos.)

5.22 It is needless to state that Cols. 6 & 7 indicate the average figures over the years. Year wise data collected so far in this connection indicate that fruits behaved dissimilarly in different years in matter of Juice production. Such dissimilarity is also marked in the behaviour of juice towards preparation of Squash. Admittedly, such dissimilarity may stem from variables like variety of fruit, size, extent of maturity, freshness etc. Even then a wide divergence in the quantum of Juice produced per unit weight of fruit or the quantum of Squash production per unit weight of Juice is all the more undesirable in the context of cost-efficiency of production. Some instances may be cited on these. For 1 Kg. of orange Juice, the fruit equivalent was desirably as low as 2.4 Kg. of the fruit in '69-70 whereas in '66-67 it was as high as 3.5 Kg. In the case of lemon, such fruit equivalent was 2.4 Kg. of fruit in '67-68 but was highest in '68-69 viz at 3.8 Kg. of the fruit. For Pineapple again, the fruit equivalent for 1 Kg. of Juice was 2.4 Kg. of the fruit in '68-69 whereas in '70-71 it was as high as 3.6 Kg. of the fruit. Such wide fluctuation or behavioural dissimilarity of a fruit is only a pointer to the need for cautious selection of fruits at the time of procurement. Patronising and encouragement to local growers is desirable but should never be at the cost of factory's interest.

5.23 In the sphere of Squash production from Juice such wide fluctuations were also noticed in some cases. The production efficiency of each unit weight of juice (1 Kg.) in preparing the Squash (indicated in terms of No. of bottles of 750 ml) showed appreciable variations. In the case of orange such variation as per year-wise data collected indicated a desirably high production of 4.22 No. of bottles in '71-72, whereas in '67-68 it showed only 3.70 No. of bottles. For Lemon Squash, such variation ranged between the highest at 3.43 No. bottles in '67-68 to the lowest at 2.78 No. of bottles in '68-69. Widest fluctuation however was noticeable in Pine-apple Squash. Highest at 3.69 No. of bottles per Kg. of Juice in '68-69, the production-efficiency of Juice recorded a lowest at only 2.26 No. of bottles in '69-70. Regard being had to the large quantity of juice to be consumed during factory stage of bulk production, such wide divergence will entail production in-efficiency if not anything else.

Sale of products :

5.24 On page 33, annual sale of products itemwise has been indicated. Just preceding this, the quantum of production and sale, rate etc. have been indicated in respect of different fruit products yearwise, on pages 30,31 and 32. By a reference to page 33, it will appear that in the context of entire sale-receipts of all fruit products over the years viz '67-68, '71-72, the sale of Squashes ranges between 88.9 to 94.5%, of Jellies between 5.3 to 11% and of Jams insignificantly between 0.1 to 1%. This speaks of the predominant position of Squashes among which the sale of Orange Squash alone ranges between

82.0 to 87.5% over the said years. Needless to state the above sales are commensurate with the production of different fruit products discussions whereon appear on pages 35 to 36. Until the products are offered for sale in open markets, their respective position in terms of extent of acceptability and actual demand in such markets cannot be assessed. Nevertheless, with a view to having an idea of sale activities month wise in a year, the same for the last 2 years viz 1970—71 and 1971-72 is furnished as under : -

Month	Year		Month	Year	
	1970 (Rs.)	1971 (Rs.)		1970 (Rs.)	1971 (Rs.)
			October	1712.00	620.00
April	4112.50	1208.00	November	716.00	461.50
May	2970.00	2551.00	December	240.50	NIL
June	2470.00	2347.50	January	635.00	1900.50
July	NIL	3097.00	February	1551.00	963.50
August	2285	1427.00	March	1803.00	3178.00
September	2658.50	1353.00			

5.25 It would appear from the above that in May and June of both the years, the sale activities showed no wide divergence thus displaying more or less some similarity regarding extent of sale. The remaining ten months are noted with wide divergence of sale activities between the 2 years. Nevertheless for the year 1970 five months viz April to June, August and September show better sale than other months of the year, while for 1971 March and May to July reveal better sale than other months. Thus except the 2 Months of May and June no definite conclusion on trend of sale can be arrived at.

Rate fixed for sale of different products :

5.26 The rate fixed for sale of different products in different years was not based on costing nor any particular norm had been followed in this regard. The rate was fixed more on practical consideration of limitation under production-door-sale of products than on anything else. As already stated in para 5.2 of Chapter V (On page. 26), the high establishment cost and resources envisaged for a bulk production under Factory Stage of working having been thrust on a handmade small scale production (which for lack of urge and necessary planning failed to make any further headway in production than at present), any actual costing under the existing phase would have made the rate prohibitive. Rate at which different products were offered for sale in different years has been indicated in Col. 4 under different items of products on pages 30, 31 and 32. Although with the increase in price of raw-materials, the rate of the products (except Pears Jelly) had been increased to some extent, such increase was done cautiously keeping in view that the sale of the products remain unaffected.

Final aspects (Receipt and expenditure) : Receipt (income) :

5.27 To come over now the economics of the factory, it needs no further mention that the economics visualised under the factory stage of bulk production cannot be expected to come for display under the present small scale handmade production, more so, when men and resources meant for a bulk production continue to remain underutilised. All these have been discussed in detail earlier. The receipt (income) as will be evident from the data furnished on next page almost wholly come from sale of finished products. The sale of Orange seeds at Rs. 60/- took place only once in '68-69 due to departmental demand which ceased thereafter. The sale of fruits from factory's orchard at Rs. 13/- was only once in '67-68 as subsequent harvest, however small, were utilised for preparing fruit products. The feasibility of utilising some vacant area for the purpose of Nursery in the matter of raising of improved varieties of Suckers, Expenditures of Changki Valley (Longnak) Fruit preservation & Canning factory (in Rs.)

Capital (non-recurring):	1963-64 1	1964-65 2	1965-66 3	1966-67 4	1967-68 5	1968-69 6	1969-70 7	1970-71 8	1971-72 9	Total of all Cols. 10
1. Land	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
2. building Constructed by P.W.D.	-	-	79,100	18,012	41,561	8,615	1,52,520	1,23,544	35,803	4,59,155 (76.4)
3. Building (Departmental Purchase)	-	-	-	-	-	-	-	-	-	1,000 (0.2)
4. Other developmental expenditures (fencing, reclamation, etc.)	-	1,440	2,706	-	--	-	-	-	-	4,146 (0.7)
5. Plant, machineries, tools etc.	-	44,661	25,703	19,154	20,219	-	-	-	-	1,09,737 (18.3)
6. Purchase of Motor Vehicle & accessories	25305	-	-	-	-	-	-	-	-	25,305 (4.2)
7. Other non recurring expenditures (Furniture, fittings, etc.)	490	500	-	-	-	-	-	-	-	990 (0.2)
Total (Non-Recurring):-	25,795	46,601	1,07,509	37,166	61,780	8,615	1,52,520	1,23,544	36,803	6,00.333

Current (recurring):										
8. Annual establishment (Pay & allowances, T.A, etc.)	4,457 (100)	8,045 (67)	27,685 (71)	28,587 (62.3)	35,141 (68.3)	46,145 (76)	40,375 (70)	51,385 (68.1)	47,280 (65.3)	2,89,100 (69)
9. Expenditure on casual laborers for factory duty only	-	-	-	-	498 (1)	750 (1)	845 (1)	315 (0.4)	405 (0.6)	2,813 (0.7)
10. Expenditure on casual Laborers for duty in factory's orchard	-	-	-	1,941 (4.2)	1,311 (2.5)	1,248 (2)	1,339 (2)	1,684 (2.20)	1,080 (1.5)	8,603 (2)
11. Purchase of raw- materials (with inward charges)	-	2,466 (21)	-	7,506 (16.4)	11,178	8,934 (15)	9,712 (17)	12,210 (16.2)	17,989 (24.8)	69,995 (11.6)
12. Other changes (including stationeries, taxes, licenses, P.O.L., minor repairs of motor vehicle, electricity & water charges,	-	1,410 (12)	11,268 (29)	7,865 (17.1)	3,162 (6.2)	5,569 (10)	3,869 (6)	9,895 (13.1)	5,609 (7.8)	48,647 (11.6)

other agri. & horticultural inputs etc.) not specified earlier										
Total (recurring):-	4,457	11,921	38,953	45,899	51,290	62,646	56,140	75,489	72,363	4,19,158
Grand Total (recurring & non-recurring)	30,252	58,522	1,46,462	83,065	1,13,070	71,261	2,08,660	1,99,033	1,09,166	10,19,491

NB (1) In cols. 1 to 9 figures within brack '()' indicate percentage of the total annual current (recurring) expenditure,

(2) In cols. 10 figures within '()' indicated percentage of the total expenditure shown under their respective heads of 'capital' and 'current'.

budded and grafted fruit plants and subsequent distribution thereof to local fruit growers might have been examined in the interest of receiving supply for the factory. However, the annual receipt (income) which was forthcoming since '67-68 is shown alongwith expenditure as follows :

(Receipt (income) Source F.T.O.'s records):

	67-68 (Rs.)	68-69 (Rs.)	69-70 (Rs.)	70-71 (Rs.)	71-72 (Rs.)	Total (Rs.)
i. Sale of Fruit products	8836.50	10439.50	16809.50	21154	19107	76,346.50
ii. Sale of orchad's fruits	13.00	-	-	-	-	13.00
iii. Sale of Orange seeds	-	60.00	-	-	-	60.00
Total :-	8849.50	10499.50	16809.50	21154	19107	76413.00

Expenditure:

5.28 By a reference to items under capital expenditure on page 41, it will be evident that out of a total expenditure of Rs. 6,00,333 upto '71-72, buildings (both constructed & purchased) accounted for 76.6%. Plant & machineries etc. coming next at 18.3%, purchase of Motor Vehicle at 4.2% while others showed negligible percentage. No expenditure was incurred against land pending settlement with land owners. It appears however that .for 1972-73 the proposed expenditure of Rs. 12,303/- against the total compensation over land awaits sanction.

5.29 Regarding items under annual current expenditures '(recurring), that under annual establishment (pay & allowances etc) between the years '63-64 to 66 67 (when production of finished fruit products was not undertaken) ranged between 62.3%' (Rs..28,587) in '66-67 to 100% (Rs. 4, 457) in '63-64 Over the years of actual production of finished products i.e. '67-78 to 71. 72, such expenditure ranged between 65.3% (Rs. 47.280) in 71.72 to 76%-(Rs. 46,145) in '68-69. The item under raw-materials which may be regarded as 2nd in order ranged between 15% (Rs. 8934) in'68^69 to 24.8% (Rs. 17,989) in '71.72. The item coming next is 'other charges' which ranged between 6% (Rs. 3869) in 68 69 to 29% (Rs. 11,268) in '65-66. In this item P.O.L. & repair of Motor vehicle covers major portion of the expenditure. Casual labourers employed for'factory-work cover negligible expenditure. Expenditure however over such workers on Factory's orchard cannot be justified when service of Factory's regular

workers remained under-utilised in absence of sufficient factory-work. Moreover such expenditure proved to be of little benefit to the orchard infested with wild growth of stubborn weeds which affect the growth and yields of planted trees and suckers. These aspects about the orchard have already been discussed earlier in para 4.40 and 4.41 on pages 25. However, on an overall view of itemwise recurring total expenditure of Rs. 4,19,158 covering all items (recurring), the annual establishment specified above accounts for 69%, raw-materials for 16.7%, other charges for 11.6%, and casual labourers (factory and orchard) for only 2.7%.

Cost: output ratio:

5.30 Notwithstanding the fact that the present small scale hand made production is a creation of circumstances wherein the services of men and resources meant for bulk production remained underutilised over the years it is desirable to have an appraisal re : the cost : output ratio. It is to be noted in this connection that although named as a factory, the enterprise has not attained any commercial or quasi-commercial status though Government's declaration as such. Because of this, the general norms observed by commercial institutions in matter of accounting procedures are not strictly adhered to. Due to this, interest on capital, depreciation etc. have been left out of contemplation so far by the Department and as such no data thereon are available. As a matter of fact, although not formally programmed as a Pilot Scheme or Project, the enterprise is being run more or less in line with a Pilot Scheme as distinct from a commercial venture with basic idea of rendering relief to fruit growers by way of purchase of their harvest at reasonable price and running the factory with such supply. In the context of the aforesaid factors, only the annual recurring cost is taken into consideration. While assessing the value of output i.e. the finished products, it appeared that different rates governed the sale of the same product in a year as may be obvious by a reference to Col. 4 under different items of fruit products on pages 30, 31 & 32. This it appears was due to administrative delay in receiving the approval of the revised rate of different products at Factory end. In absence of readily available data, the mean of the rates has been taken into consideration while assessing the value of output. Nevertheless, the cost : output ratio yearwise since the year of production i.e. '67-68 upto '71-72 is furnished below :-

Year (1)	Cost (2)	Output (3)	Ratio in terms of unit cost (4)
	Rs.	Rs.	
1967-68	51,290	11,269	1 : 0.21
1968-69	60,946	9,506	1 : 0.15
1969-70	57,804	19,112	1 : 0.33
1970-71	75,489	18,910	1 : 0.25
1971-72	72,363	18,844	1 : 0.26
Total -Average	3,17,892	77,641	1 : 0.24
	63,578	15,528	1 : 0.24

5.30 A perusal of the data indicating the cost : output ratio in Col 4 will reveal that output, however small, was highest per unit cost in '69-70. As a matter of fact expenditure on annual establishment being of a committed nature the limitation brought about in a production-door-sale could not give the necessary urge for augmented production commensurate with an increase in expenditure. In the above context the output could not move proportionally and pari passu with the cost (recurring) as the data would reveal.

Records (Documentation) :

5.31 The production Register and different Stock Books of both consumable and non-consumable articles as also of finished products are the important records maintained the besides usual registers like Receipt Book Register, Attendance Register, Stationery register, etc, etc. The importance however of preparing and maintaining periodical consolidated statements in details regarding different items of

production, raw-materials, receipts and expenditures, labour-days, etc., etc. does not seem to have been felt either at the Factory level or at the level of the Directorate. Because of this, no administrative scrutiny and check could be possible in the matter of production-efficiency, e.g. product-based consumption itemwise of raw-materials, expenditure on raw materials, Quantum of production and sale thereof itemwise with sale-proceeds, number of labour-days separately under Regular and Casual workers, for production work in factory and on duties other than for production in the factory etc., etc. It is needless to state that non-maintenance of such records

Is apt to keep both the factory and administrative officials of the Directorate unaware of the economics in the matter of production and of sale-position as well. It is desirable that proforma for such statements should be suitably structured at the Directorate level with necessary instruction to the officer-in-charge of the factory for regular "submission thereof to the Directorate.

Inspection and visits :

5.32 There had been visits in the factory by the Director of Agriculture and other officials every year but no inspection. Unless associated with or followed by an inspection note, such visits become mostly in-effective in the matter of improving matters. The Inspection book as is maintained in the factory has served no purpose hitherto.

Audit:

5.33 Audit— both internal and external has been done from the very beginning upto '71-72. Such audits however remained confined to the scrutiny over drawals and deposits of amounts from and to the Treasury respectively vis a-vis cash book, Bill Register, etc., Detailed and a thorough audit at least by Directorate level should be undertaken periodically to obviate possible omission and commission. This also will help in focussing attention to several aspects both economical and administrative in regard to running of the factory.

CHAPTER VI

Important findings and suggestions : Horticultural survey:

6.1 In view of immense potentialities of horticultural development in the State, it is desirable to undertake an intensive villagewise survey in different, important areas of the State. The Director of Agriculture with the assistance of Horticultural Officer may sponsor, formulate, control and guide such survey with the full co-operation and active participation of Block agency. If necessary, services of relevant Block personal may be requisitioned temporarily for the purpose of such survey. At the district levels the District Agricultural Officers will remain in overall charge of such survey to be assisted by S. D. A. O's at Sub-divisional levels and A.E.O's at Block level. The V.L.Ws obviously will be the most important functionaries for such field survey as Agriculture Directorate lacks adequate strength of field staff at lower level. The main objective of such survey will be to determine :

- (i) the extent of horticultural plantation in each village (khelwise where relevant) under different species of fruit trees both local and improved varieties to be recorded separately,
- (ii) the extent of scope for extension or introduction of horticulture by way of bringing suitable and unutilised land under different species of fruit trees suiting the soil, climate and altitude of the village,
- (iii) the age of existing fruit trees including those newly planted, their individual characteristics specieswise for both local and improved varieties and specially regarding time taken for attainment of maturity after plantation, period (years) covering economic fruit-bearing, size, quality, annual quantum of yields, month or months of harvest in the year, extent of susceptibility to attack of pest and diseases (to be specified) if any alongwith time for such attack as also other notable details if any
- (iv) the extent of need for rejuvenation, replacement etc. of old decaying or non-bearing trees with suggestion if any for introduction of new suitable species,
- (v) the extent of marketable surplus of different fruits and facility for market-ting, nature of existing communication facilities if any with important centres for disposal of fruits, their distances from places

of harvest, nature of buyers, rate at which sold and whether at reasonable price, extent of annual wastage for want of buyers etc.,

(vi) the extent and nature of Governmental measures and assistances for promotion of horticulture specifying the sources of such assistances (e.g. Block, Department, etc.,) role of co-operatives if any, etc., etc.

(vii) other important aspects not specified above.

6.2 It is needless to state that such a survey of which only a brief outline has been indicated above will be time-consuming but is worth undertaking. Such a survey besides furnishing details on various aspects of horticulture will make available a reliable data on which the future planning may be based in response to socio-economic needs and priorities associated with them.

Horticultural Programmes :

6.3 The schemes under horticulture as devised and now under execution are timely and useful. There is however a dearth of some key technical personal who could not be recruited till now in absence of offer by suitable candidates. The State Horticulturist, and Research Officer for the Pfitsero Horticultural Research Farm may be mentioned in this connection. The research work in the said farm is suffering for want of the said officer. The farm was due to be taken over by I.C. A R. in 1969-70 but till now nothing as such has happened. On an overall view the schemes under Horticulture suffer from a number of limitations in the way of having the desired impact. Adequate follow-up measures specially on Horticultural Development scheme relating to subsidy and citrus rejuvenation were lacking. The Block agency may be geared for this role who may be asked to submit reports regularly after field checking of individual cases. All these however will depend on effective co-ordination between the departments of Agriculture and CD. which however is not marked to the desired extent and as such needs betterment. Another point to stress upon is the necessity of adequate field supervision at State level of the horticultural schemes under execution. The Horticultural Officer who is the only State Level Officer is assigned fewer tours in a year and as such devotes major time on table work at Hqrs. Because of this, he often remains unaware regarding the current trend of field progress pending receipt of field reports and returns which, not un often, arrive after considerable time lag. All these as aforesaid should receive due consideration by the authorities. Furthermore and as stated in earlier chapter, a sufficient number of improved Pine-apple Suckers and other grafts and budded fruit plants should be distributed early in line with a crash programme in and around Changki Valley for prospective supply of quality fruits to the Factory.

Factory Building :

6.4 Following alignment of some portion of land out of the original site of factory for construction of the road by Border Organisation, there had been considerable delay by the Department in coming to a decision over site for the Factory. Even then, when the site was finally handed over by the Department to the P.W.D. in January 1970 the construction of factory building was not taken up in right earnest by the P.W.D. Furthermore, the constructional phase was marked With pauses of considerable period and took an inordinately long time like 2 years for completion. This could not happen if effective co-ordination between the department s had been fostered.

Staff recruitment :

6.5 In absence of factory building and other infrastructure like road, electricity and water-supply, the recruitment of staff and specially the Packer cum-workers, Driver and handyman and of U. D. A. was too early in the context of scope for proper utilisation of their services. This involved unnecessary expenditure over the years of appreciable amounts through non-utilisation of their services in the beginning followed by under-utilisation during the current phase of small scale handmade production. The recruitment of Packer-cum-workers might have awaited commissioning of the Factory (for bulk production) of which the gestation period still continues. The present hand made production, if at all,

might have been undertaken with the help of casual labourer employed seasonally out of whom some might have been selected as regular staff to post of Packer-cum-workers. The same holds good for Driver and handyman in the present context of extremely meagre work-load.

Transport:

6.6 The purchase of a Transport vehicle (pick-up) in 1963-64 in absence of any semblance of infrastructure for commissioning of the Factory (stated in para 6 5) from Factory's budget does not seem to have been judicious in the context of its need for Factory's services obtaining then. Even during the current phase of handmade production, its services mainly needed for transport of fruits and fruit products, and occasionally for other raw-materials could have fewer scope for utilisation. The original vehicle (pick-up; and the present vehicle pending the driver's handover to F.T.O. at Longnak in December 1967, had been used for non factory duties of the Directorate, but all expenses including repair had been made from factory's budget. Even now though remaining mostly underutilised regarding factory duty, the vehicle is used at times by the Directorate at Factory's expenses of P.O.L. The permissibility of above expenditures on the vehicle from Factory's budget over non factory duties is open to question, decision whereon rests on Government. In any event, the fact that such expenditure ultimately reflects on cost efficiency of the products hardly needs emphasis.

6.7 The worn out condition of the existing 1 Ton vehicle needs its early replacement to avoid high running cost and frequent repairs, The F. T. O at present uses the said vehicle during tours. This is uneconomic. When factory is commissioned, such tours will assume greater dimension for frequent contacts with different sources of fruit-supply and sale-agencies as well, for disposal of fruit products. The provision of a jeep needs early consideration in this context. A trailer to the jeep if provided will be economic for carrying at times only small consignment of raw-materials including fruits as and when necessary.

Communications:

6.8 In the interest of adequate fruit-supply to the Factory for bulk production, motorable linkage with important fruit growing areas should be established. The construction of Baghty-Longnak Road measuring about 45 Km has been recently taken up by P. W. D. The administration may contact proper authorities to accelerate the work of construction. Needless to state that Baghty being very important among prospective sources of fruit supply, the desirability of having an early all-weather road linkage with Baghty needs no emphasis.

Raw-material for fruit-products:

6.9 The raw-materials comprise of fruits, sugar and chemicals. To bring about economic viability of the Factory through bulk production of diversified fruit-products, abundant supply of fruits at reasonable price will be needed. In case supply from areas is Changki Valley is inadequate or is offered at high price, there should be no hesitation in having supply from alternative sources within the State or outside (Assam) if necessary. It may be noted that supply permitting, the Factory may be required to run in more than one shift for the sake of economic viability.

6.10 Next to fruit, the importance of Sugar to be used in large quantity cannot be overstated. For economic production in the face of competitive markets, sugar should be procured always controlled or at reasonable price. Chemicals because of their use in small quantity are now procured from Gauhati. As appreciable quantity will be required during bulk production, it is desirable to procure them in bulk at cheaper prices from Calcutta or elsewhere.

Label and Containers :

6.11 The matter concerning lab- I has been finalised and its printed materials have already been procured lately. About glass containers, not much progress seems to have been made. Order for bulk quantity of glass containers in accordance with the desired designs should be placed early with

manufacturers. Following completion of the border road in 1969 had both label and glass containers been procured in bulk, the present products bearing the label in the designed containers might have been offered for sale in outside markets instead of at the production door. With the facility of such sale in outside markets, the production under the existing phase handmade production might have been augmented to a large extent through greater demand and the recurring annual loss could have been brought down to a considerable extent. Regarding Tin containers, the minimum to be required at the initial stage of bulk production should be procured in time on the strength of the quota as already obtained from Government of India.

Factory's orchard :

6.12 At the initiative of F. T. O. about 6 acres of land have been set apart to serve as Factory's orchard. Only a portion of it has been utilised through planting of pine-apple suckers and other fruit trees all of which are of local varieties and were procured free of cost. Ironical though it may sound, there is no improved variety of fruit plants in such orchard although every year a large number of improved varieties of fruit plants are distributed to growers by the Directorate. The nonutilisation of remaining space of the orchard has been obviously due to lack of urge. The underutilised Packer-cum-workers might have been judiciously employed in the orchard to eliminate as far as possible expenditures on casual labourers. The annual return from the orchard so far in terms of value of harvested fruits is extremely low in comparison to the expenditure on casual labourers. The presence of stubborn weeds was reported to have been affecting the growth of plants and yields too. Such weeds unless eliminated through adoption of modern technique will render the orchard useless. The use of some suitable urea within the orchard for purposes of Nursery and Transit Nursery may be considered by the Directorate to facilitate distribution of improved fruit plants to local growers. In any event, unless the orchard ultimately proves to be of economic benefit, its maintenance will be a drag on Factory's budget.

Boiler-installation :

6.13 Unusual delay is noted in appointing the contractor-firm technically qualified to undertake such installation. This has further added to the delay in commissioning of the Factory which is overdue. The Department may consider or early steps to overcome the bottlenecks in regard to appointment of such a firm.

Water-supply :

6.14 Although scheme for water-supply has been finalised and expenditure thereof sanctioned, the contractor appointed for execution has been reportedly taking a long time for its execution.

Plant and machineries, tools and equipments

6.15 Out of a total expenditure under 'capital' head of Rs. 6,00,333 over the years (upto'71—72), the expenditure on Plant, machineries etc, was Rs. 1,09,727 which works out to 18.3%. The first purchase of these amounting to Rs. 44, 661/- done in '64-65 and last one in 67-68 of Rs. 20,219/-. Such purchases were too early when there was no prospect of early commissioning of the Factory in absence of Factory Building, road, electricity, water supply etc. Strictly from a commercial point of view, such unnecessary blocking of capital has resulted in a loss of interest on 'capital' over the years amounting to Rs. 38,600/- on a modest estimate. In absence of the commissioning of the Factory as yet, the extent of damage to such machineries through prolonged idleness cannot be ascertained notwithstanding care taken so far for their protection against damage by weather.

Production-sale-Market:

6.16 An enterprise like the one under study is noted generally by production of diversified products suiting different and sophisticated tastes of consumers. In absence of outlet of the products in open markets, demand of specific products according to their individual merits in the competitive markets

could not be assessed. In the present phase of handmade production, no canned products, prickles etc. have come out. The limited demand from consumer because of sale offered only at the production-door has brought in a limited varieties of products in limited quantum. Even under the existing phase, much could have been done through perspective planning and to say the least, through necessary urge which lacked.

6.17 The rise in sale of the present handmade products from Rs. 8837/- in 1967-68 to a maximum of Rs. 21,154/- in 1970-71 served as a pointer to their acceptability in a general way among the limited buyers at the production-door. This encouraging feature was not utilised by the way of taking adequate steps needed for remarketing the products in open markets both within and outside the State.

6.18 In absence of labels and containers of specific designs, the products could not be offered for sale in open markets. Bereft of any label and any standard well designed containers, the products had to be sold at the production-door. For quality products, marketability poses no problem whether within the State or outside provided these are offered at reasonable price. It is only in the open markets where demand of individual products serves as an index to their merits in terms of acceptability for their quality and reasonable price.

Financial aspects and economics :

6.19 The cost output ratio indicates that for each rupee spent under the head 'recurring', the value of production of finished products ranged between 21 paise to 33 paise over the years. The loss on interest on capital, depreciation etc. has not been taken into account for reasons explained in relevant portion of earlier Chapter. These if computed would have obviously revealed a gloomier picture. The crux of the whole problem of an annual recurring loss reveals itself in the stagnation of production-level from which only a sale of the products in the open market could provide the necessary relief. Such sale in open markets might have brought in an augmented production which invariably would tend to minimise underutilisation of services of man-power and resources as obtaining now. There was therefore the need for rethinking about the whole gamut of the stagnated production cum loss affairs which were allowed to drift in their usual way. There seemed to be no pragmatic approach to the continued loss. In other word the entire approach to the problem of recurring loss was dominated by a sense of complacency, a prolonged and futile expectation of early commissioning of the Factory.

Inspection & Audit :

6.20 Notwithstanding visits by departmental officials to the factory matters regarding early commissioning of the factory could not be expedited. It is desirable that such visits are associated with inspection of factory's working.

6.21 Audits whether external or internal were mainly confined to scrutiny of deposits, receipts and expenditures viz-a-viz the Treasury documents. A thorough checking of all relevant records should be undertaken periodically. This will help in revealing different aspects regarding working of the factory both economic and administrative and create urge for taking necessary steps for its betterment.

Documentation, Reports & Returns etc.

6.22 The present mode of documentation leaves much to be desired. Unless consolidated statements or returns on different aspects connected with Factory's working are prepared to show periodical position, no clear assessment regarding production efficiency and economics connected with Factory can be possible. It is desirable that the importance of all those as aforesaid is not overlooked.

Conclusion :

6.23 It has to be borne in mind that the enterprise is a maiden venture in the State. Laudable in its main objective of social justice, the Factory still in its gestation period awaits commissioning. Factors of constraints, lacuna and all such impediments have so far beset its pre-genesis stage. These undoubtedly are negative in character. The present phase of handmade small scale production, though only passing

one, is a creation of circumstances. Notwithstanding its temporary role, it has contributed no less towards enrichments of experiences even amidst shortfalls. The experiences so gained may be profitably utilised in running the Factory for bulk production when it is commissioned. However small in measure, the benefit accrued to the fruit growers even under a miniature production in the present phase, cannot be overlooked. It has served as a pointer to the great scope of serving the growers in a greater way during bulk production. What is more, the experiences derived together with the objective of the programme should act in combination to provide the necessary strength and stimulus in running the Factory when commissioned, towards accretion of economic viability. The present experiences should not lead to despair and despondency. It is difficult to see why the scheme should necessarily be uneconomic except in a narrow micro-economic sense. Problems are there, but promises there are too.

Chapter	1967	68	1967	68
(1)	1967	68	1967	68
Preface	-	1	Frouth	Fourth
	-	2	Industry	Industry
	-	-do-	,	,
Chapter- I	2	Foot note	Is	Are
	3	1.5	Tengible	Tangible
	-do-	-do-	62-3	62-63
	-do-	-do-	Horticultural	Horticultural
	4	1.10	Passed	Phased
	5	1.12	700	700
	-do-	Foot note	.....	To be deleted
	6	1.13 (table)	1.	1.24
	-do-	1.14	earnestness	Earnestness
Chapter- II	7	2.2	Along	Along
	9	2.5	Outweighed	Outweighed
	-do-	-do-	Ste	Site
	-do-	2.6	in ordination	Inordinate
Chapter- III	10	3.4	Ware	Were
	-do-	-do-	growers	Growers
Chapter- IV	13	4.8 (col. 8) Sl.2	31	30
	-do-	-do- Sl. 5	13	31
	14	4.9	F.T.C	F.T.O.
	15	4.13	Existence	Existence
	15	4.14	Distance	Distance
	-do-	-do-	A	At
	-do-	-do-	Through	Through
	16	4.16	Wetter	Water
	-do-	4.17	Compels	Compels
	-do-	4.19	Sub-divisional	Sub-divisional
	19	4.26	latter	Later
	20	4.28	1967-68	1967-68
	25	4.40	Addition	Addition
	-do-	-do-	Work lyad	Work-load
	-do-	4.41	Varieties	Verities
	-do-	5.8	Inductor/jar	In bottle/jar
	-do-	-do-	Position	Position
	32	-do-	(Rs. 3.33)	[rs.3.33]
	33	-do-	76,34650	76,346.50
	34	5.9	Marketing	Marketing
	-do-	5.11	71 72	71-72
	-do-	-do-	35/:	35%
	-do-	5.13	Reference	Reference
	-do-	-do-	(e)	(i)
	36	5.15	1967 68	1967-78
	-do-	5.17	Pr pared	Prepared
	-do-	-do-	1967 68	1967-68
	-do-	5.18	04%	0.4%
	-do-	-do-	Co relation	Correlation
	37	5.19 (col.3)	Total sale squash	Total sale of squash
	-do-	-do- (col.12)	Total	Total

Chapter	Page	Paragraph	Printing Mistake	Correct form
(1)	(2)	(3)	(4)	(5)
	38	5.21 (Col.7)	3.12 (Nos)	3.13 (nos)
	39	5.23	67 68	67-68
	-do-	-do-	370	3.70
	-do-	-do-	360	3.60
	-do-	5.24	Itemwise	Item-wise
	-do-	-do-	67 68	67-68
	-do-	-do-(1970)	2285	2285.50
	40	5.26	Envisaged	Envisaged
	-do-	-do-	Price	Prices
	-do-	5.27	Receipt	Receipt
	41	5.27(table)	Charges	Charges
	42	5.28	76.6%	76.6%
	42	5.28	Purchase	Purchase
	-do-	5.29	68 69	68-69
	-do-	-do-	Coves	Covers
	-do-	-do-	Factory	Factory
	-do-	-do-	-do-	-do-
	-do-	5.30	Baing	Being
	43	5.31	The besides	The besides
	-do-	-do-	Consolidated	Consolidated
	-do-	-do-	Possible	Possible
Chapter VI	44	6.1	Personal	Personal
	-do-	-do-	Marketing	Marketing
	-do-	-do-	For	For
	45	6.3	Personal	personal
	45	6.4	Border organization	Border Road Organization
	45	6.4	197	1970
	46	6.6	65	6.5
	46	6.6	Latter	Later
	46	6.6	Use or	Used for
	55	6.6	Factory	Factory
	46	6.7	Factory	Factory
	46	6.9	Require	Required
	47	6.12	Throgh	Through
	-do-	-do-	Trensit	Transit
	48	6.15	1,09,727	1.09,737
	-do-	6.17	1967 68	1967-68
	-do-	-do-	Marketing	Marketing
	-do-	6.18	Markettability	Marketability
	-do-	6.19	Between	Between
	-do-	-do-	Pears	Pears
	49	6.21	Viz-a viz	Vis-à-vis
	-do-	6.23	Benefit	benefit

